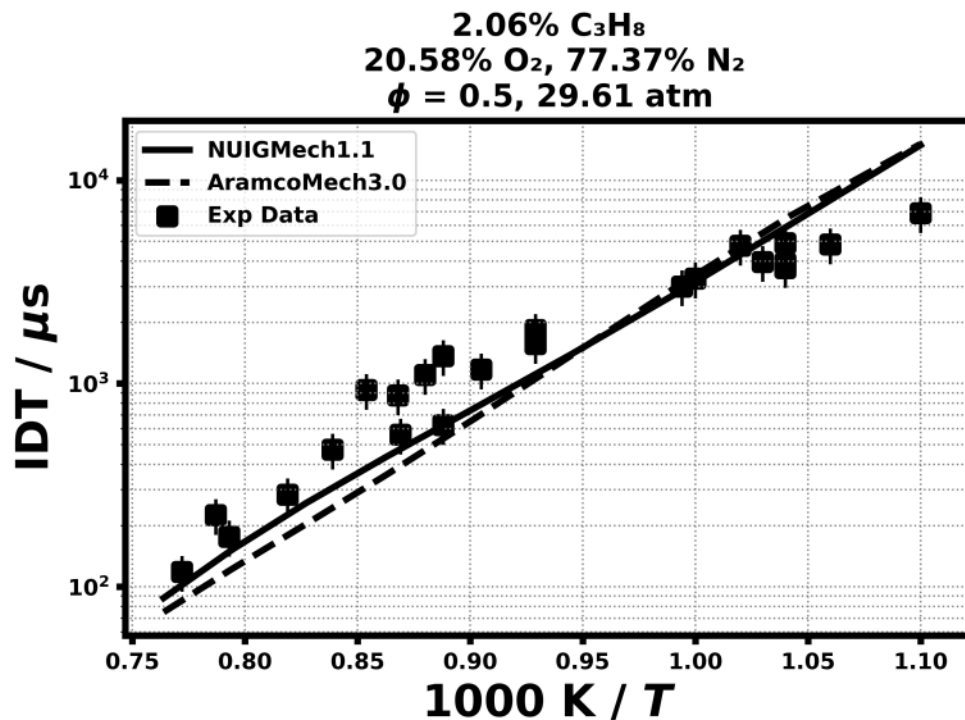


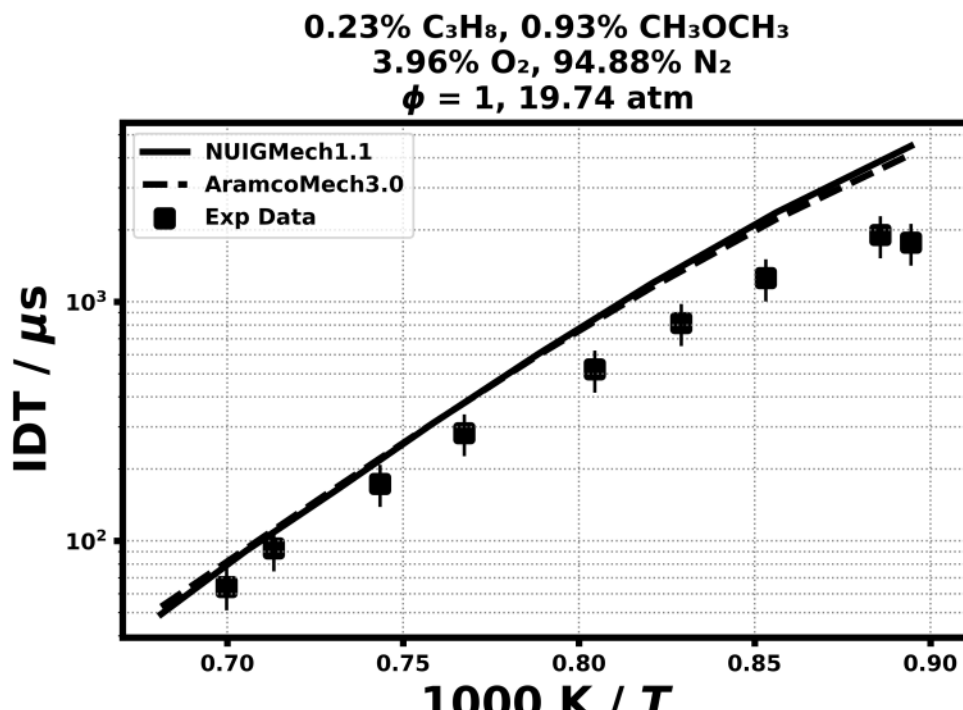
15. Validation for C₃H₈

Shock tube ignition delay time

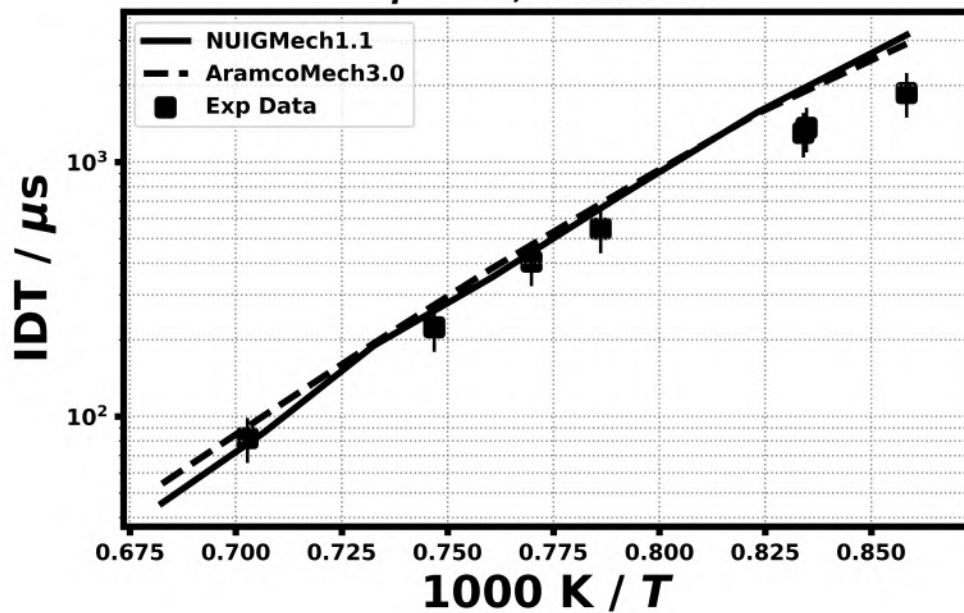
15.1) Herzler, J., Jerig, L., & Roth, P. Combustion science and technology, 176(10) (2004) 1627-1637.



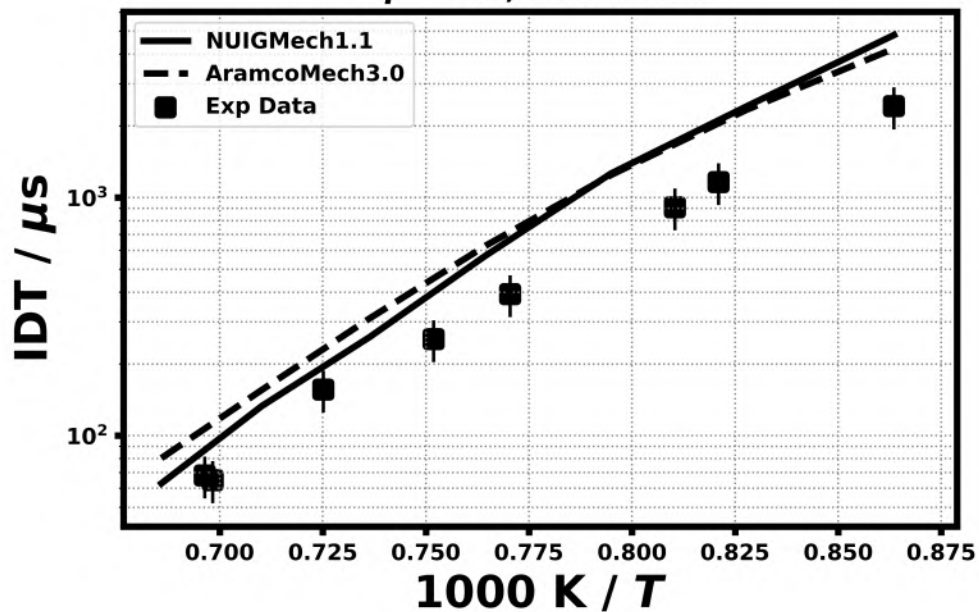
15.2) Hu, E., Zhang, Z., Pan, L., Zhang, J., & Huang, Z., Energy & fuels, 27(7), (2013) 4007-4013.



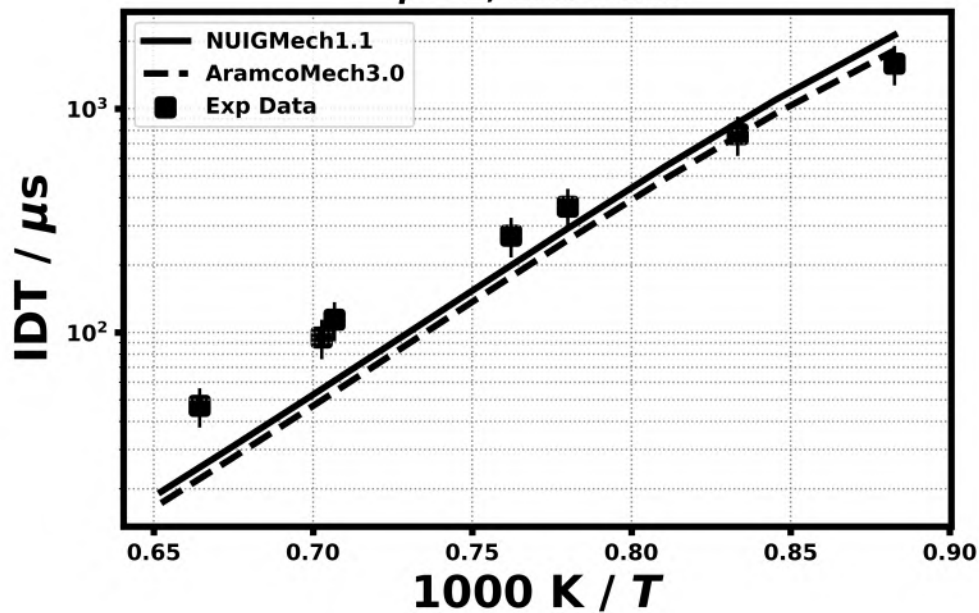
0.26% C₃H₈, 0.26% CH₃OCH₃
4.09% O₂, 95.4% N₂
 $\phi = 0.5$, 19.74 atm



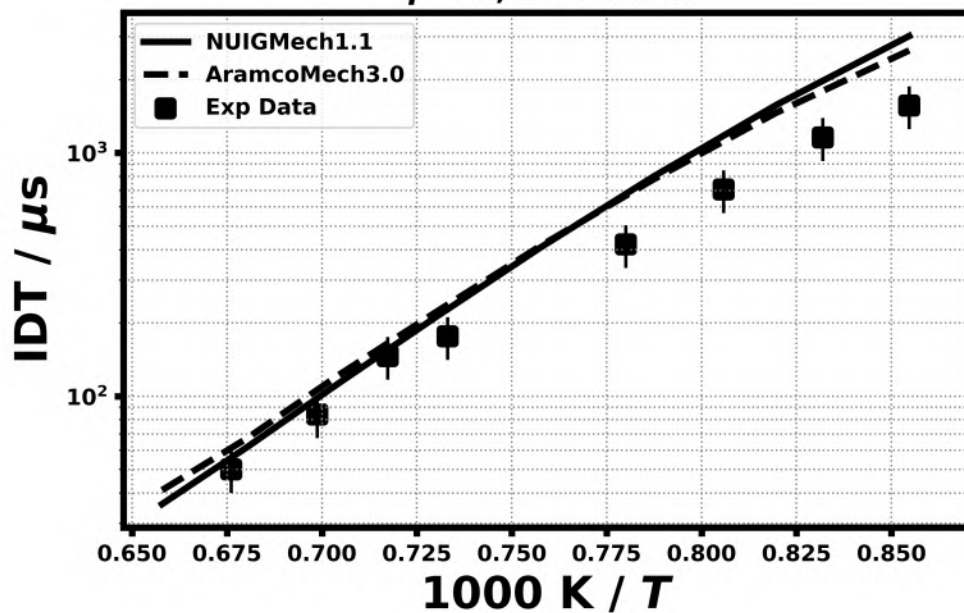
0.41% C₃H₈
4.11% O₂, 95.48% N₂
 $\phi = 0.5$, 19.74 atm



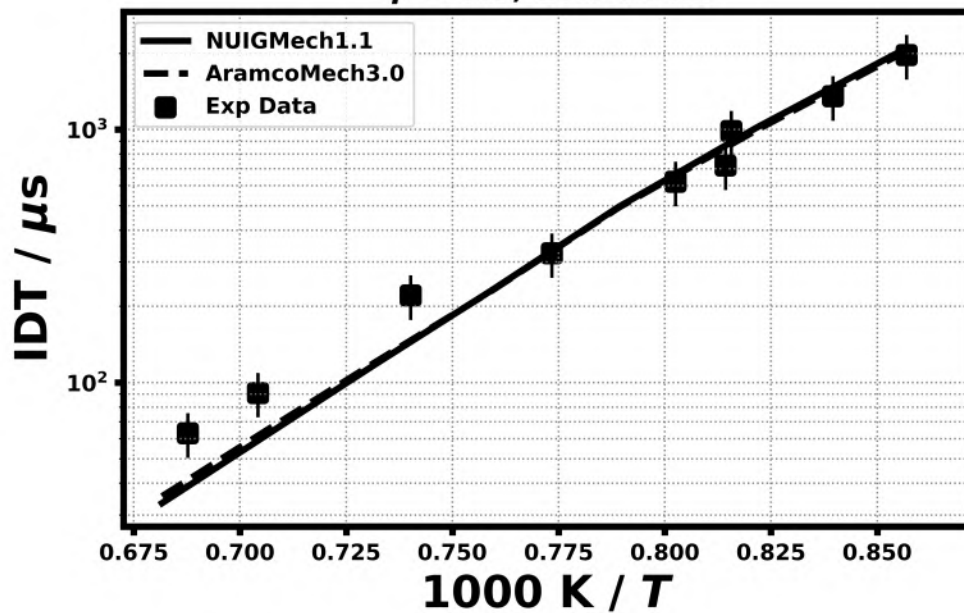
0.44% C₃H₈, 1.76% CH₃OCH₃
3.74% O₂, 94.06% N₂
 $\phi = 2$, 19.74 atm



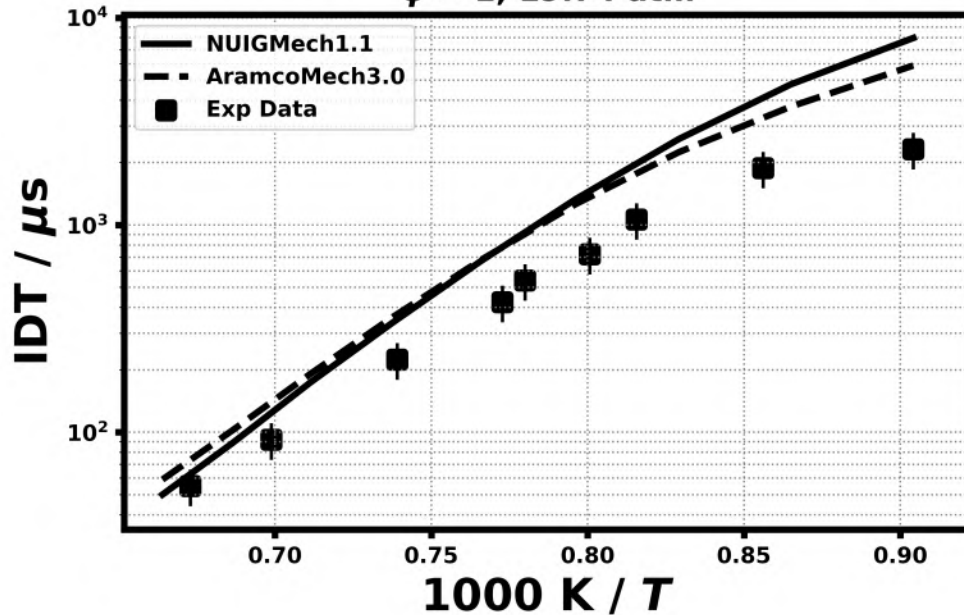
0.5% C₃H₈, 0.5% CH₃OCH₃
3.99% O₂, 95.01% N₂
 $\phi = 1$, 19.74 atm



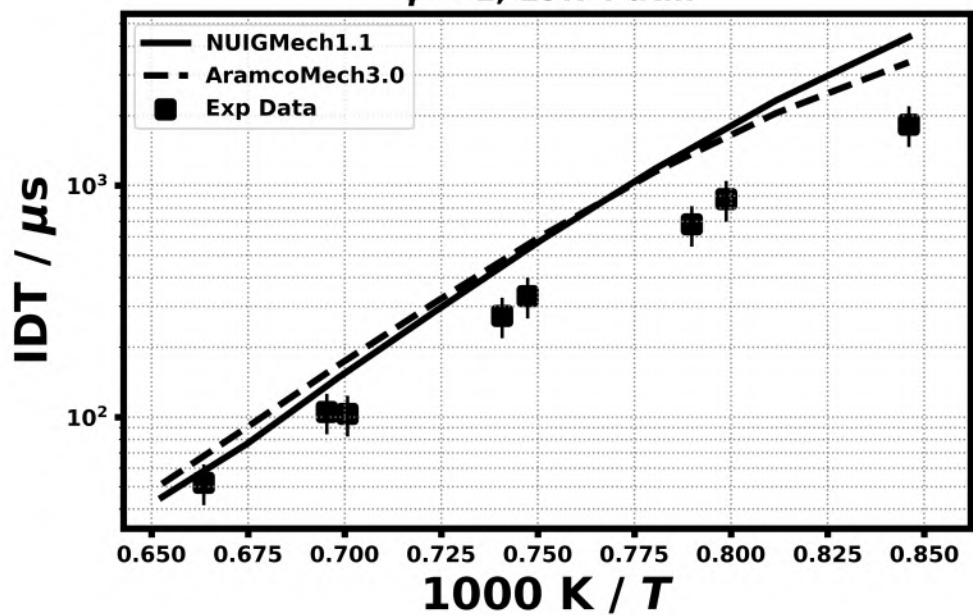
0.0% C₃H₈, 0.68% CH₃OCH₃
4.06% O₂, 95.27% N₂
 $\phi = 0.5$, 19.74 atm



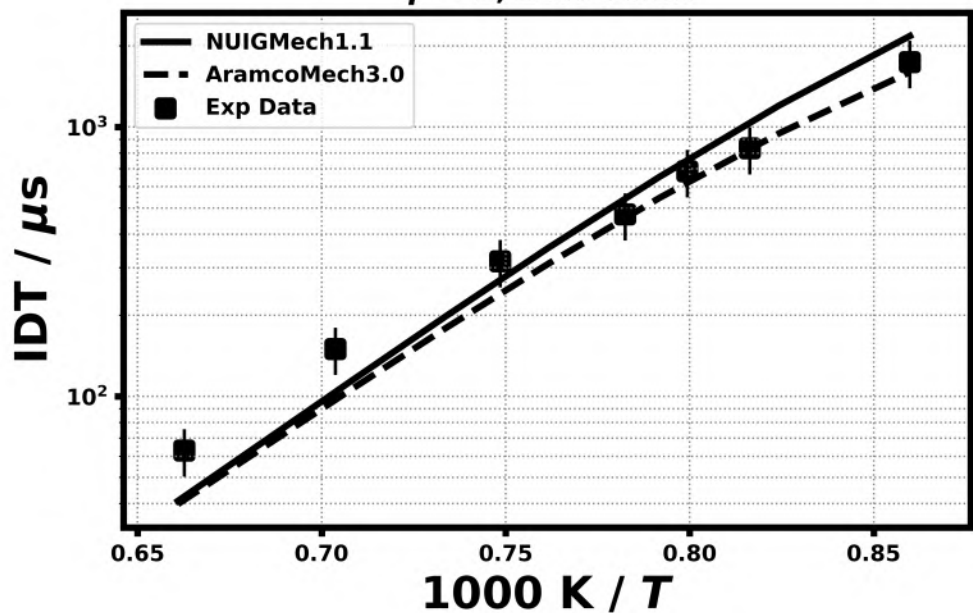
0.7% C₃H₈, 0.17% CH₃OCH₃
4.02% O₂, 95.11% N₂
 $\phi = 1$, 19.74 atm



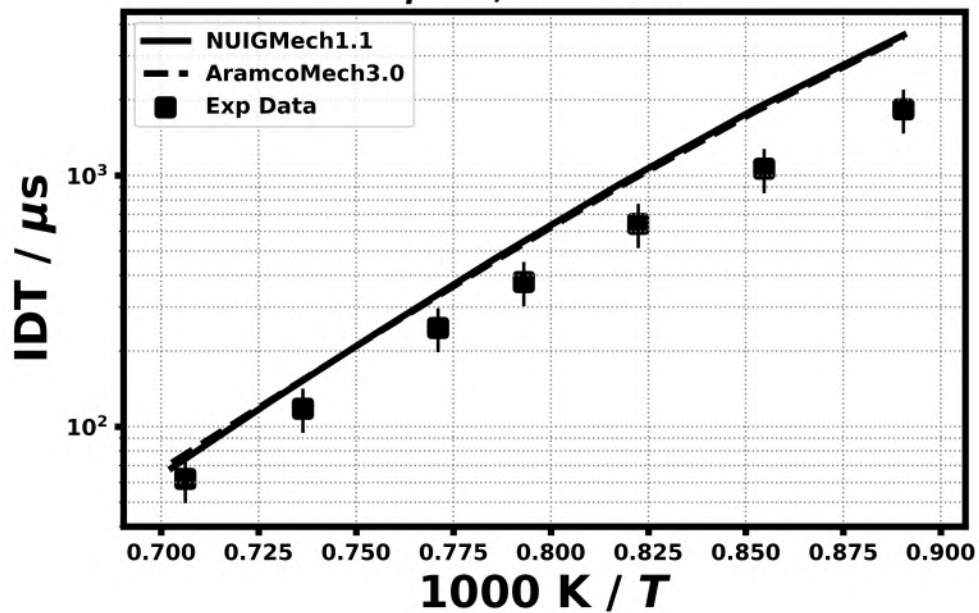
0.81% C₃H₈, 0.0% CH₃OCH₃
4.03% O₂, 95.16% N₂
 $\phi = 1$, 19.74 atm



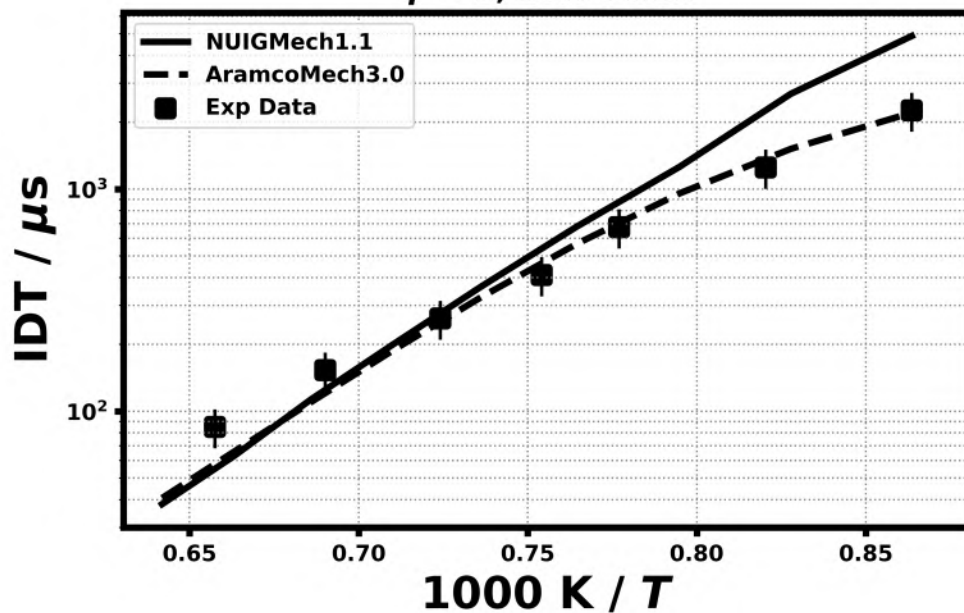
0.95% C₃H₈, 0.95% CH₃OCH₃
3.8% O₂, 94.3% N₂
 $\phi = 2$, 19.74 atm



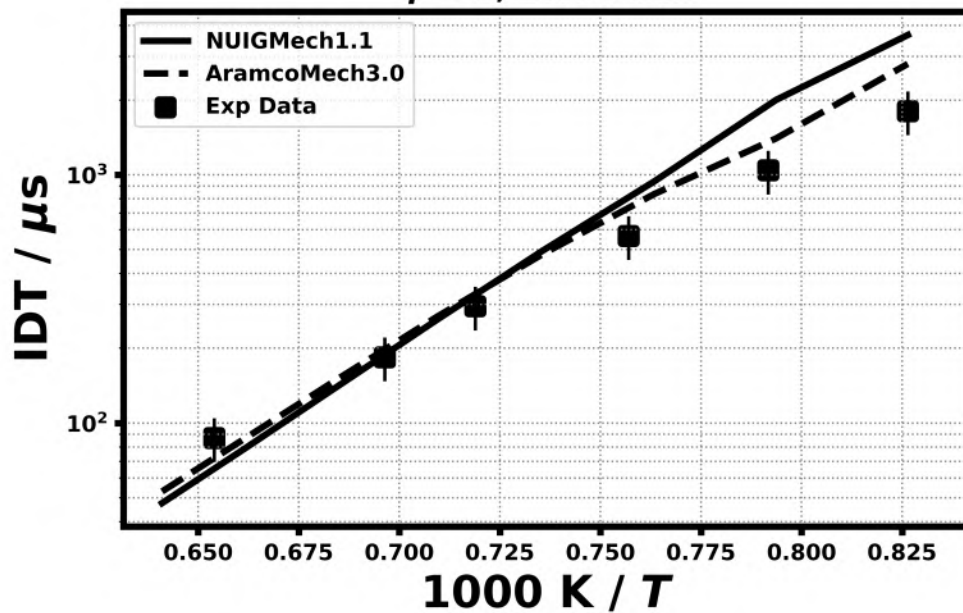
0.0% C₃H₈, 1.31% CH₃OCH₃
3.93% O₂, 94.77% N₂
 $\phi = 1$, 19.74 atm



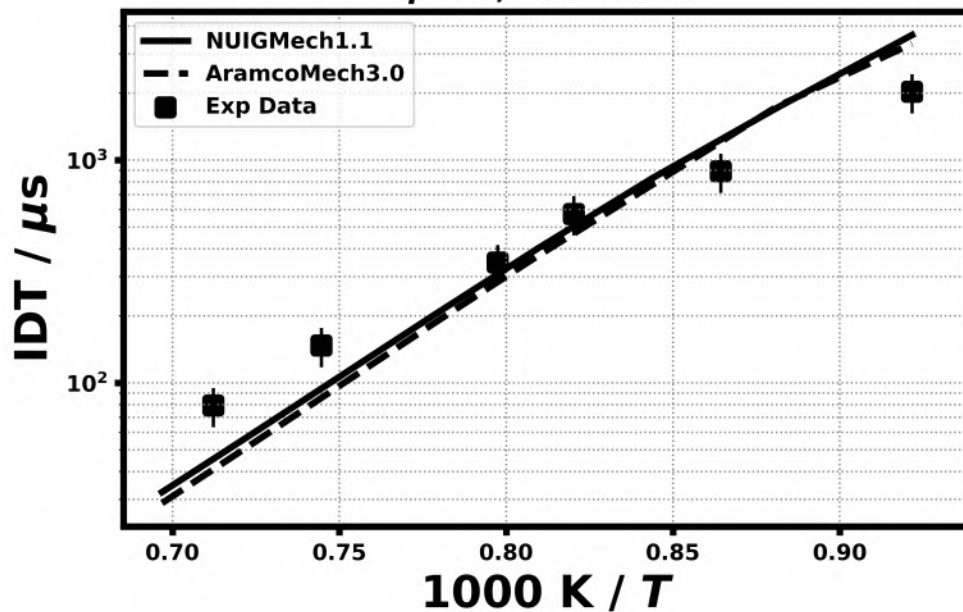
1.34% C₃H₈, 0.33% CH₃OCH₃
3.85% O₂, 94.48% N₂
 $\phi = 2$, 19.74 atm



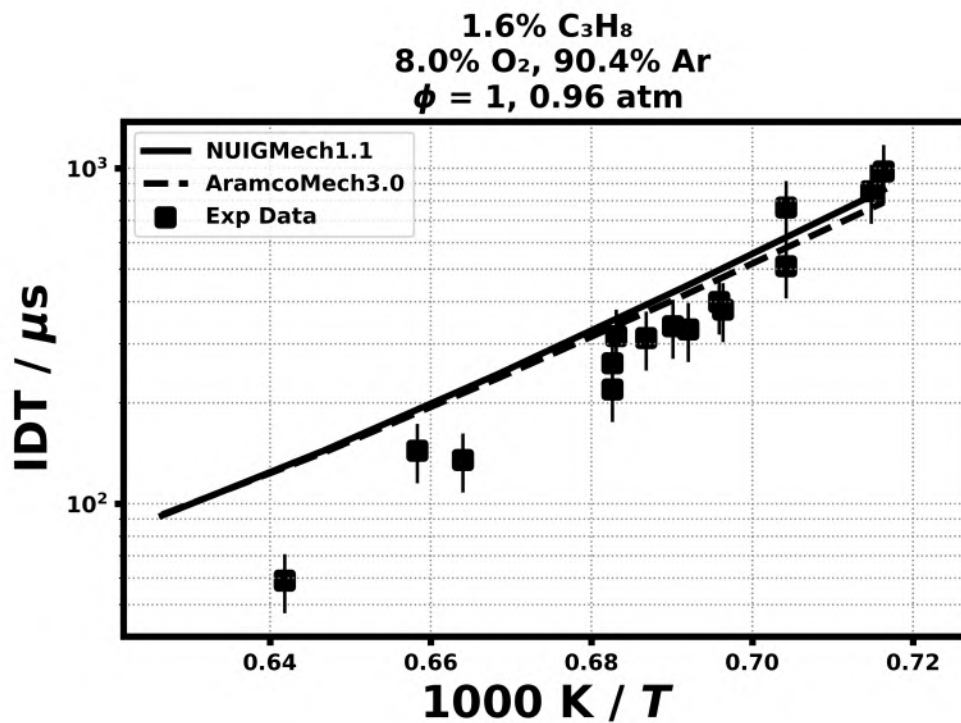
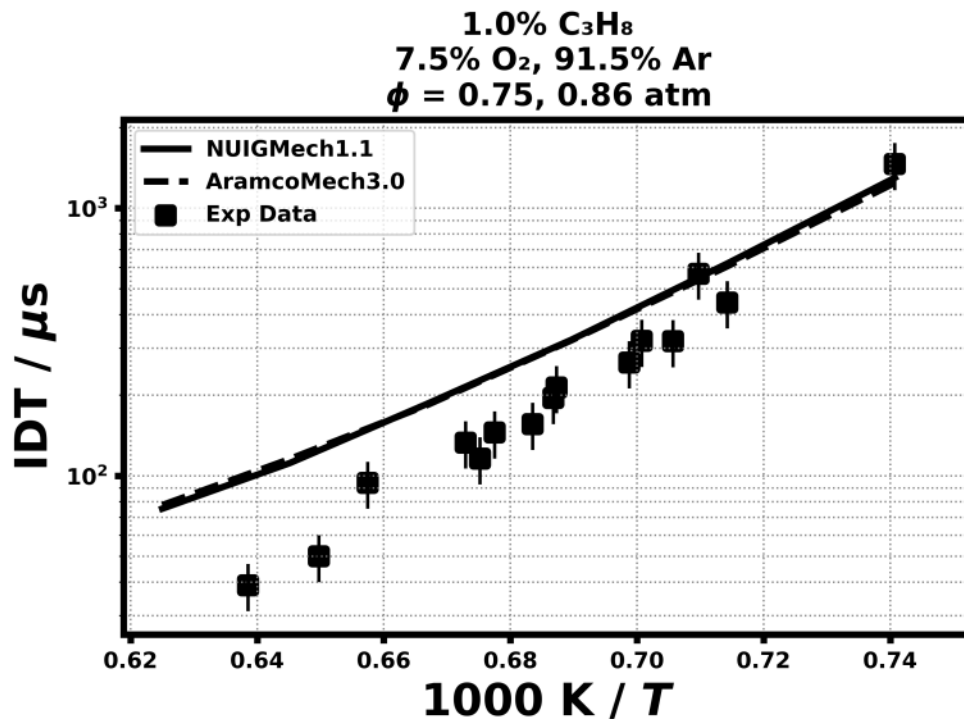
1.55% C₃H₈, 0.0% CH₃OCH₃
3.87% O₂, 94.58% N₂
 $\phi = 2$, 19.74 atm



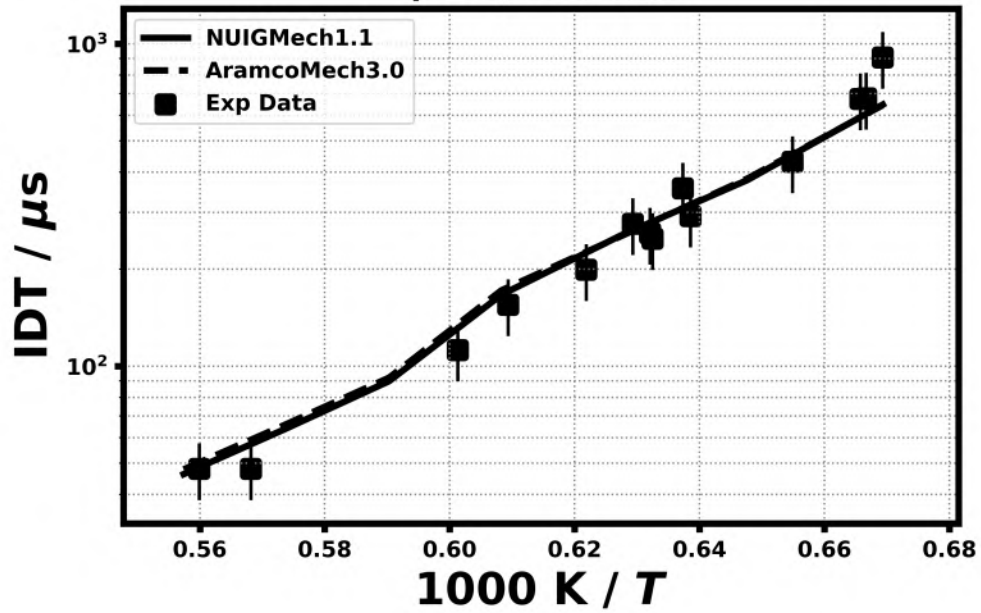
0.0% C₃H₈, 2.46% CH₃OCH₃
3.68% O₂, 93.86% N₂
 $\phi = 2$, 19.74 atm



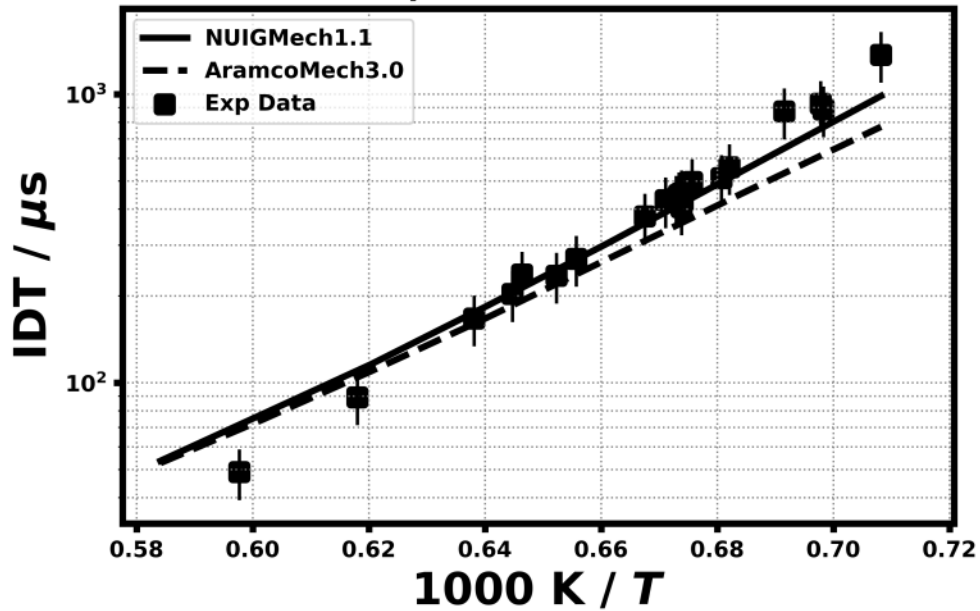
15.3) Kim, G. Y., & Sin, G. S., Bulletin of the Korean Chemical Society, 22 (2001) 303-307.



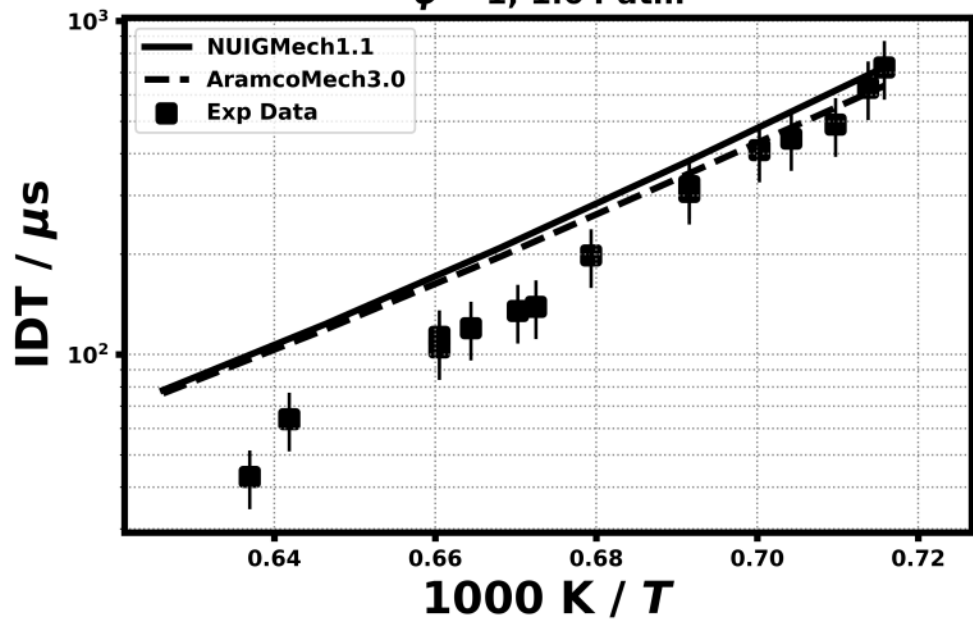
1.6% C₃H₈
4.0% O₂, 94.4% Ar
 $\phi = 2$, 1.09 atm



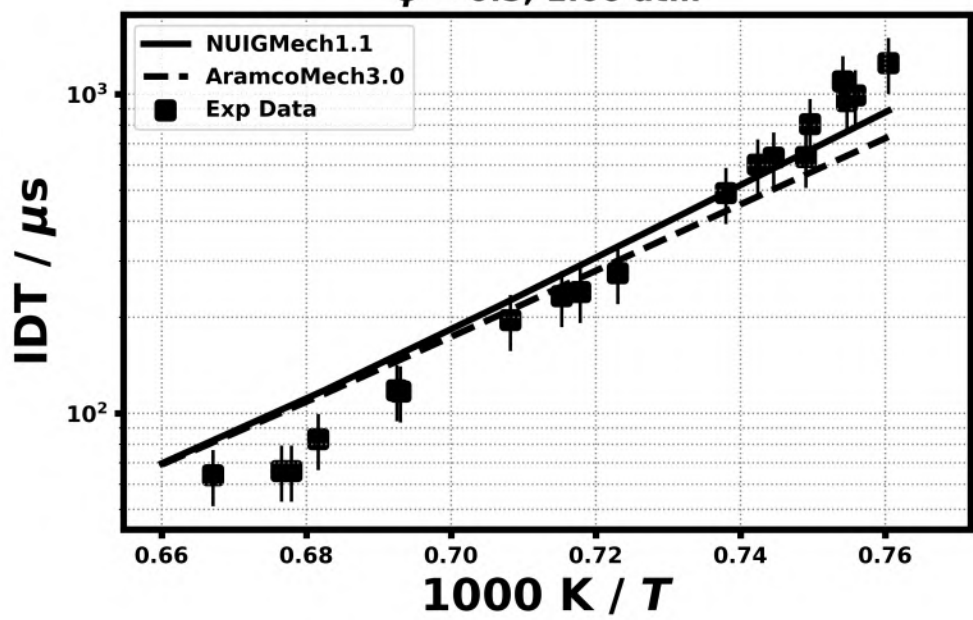
4.0% C₃H₈
10.0% O₂, 86.0% Ar
 $\phi = 2$, 1.37 atm



2.0% C₃H₈
10.0% O₂, 88.0% Ar
 $\phi = 1, 1.04 \text{ atm}$

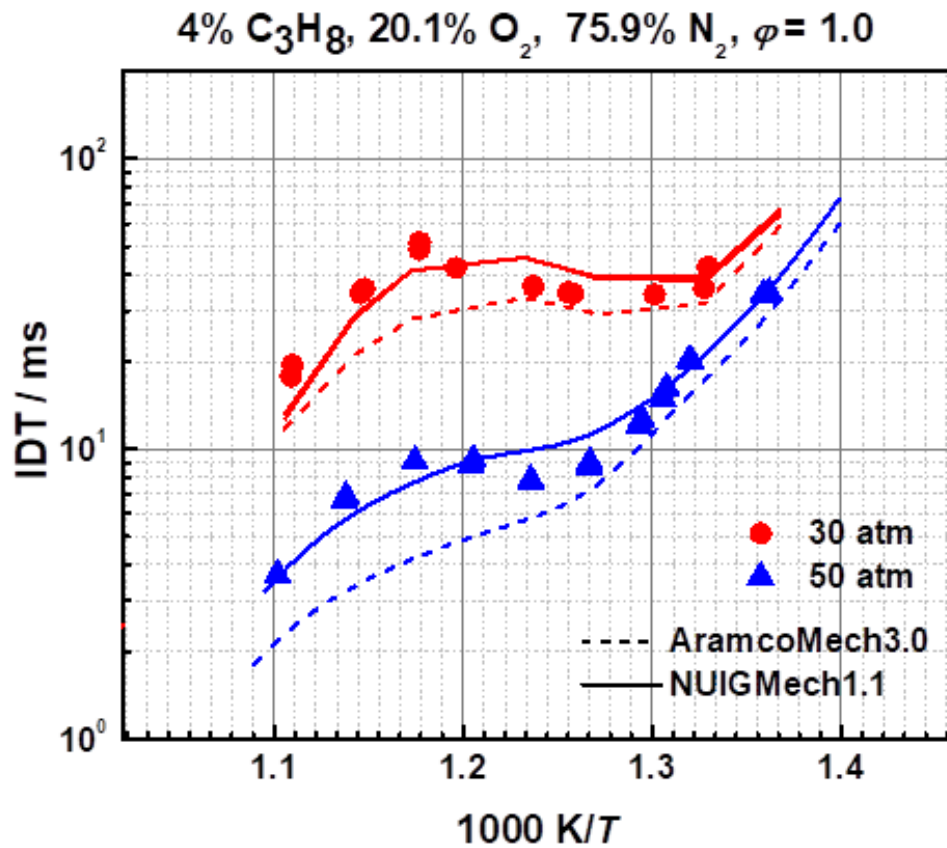


2.0% C₃H₈
20.0% O₂, 78.0% Ar
 $\phi = 0.5, 1.06 \text{ atm}$

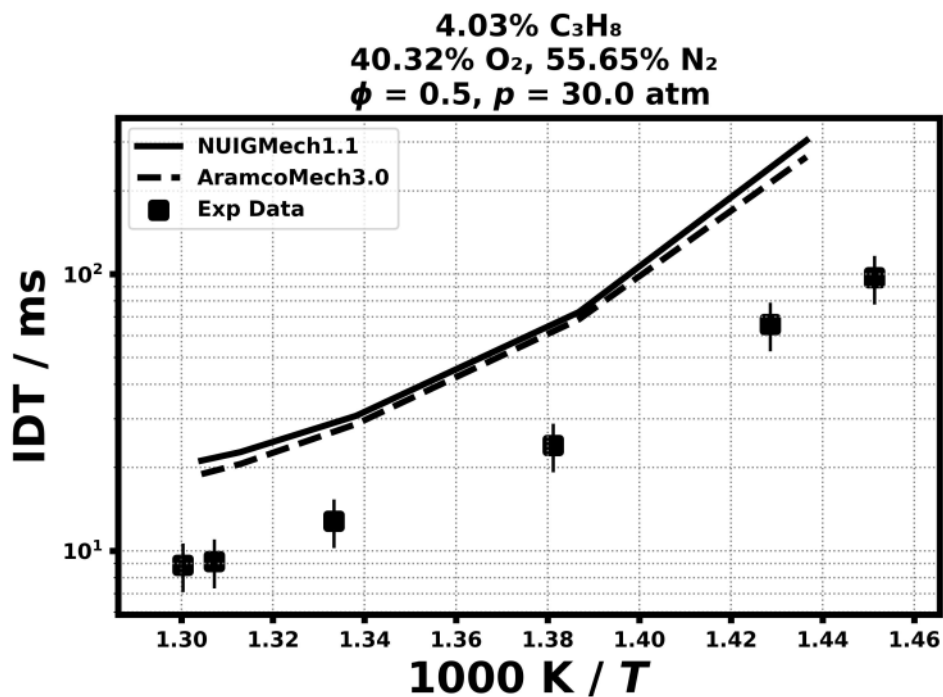


RCM Ignition delay times

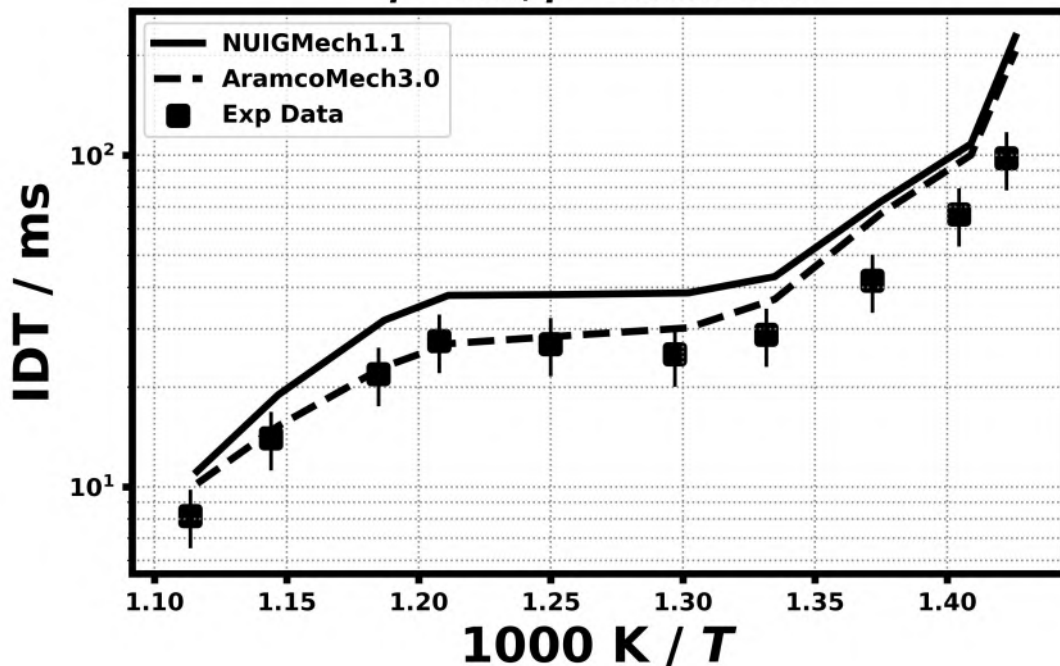
15.4) Ramalingam, A., Panigrahy, S., Fenard, Y., Curran, H., & Heufer, K. A. *Combustion and Flame*, 223 (2021) 361-375.



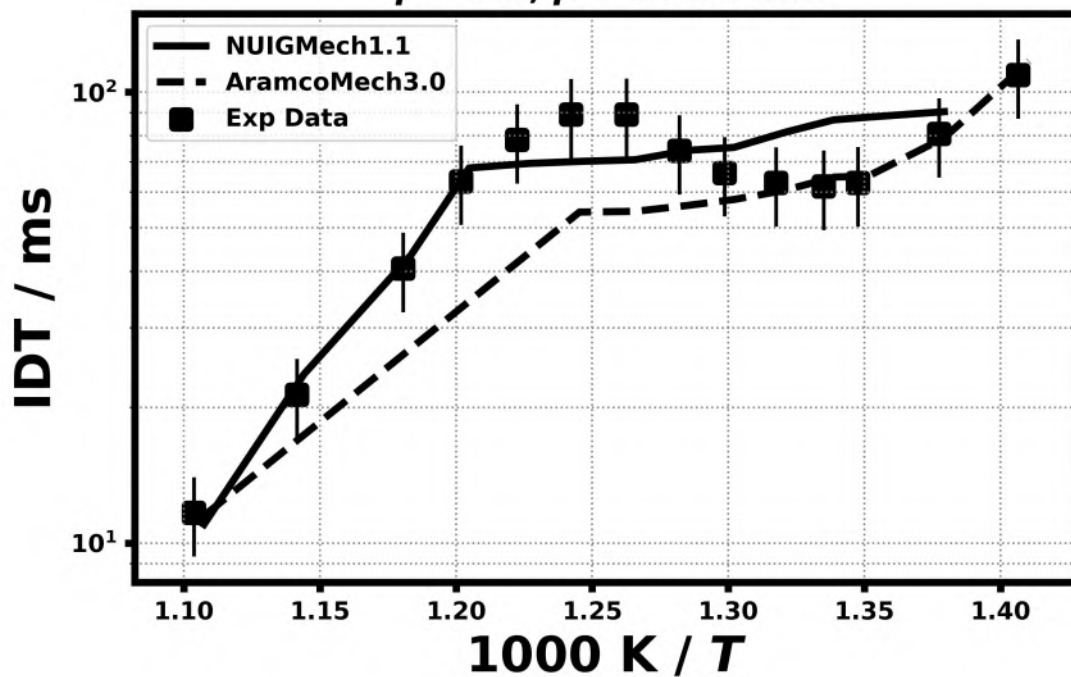
15.5) E.E.Dames et. al., *Combust. Flame*, 168 (2016) 310–330.



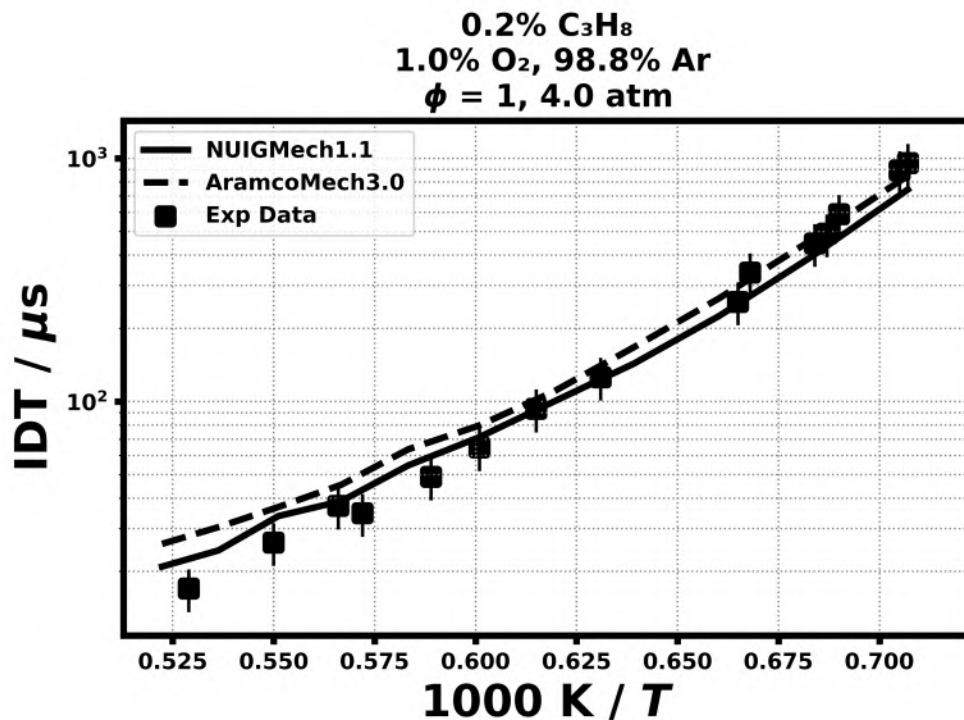
4.03% C₃H₈
20.16% O₂, 75.81% N₂
 $\phi = 1.0, p = 29.99 \text{ atm}$



4.03% C₃H₈
10.08% O₂, 85.89% N₂
 $\phi = 2.0, p = 30.01 \text{ atm}$

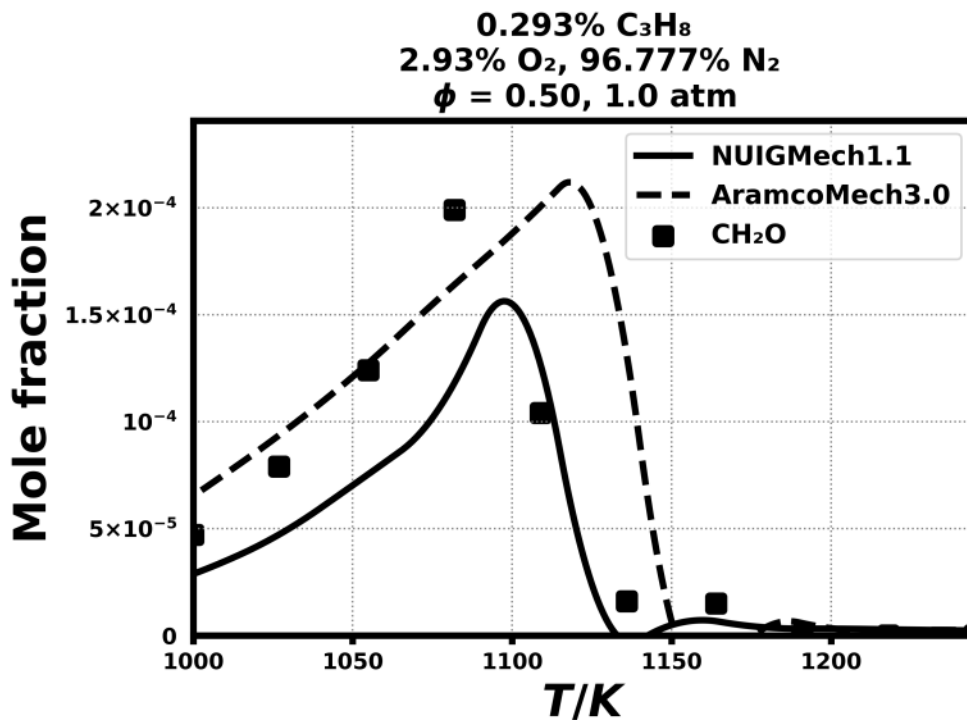


15.6) Qin, Z., Lissianski, V. V., Yang, H., Gardiner, W. C., Davis, S. G., & Wang, H., Proceedings of the Combustion Institute, 28(2) (2000) 1663-1669.

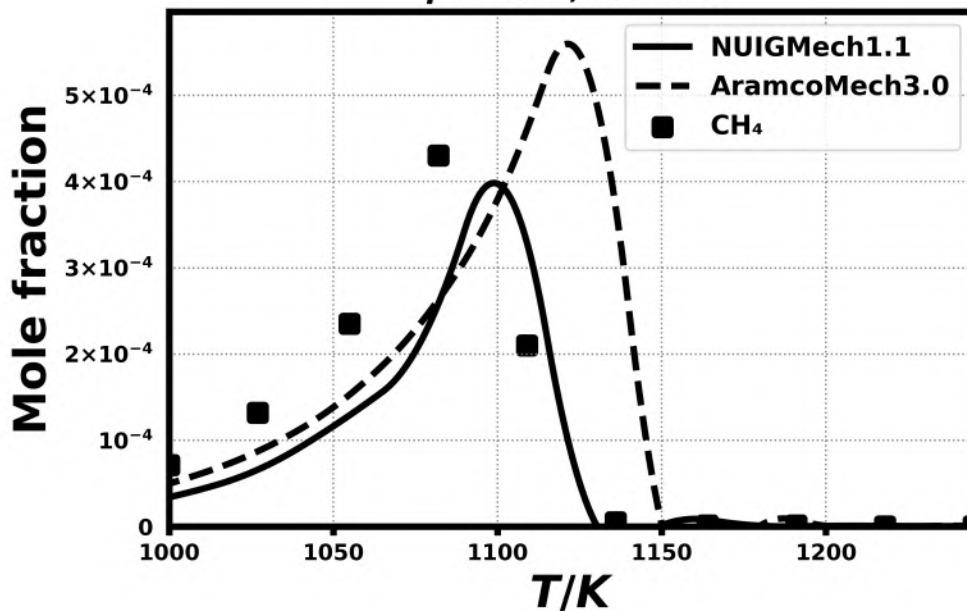


Speciation in Jet-stirred reactor

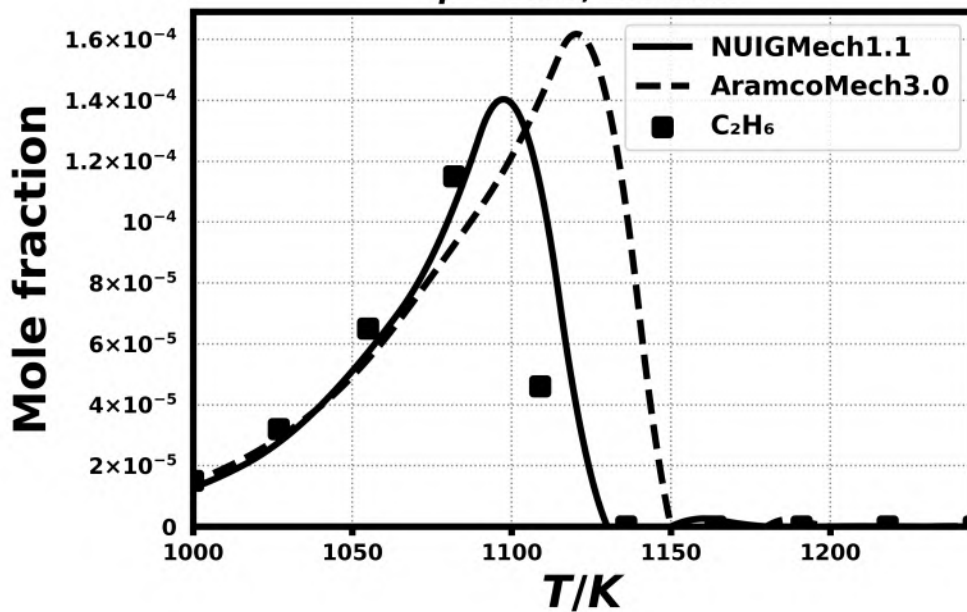
15.7) Dagaut, P., Luche, J., & Cathonnet, M., Fuel, 80(7) (2001) 979-986.



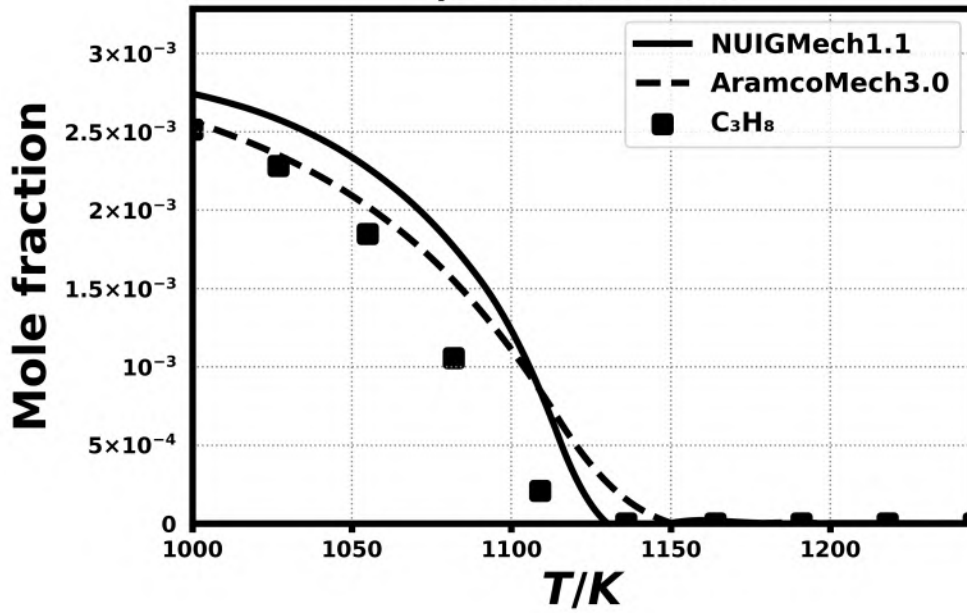
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



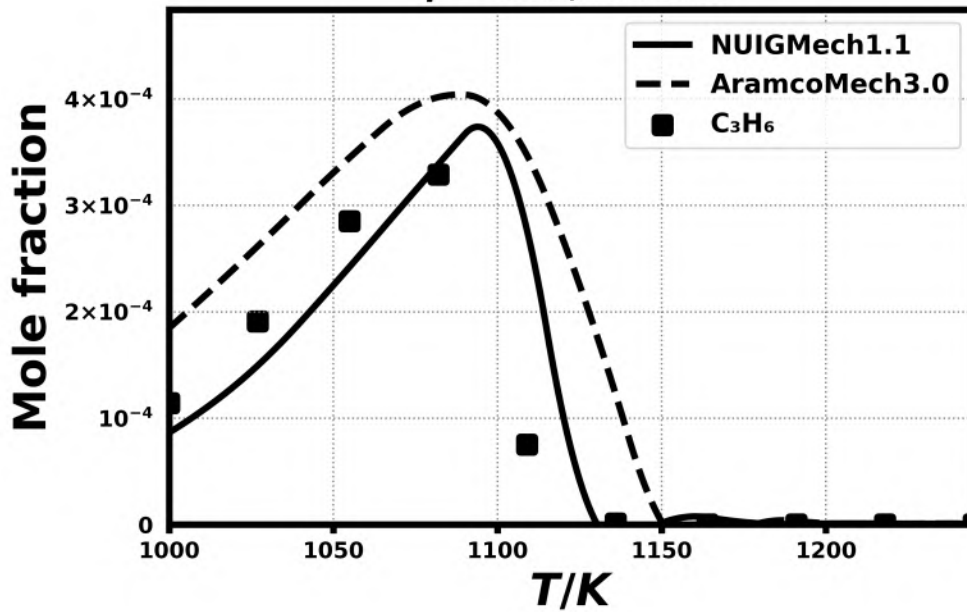
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



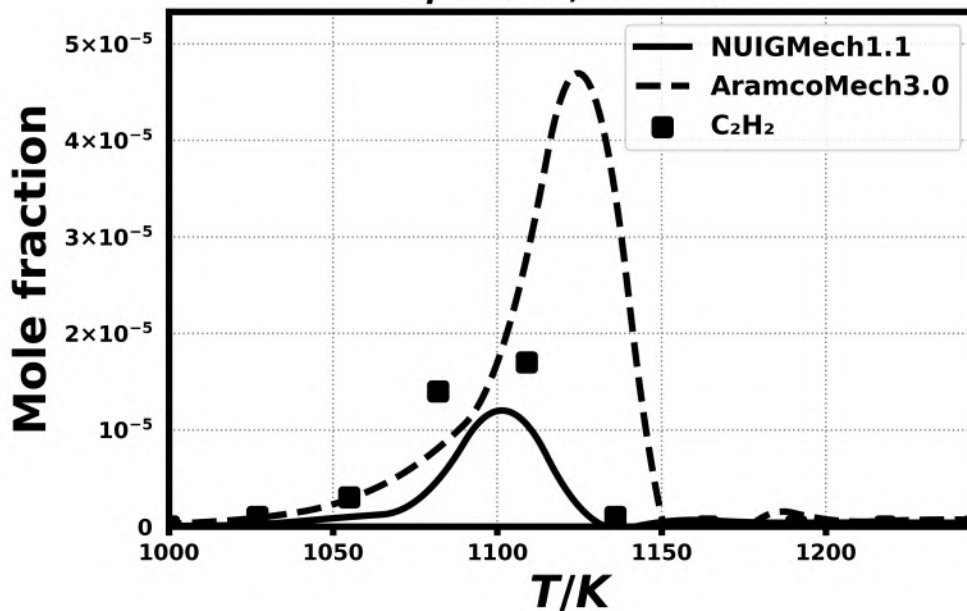
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



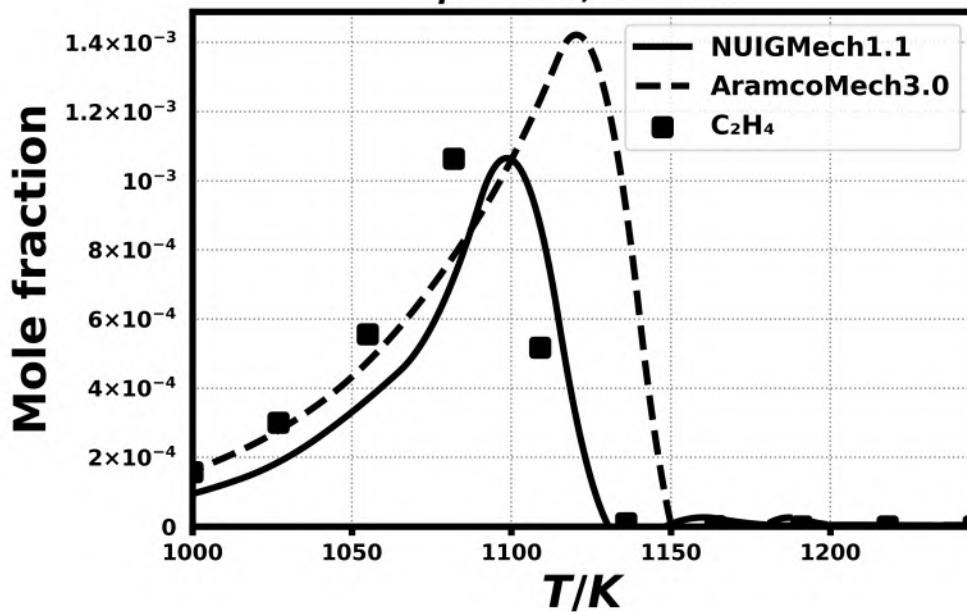
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



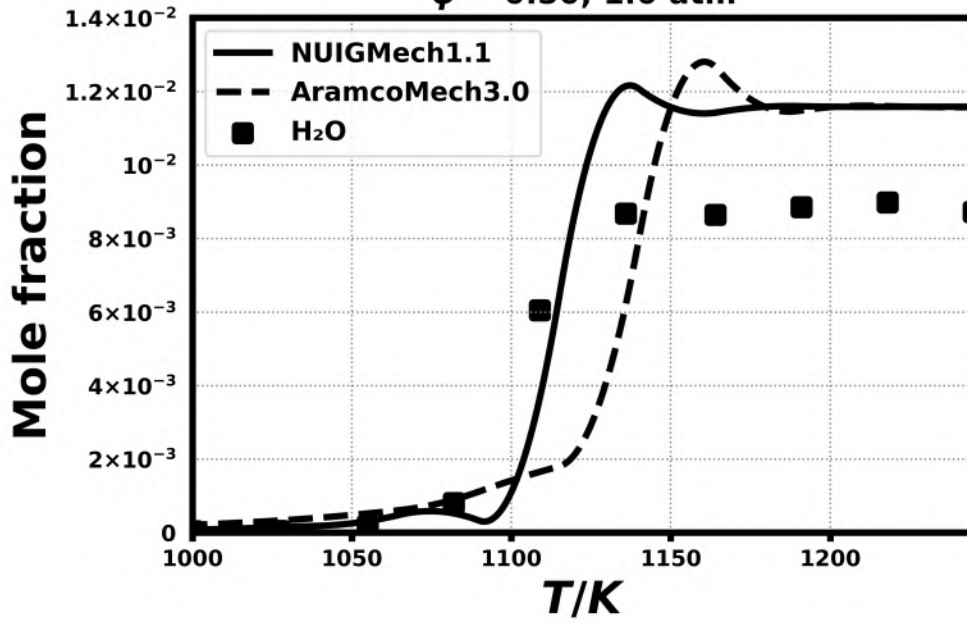
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



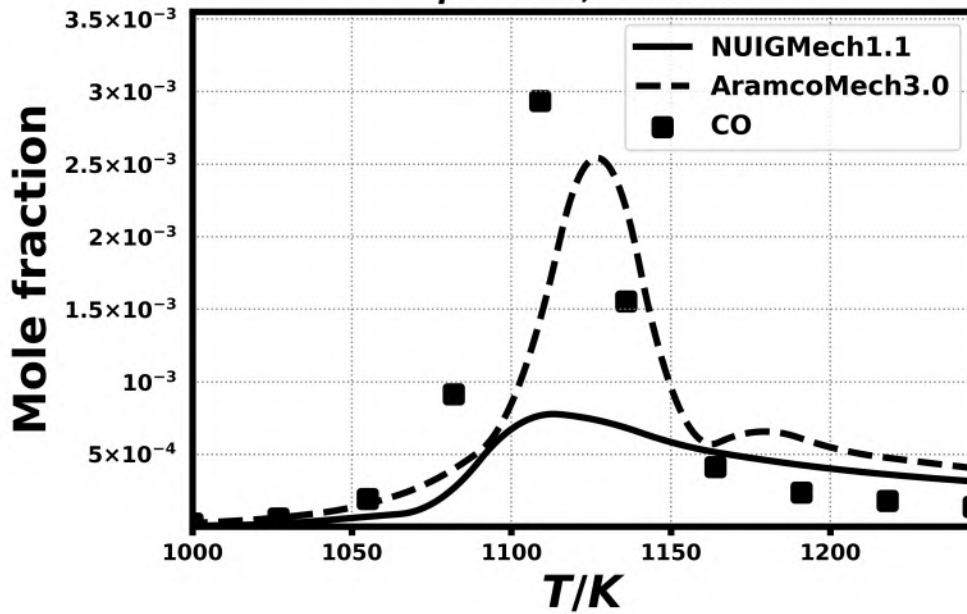
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



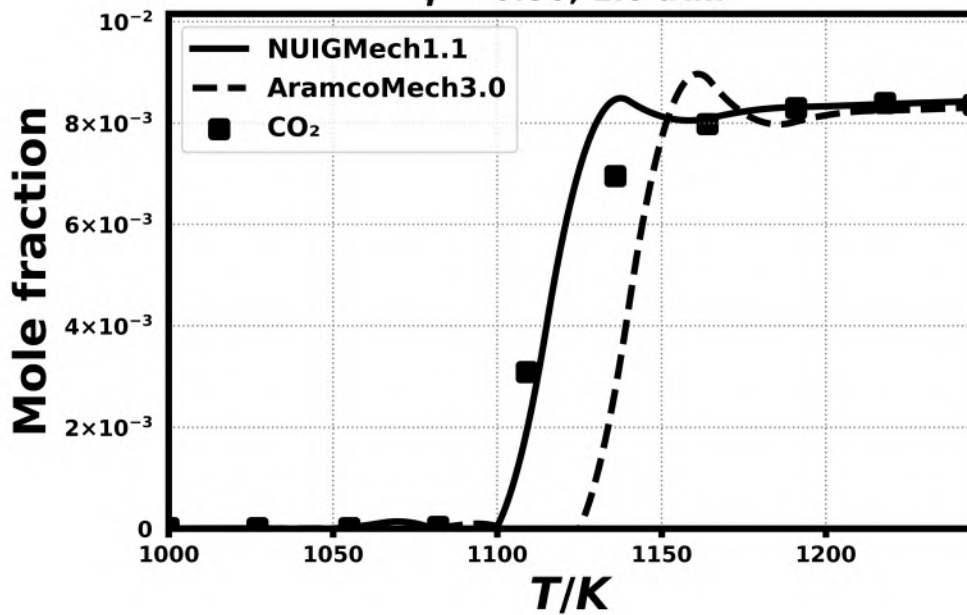
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



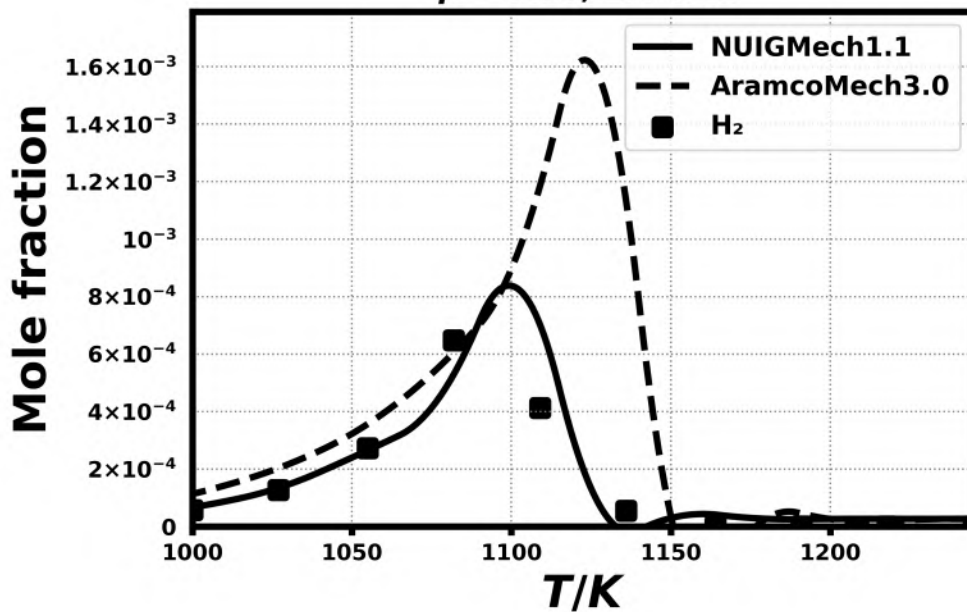
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



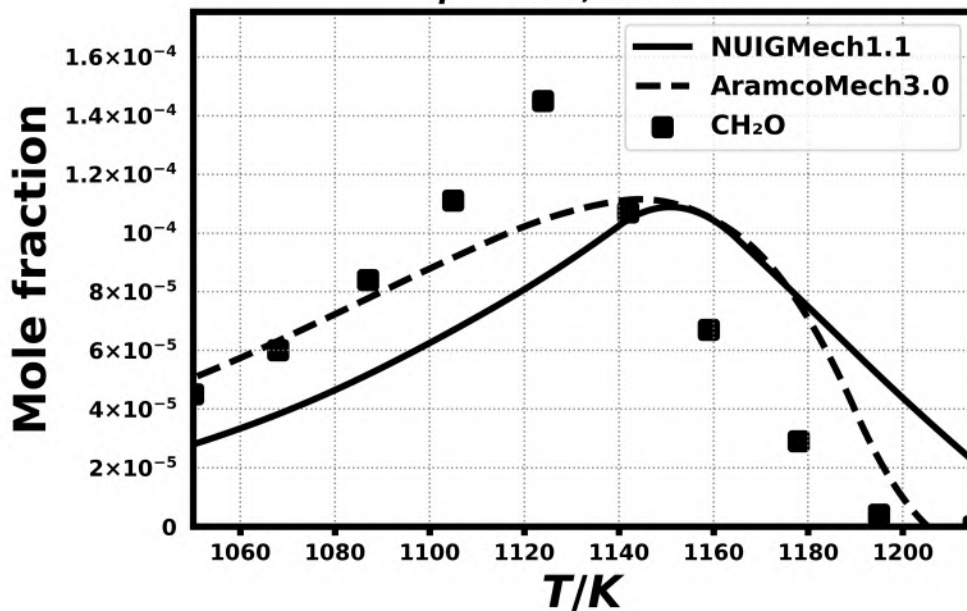
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



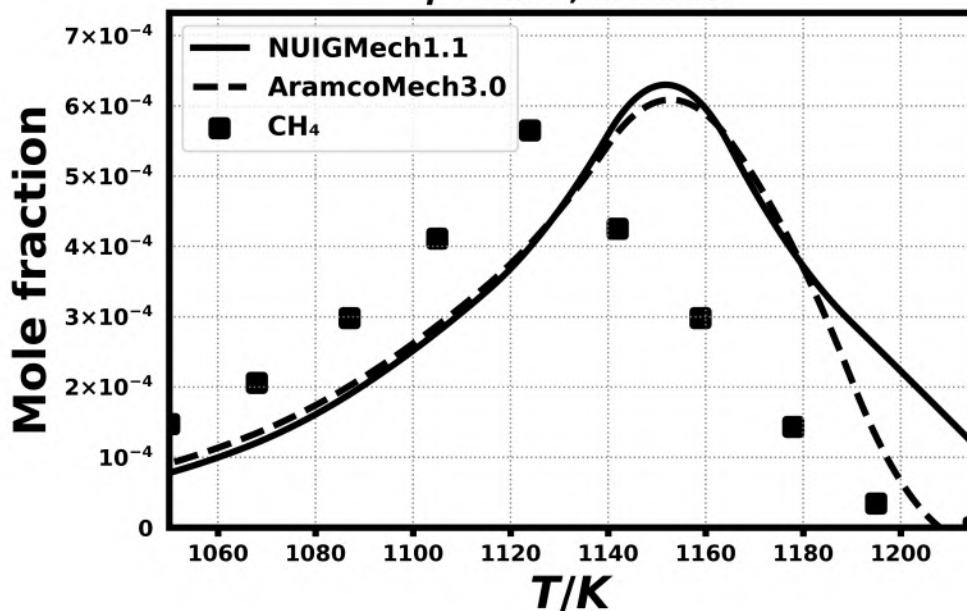
0.293% C₃H₈
2.93% O₂, 96.777% N₂
 $\phi = 0.50, 1.0 \text{ atm}$



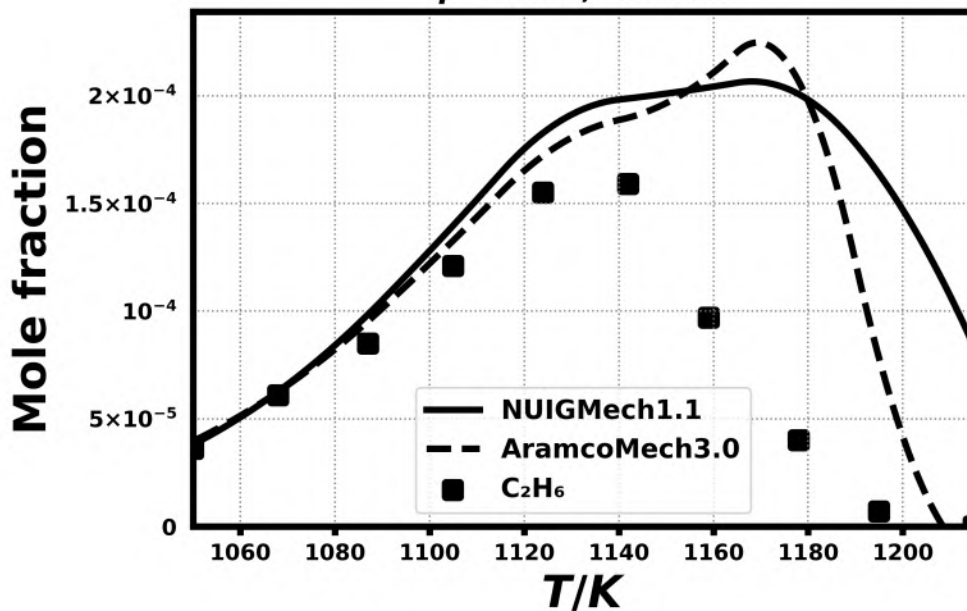
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00$, 1.0 atm



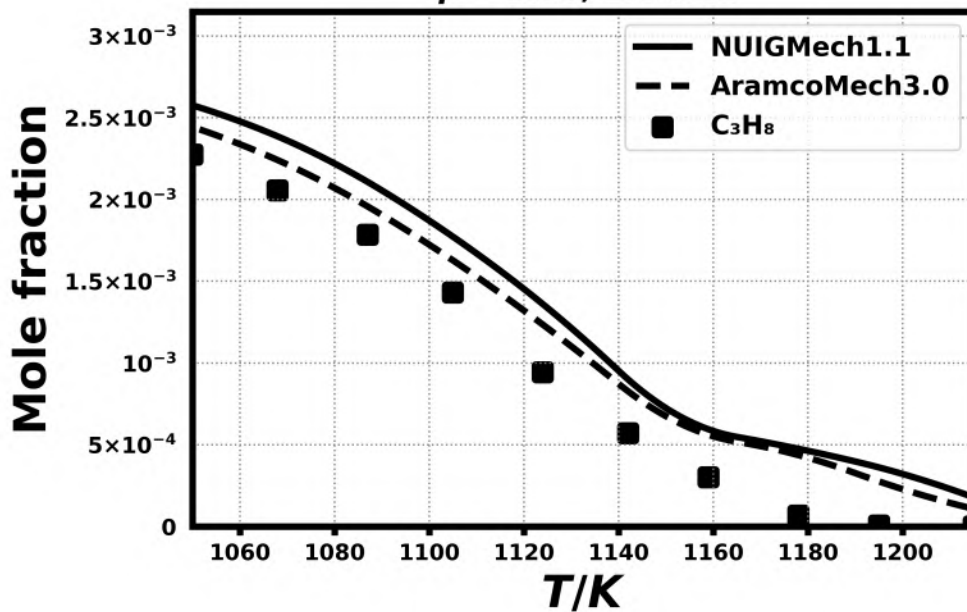
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00$, 1.0 atm



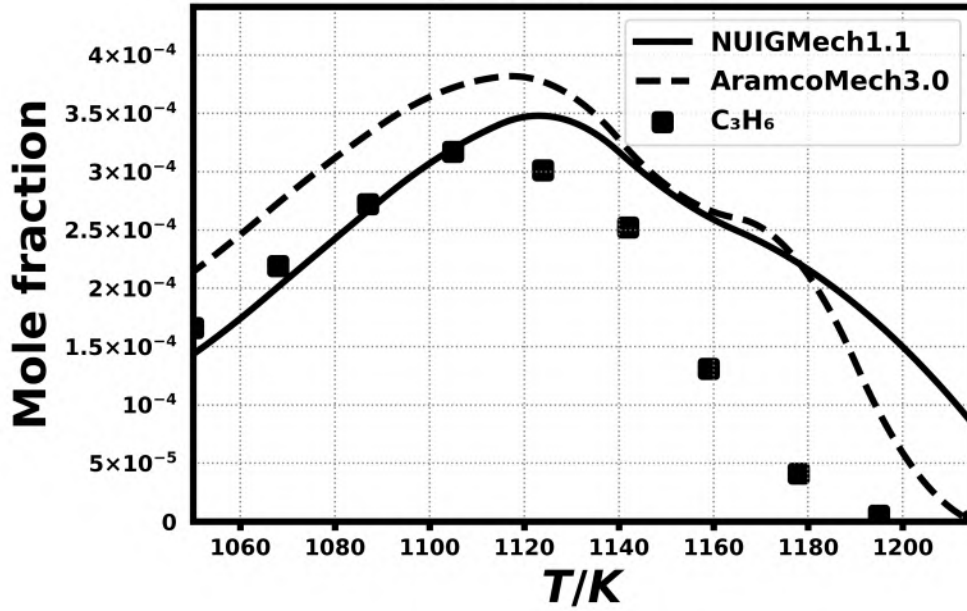
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



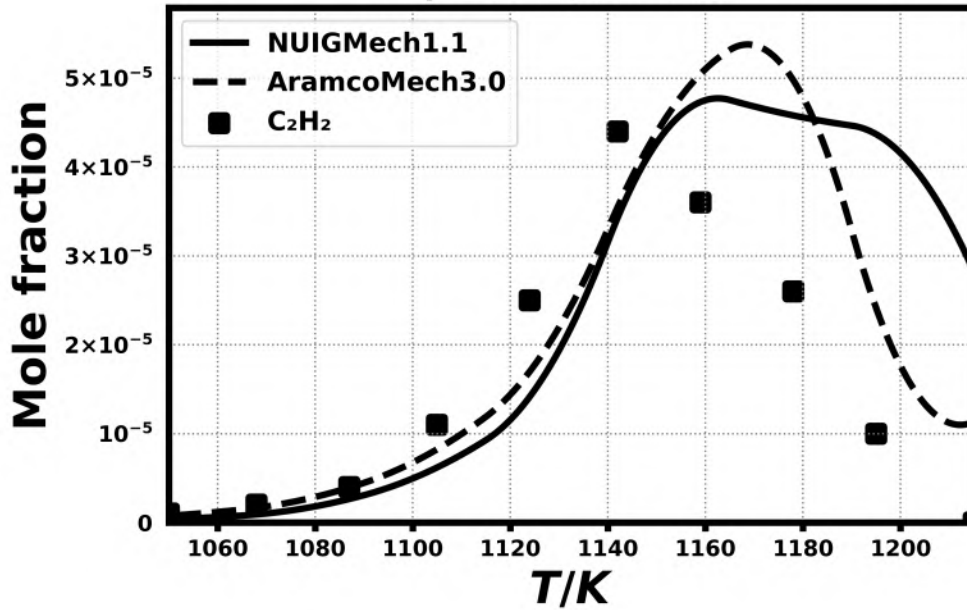
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



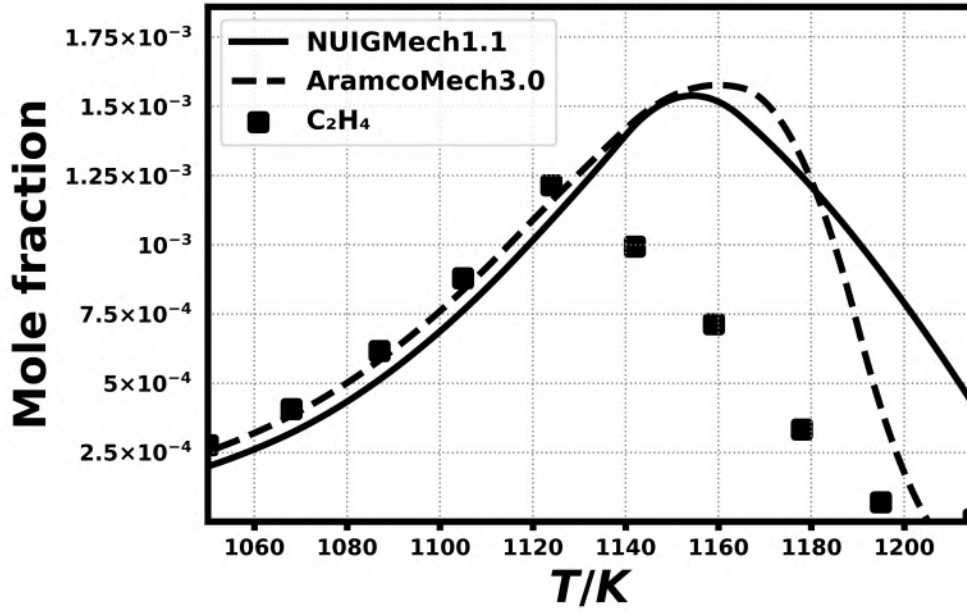
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



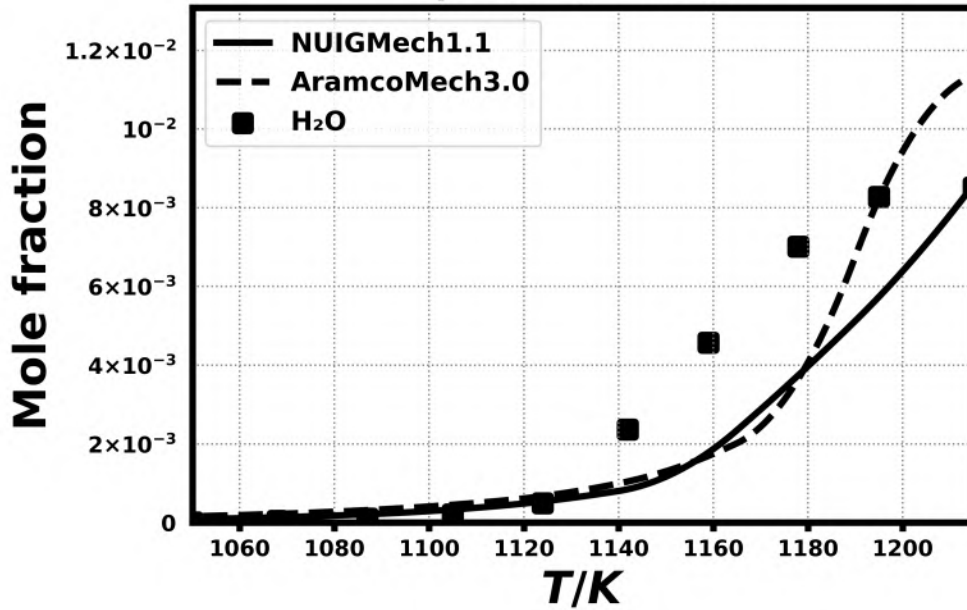
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



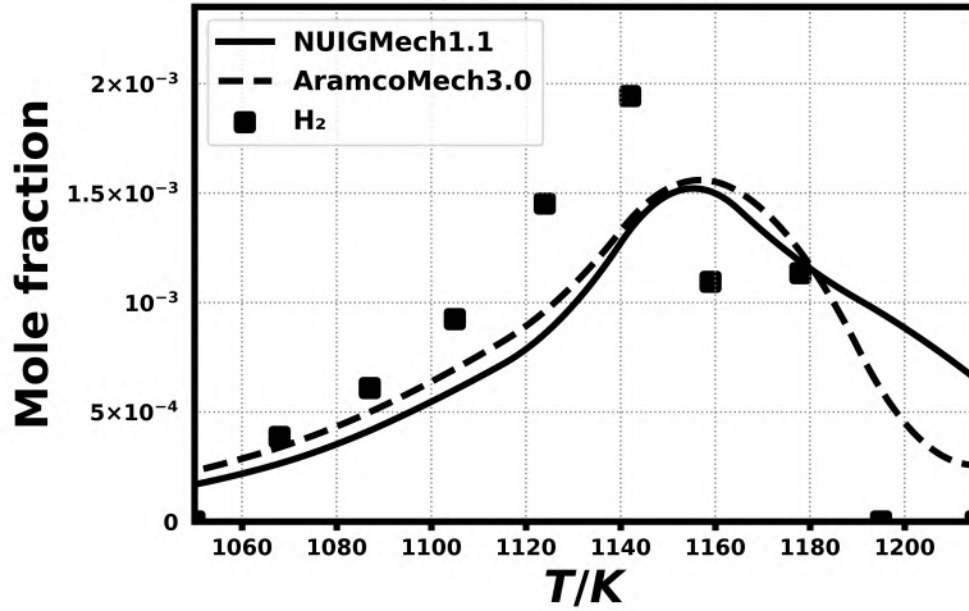
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



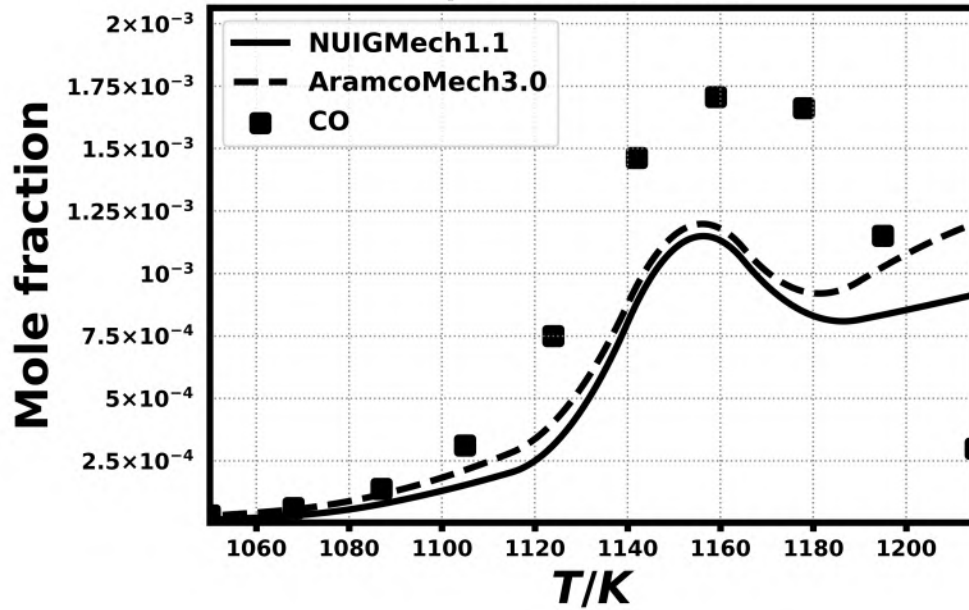
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



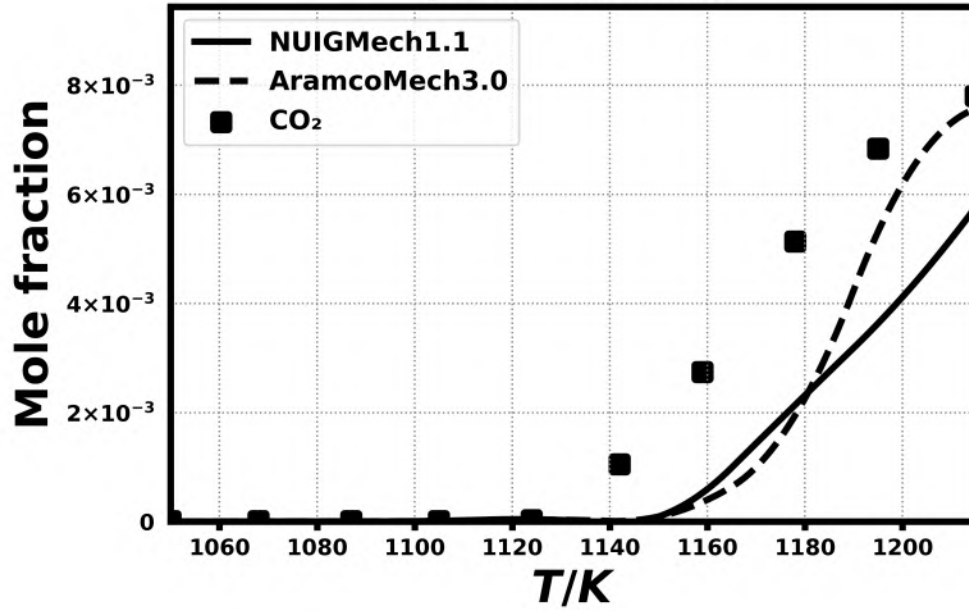
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



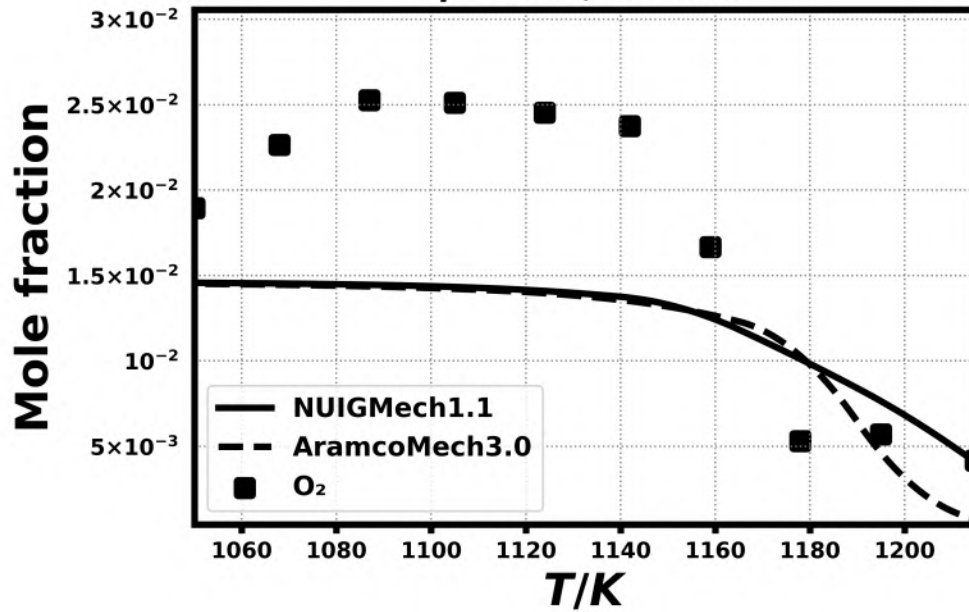
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



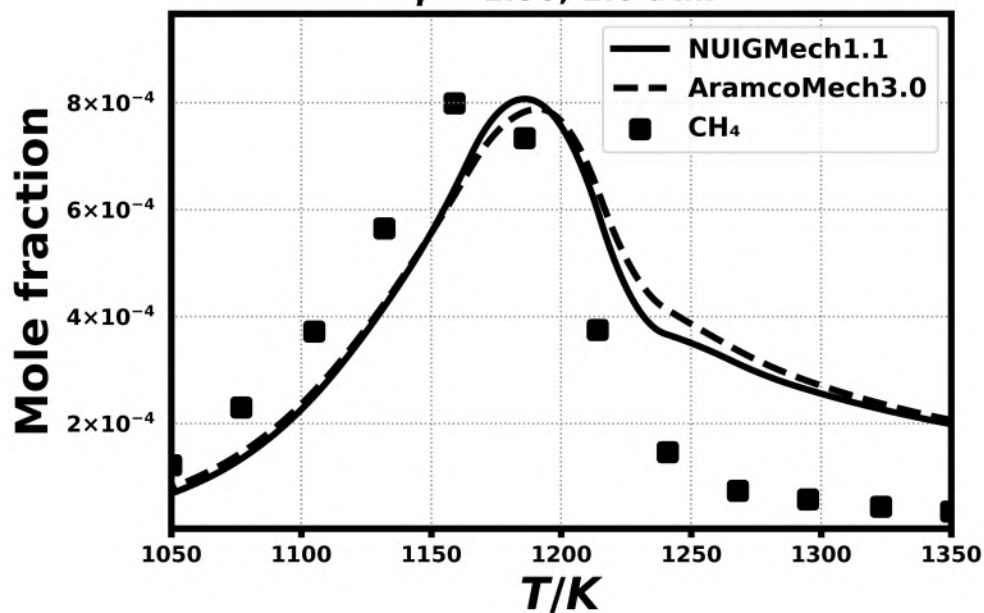
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



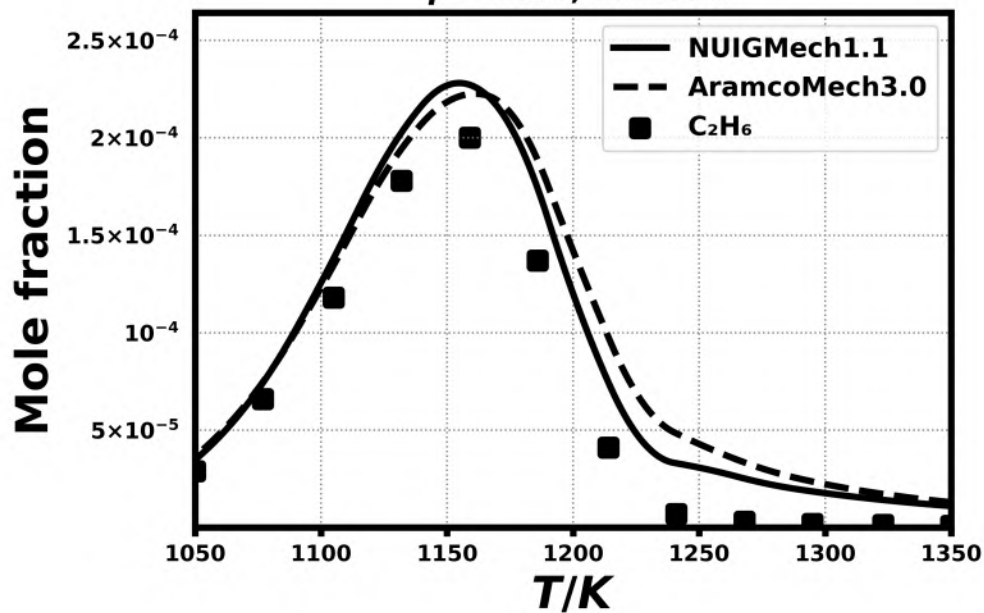
0.293% C₃H₈
1.465% O₂, 98.242% N₂
 $\phi = 1.00, 1.0 \text{ atm}$



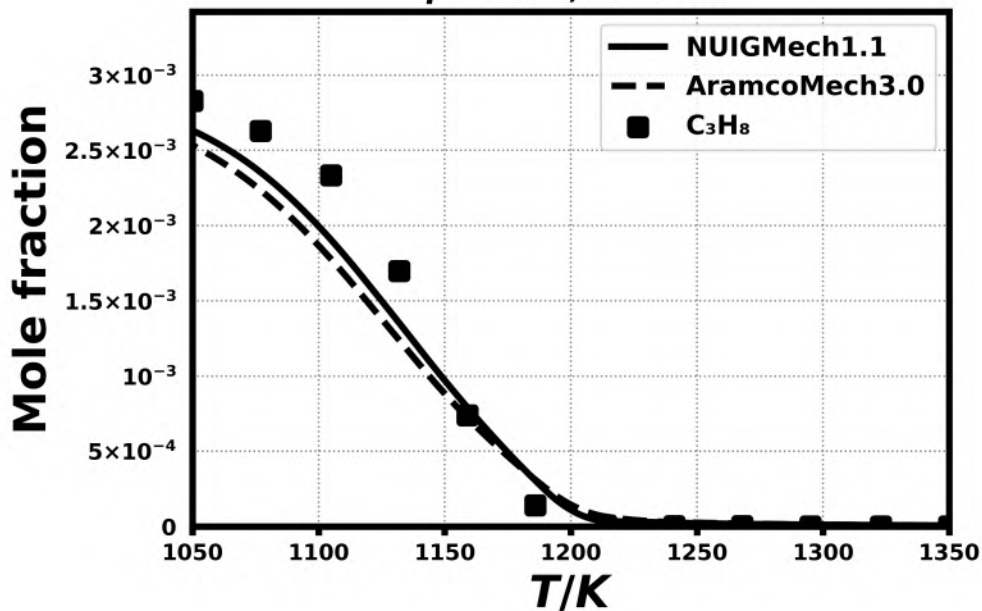
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



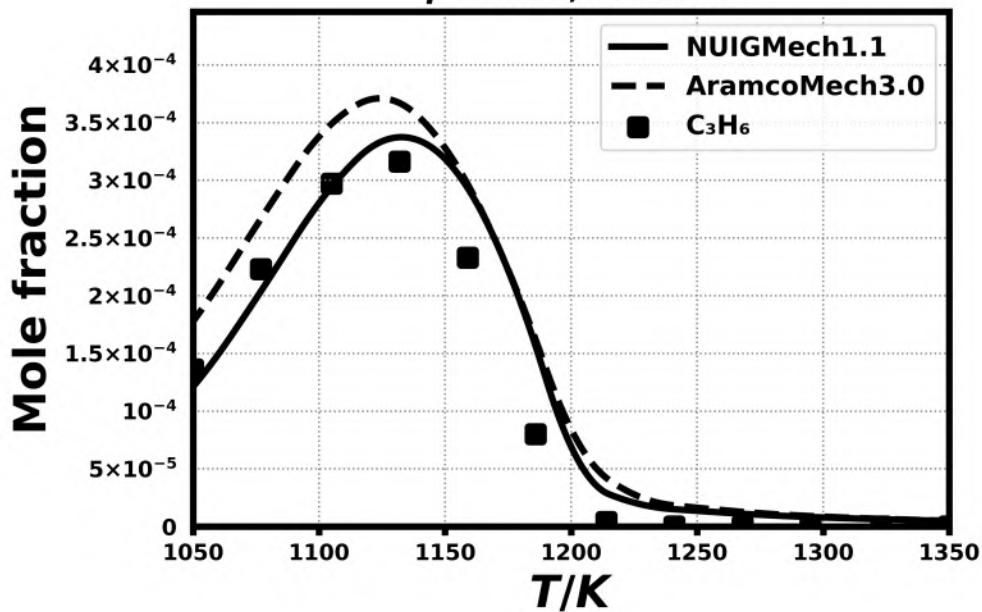
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



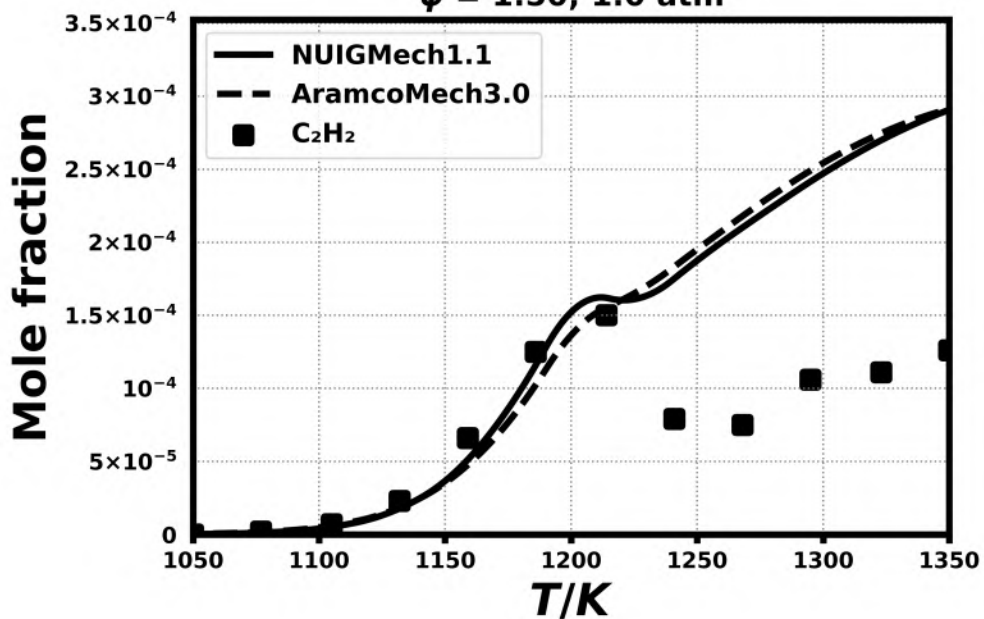
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



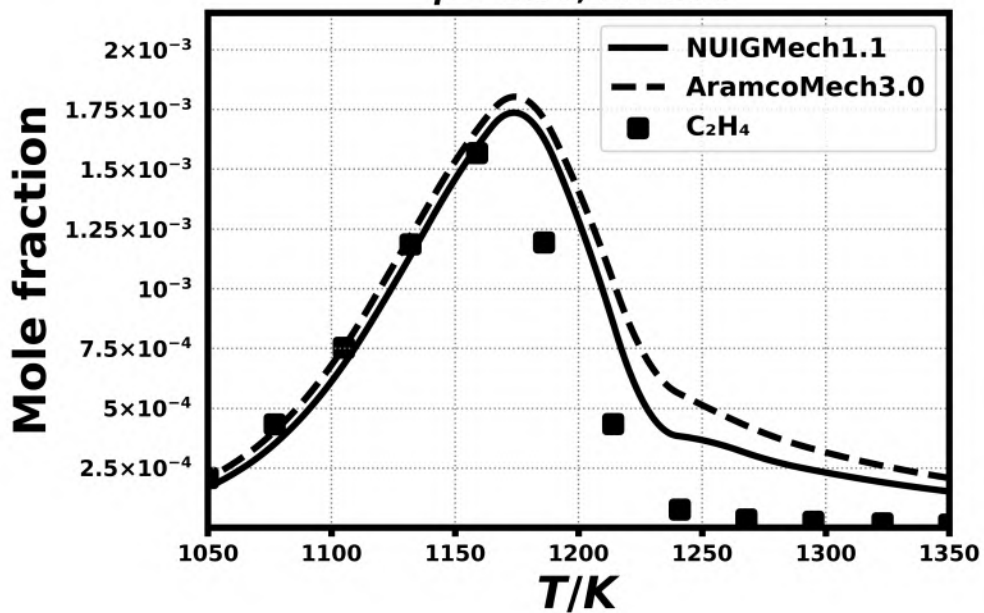
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



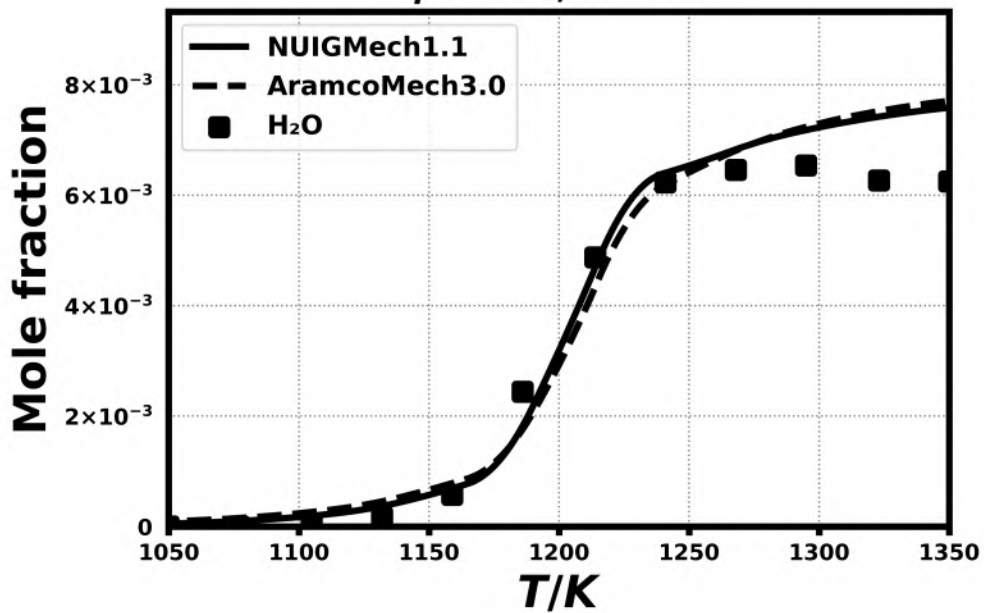
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



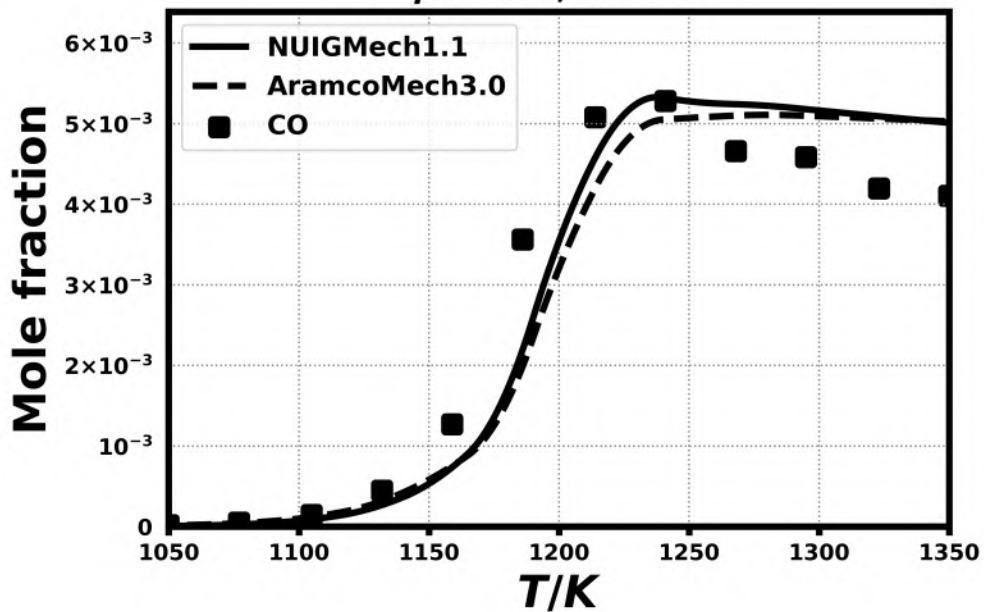
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



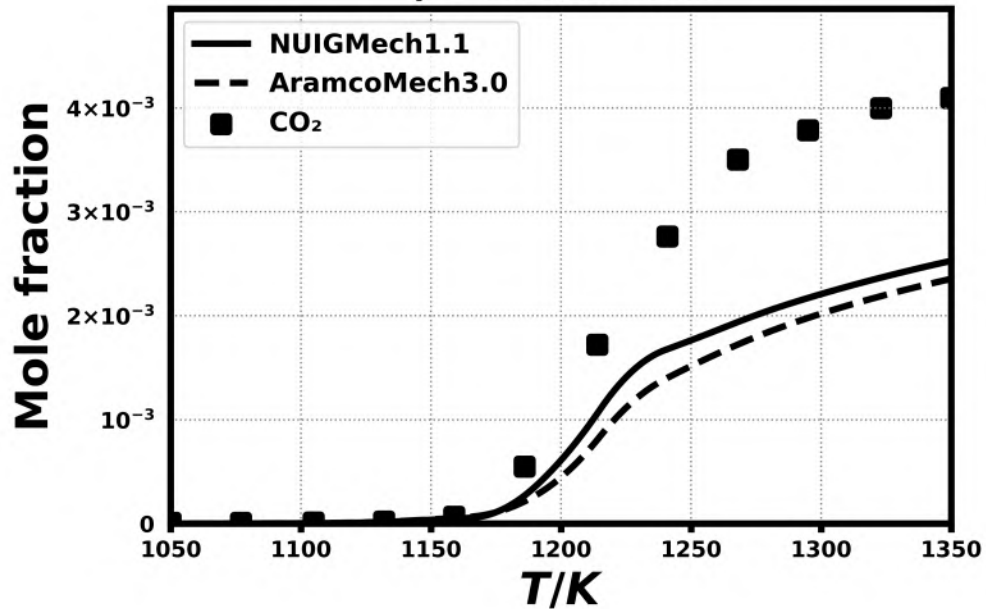
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



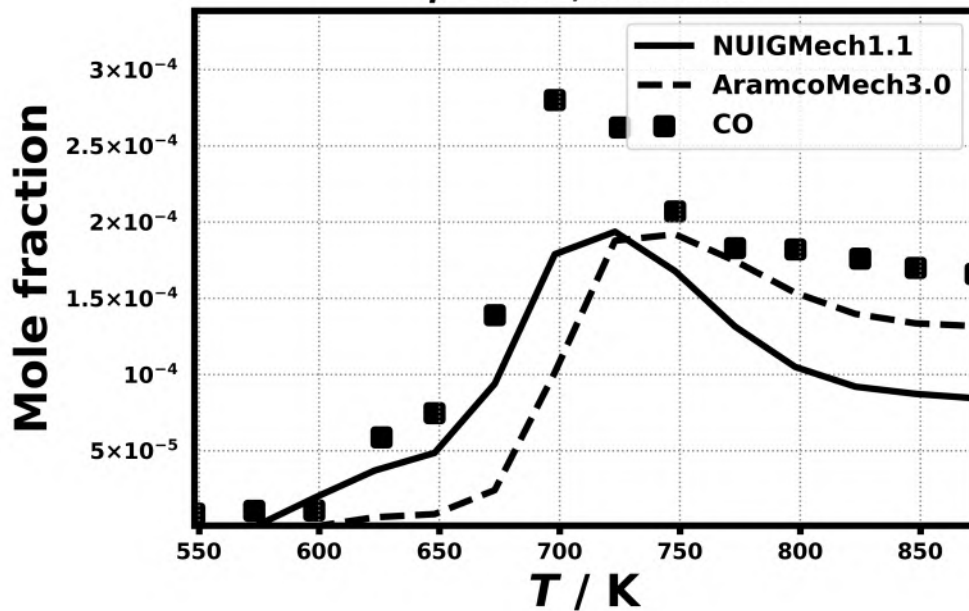
0.293% C₃H₈
0.977% O₂, 98.73% N₂
 $\phi = 1.50, 1.0 \text{ atm}$



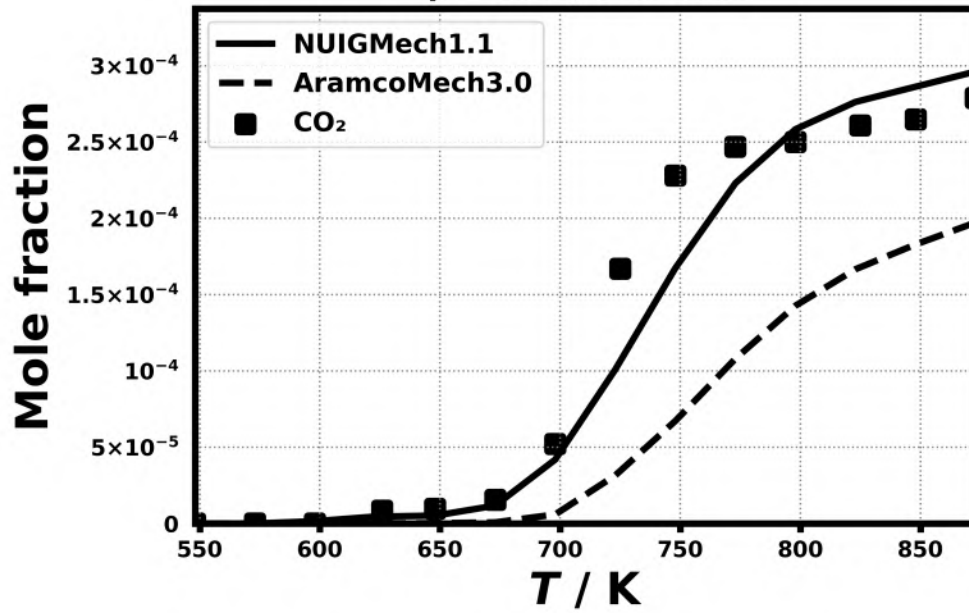
Speciation in Flow reactor

15.8) Hashemi, H., Christensen, J. M., Harding, L. B., Klippenstein, S. J., & Glarborg, P., Proceedings of the Combustion Institute, 37(1) (2019) 461-468.

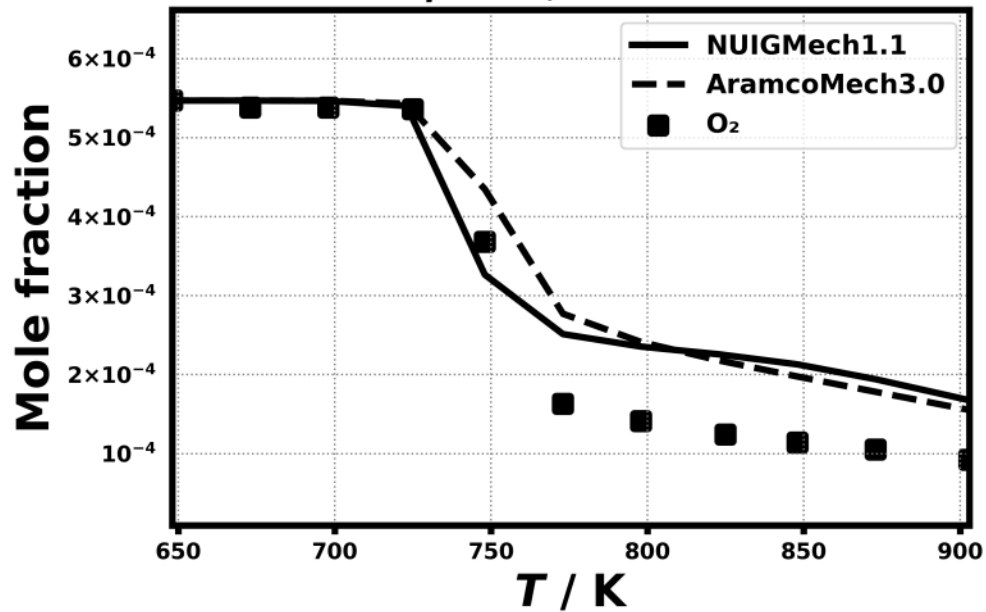
0.015% C₃H₈
3.405% O₂, 96.58% N₂
 $\phi = 0.02, 98.7 \text{ atm}$



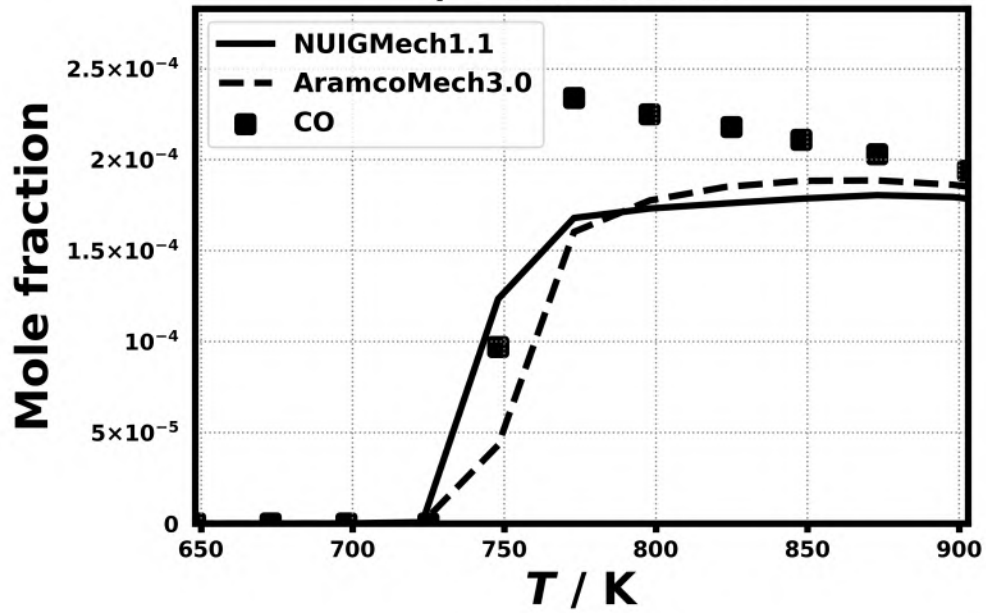
0.015% C₃H₈
3.405% O₂, 96.58% N₂
 $\phi = 0.02$, 98.7 atm



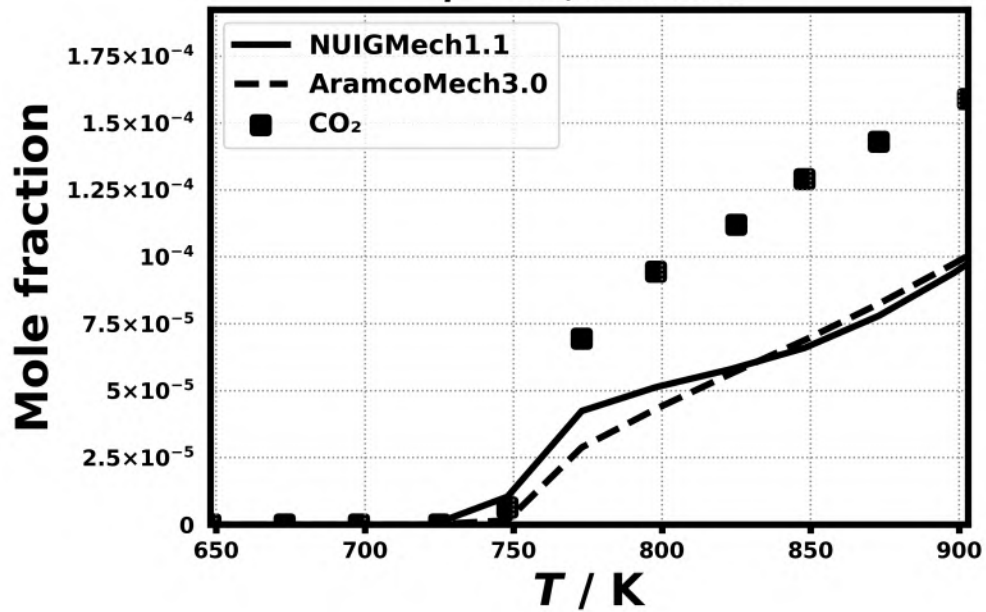
0.012% C₃H₈
0.055% O₂, 99.933% N₂
 $\phi = 1.1$, 98.7 atm



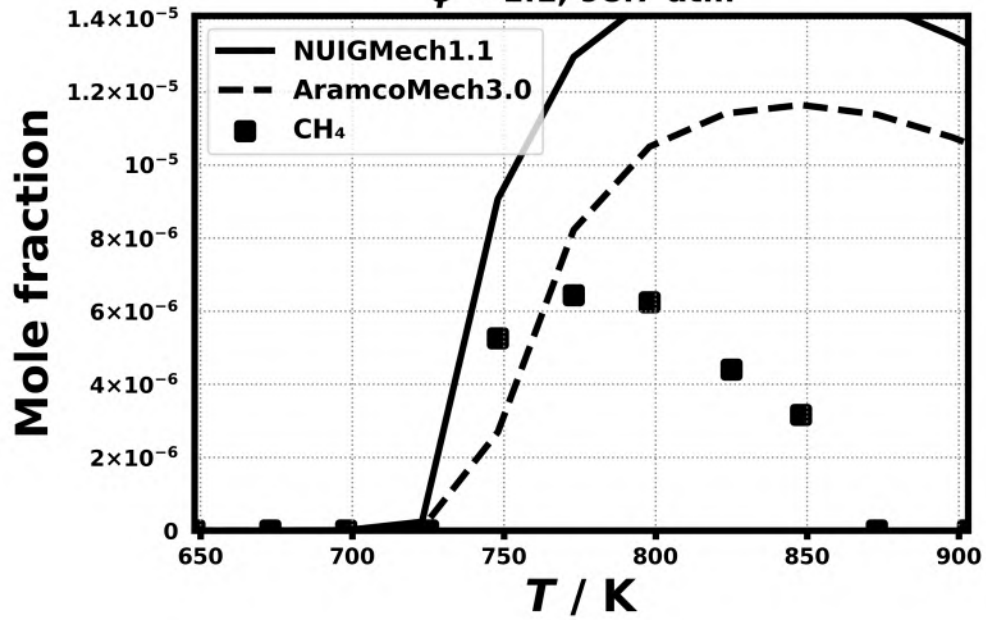
0.012% C₃H₈
0.055% O₂, 99.933% N₂
 $\phi = 1.1, 98.7 \text{ atm}$



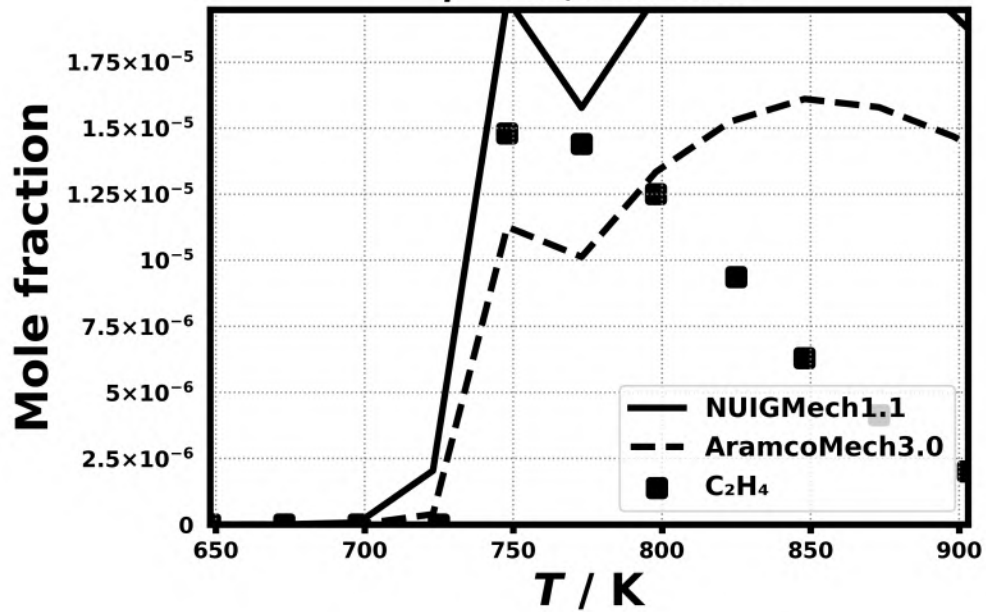
0.012% C₃H₈
0.055% O₂, 99.933% N₂
 $\phi = 1.1, 98.7 \text{ atm}$



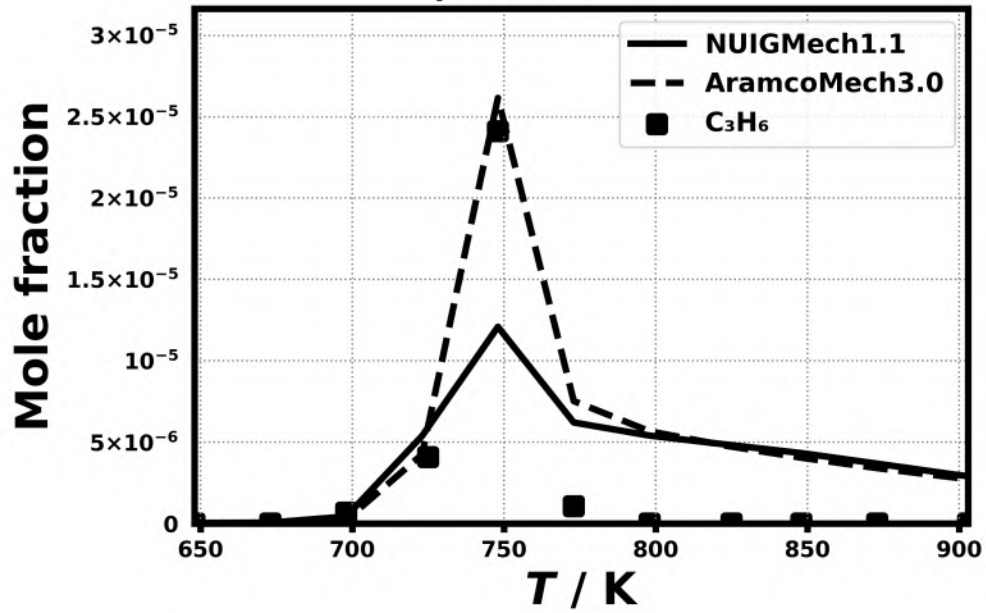
0.012% C₃H₈
0.055% O₂, 99.933% N₂
 $\phi = 1.1, 98.7 \text{ atm}$



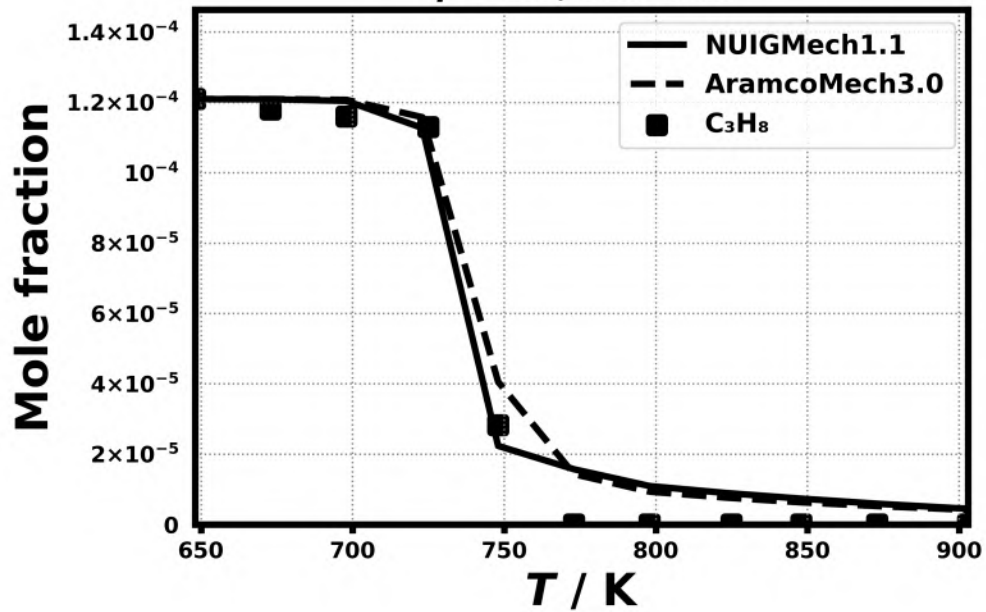
0.012% C₃H₈
0.055% O₂, 99.933% N₂
 $\phi = 1.1, 98.7 \text{ atm}$



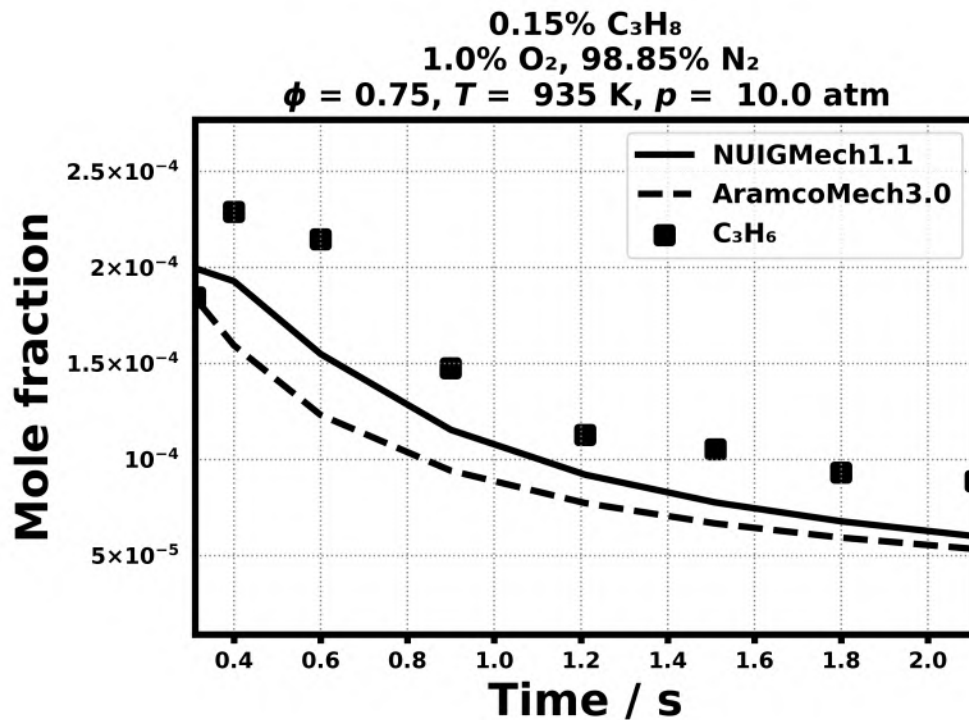
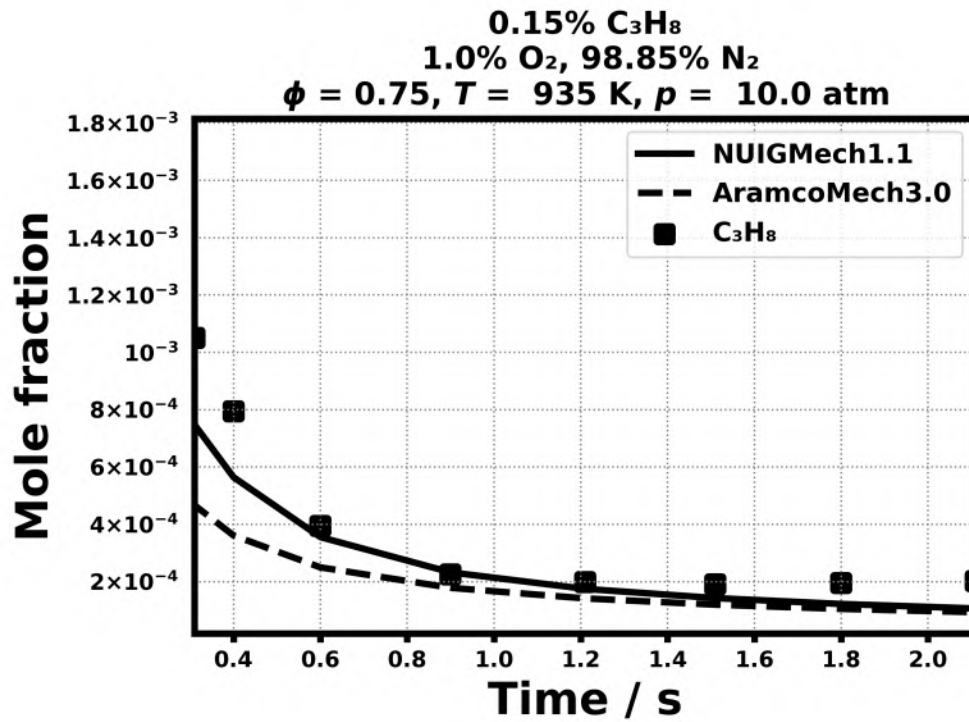
0.012% C₃H₈
0.055% O₂, 99.933% N₂
 $\phi = 1.1, 98.7 \text{ atm}$



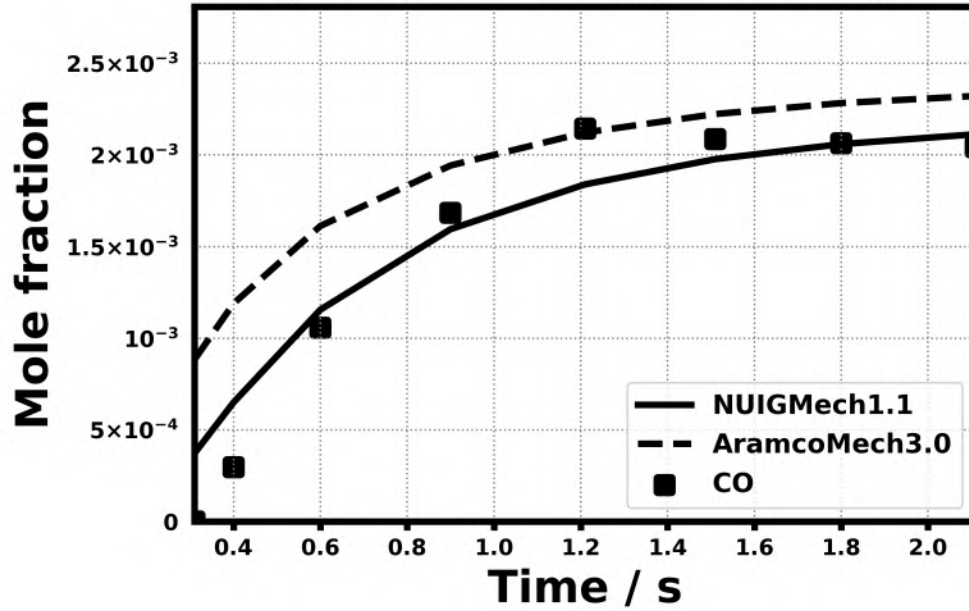
0.012% C₃H₈
0.055% O₂, 99.933% N₂
 $\phi = 1.1, 98.7 \text{ atm}$



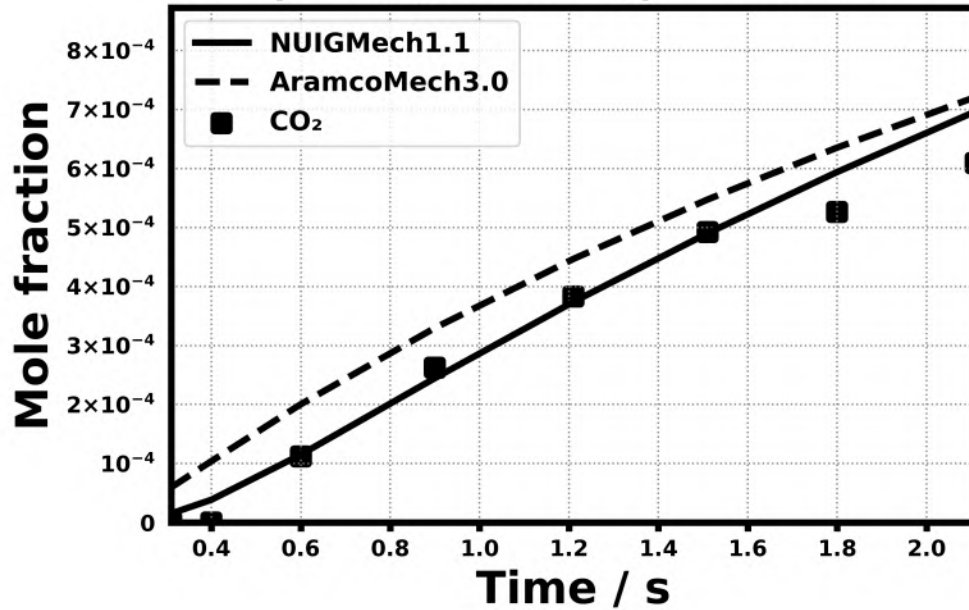
15.9) Dagaut, P., Cathonnet, M., Boetner, J. C., & Gaillard, F., Combustion science and technology, 56(1-3) (1987) 23-63.

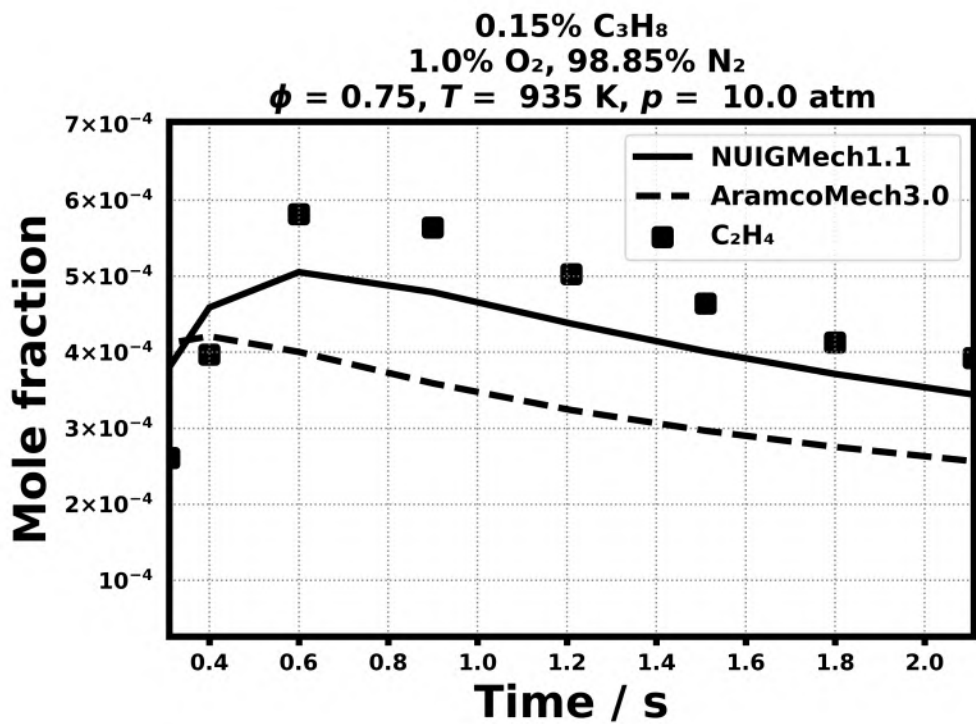
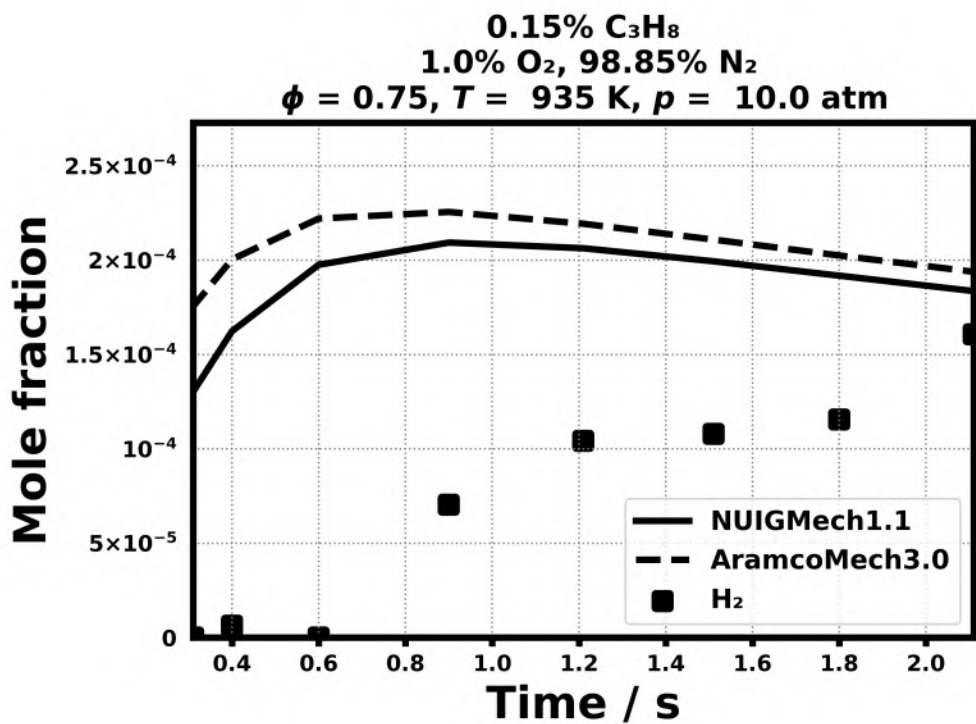


0.15% C₃H₈
1.0% O₂, 98.85% N₂
 $\phi = 0.75, T = 935 \text{ K}, p = 10.0 \text{ atm}$

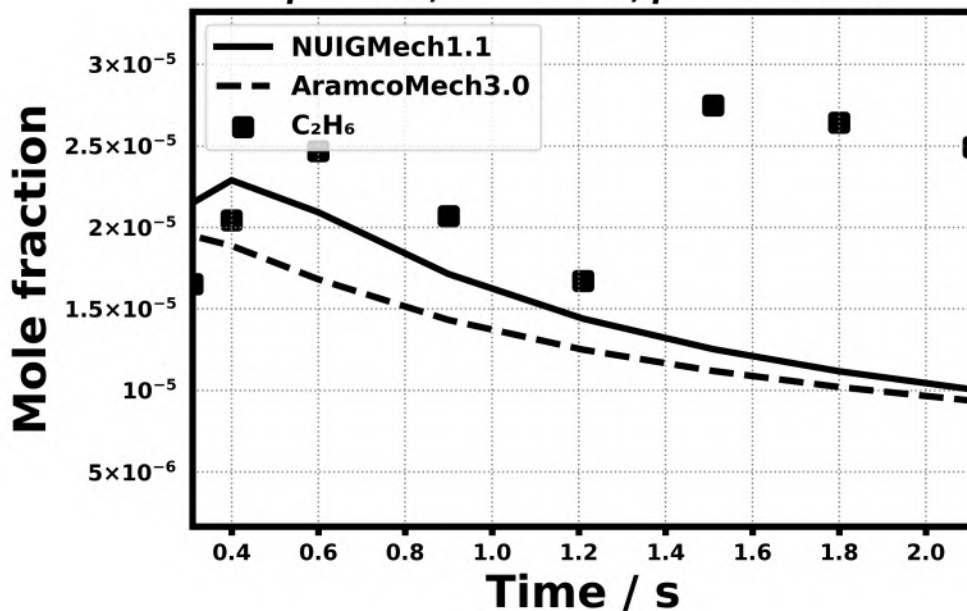


0.15% C₃H₈
1.0% O₂, 98.85% N₂
 $\phi = 0.75, T = 935 \text{ K}, p = 10.0 \text{ atm}$

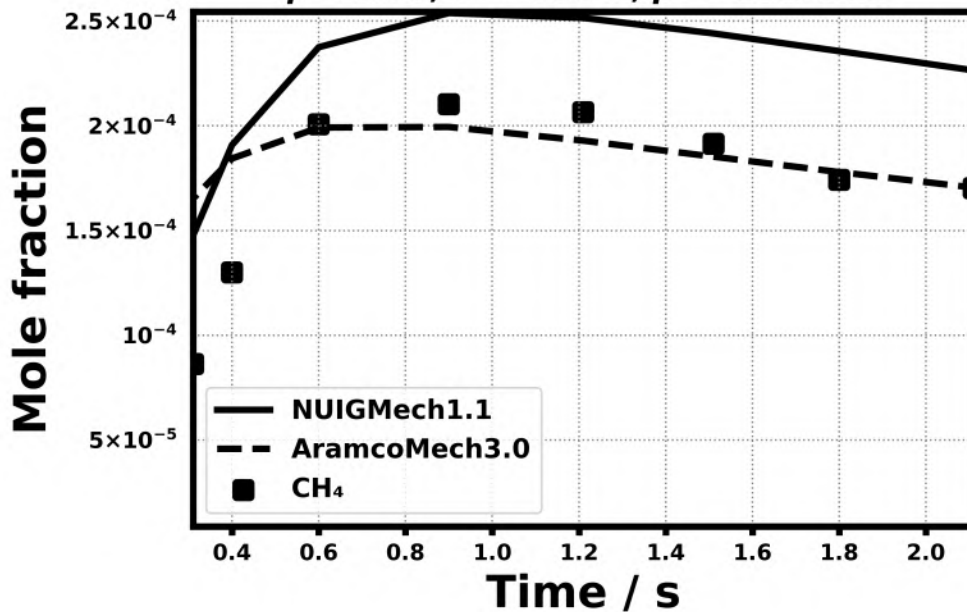




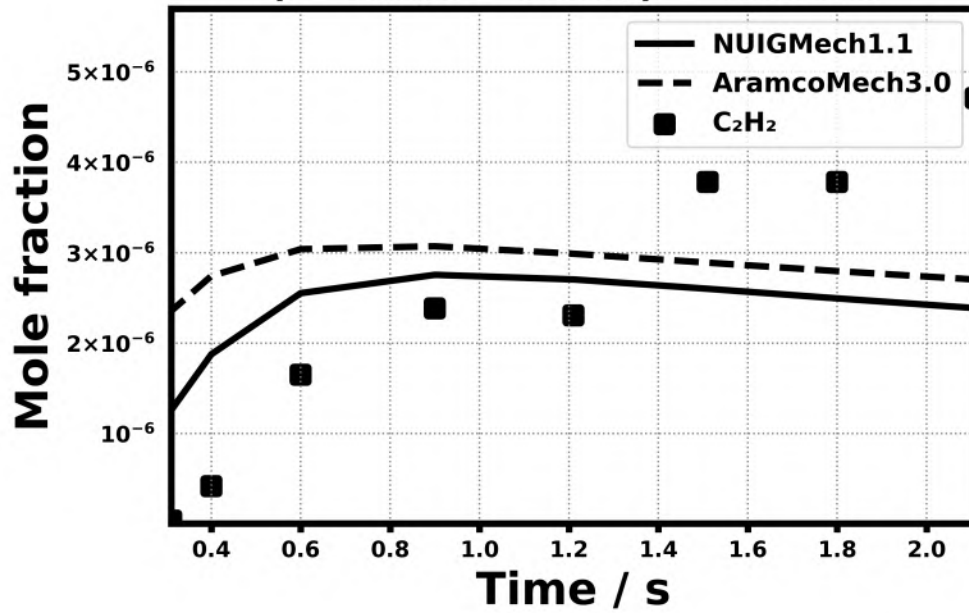
0.15% C₃H₈
1.0% O₂, 98.85% N₂
 $\phi = 0.75, T = 935 \text{ K}, p = 10.0 \text{ atm}$



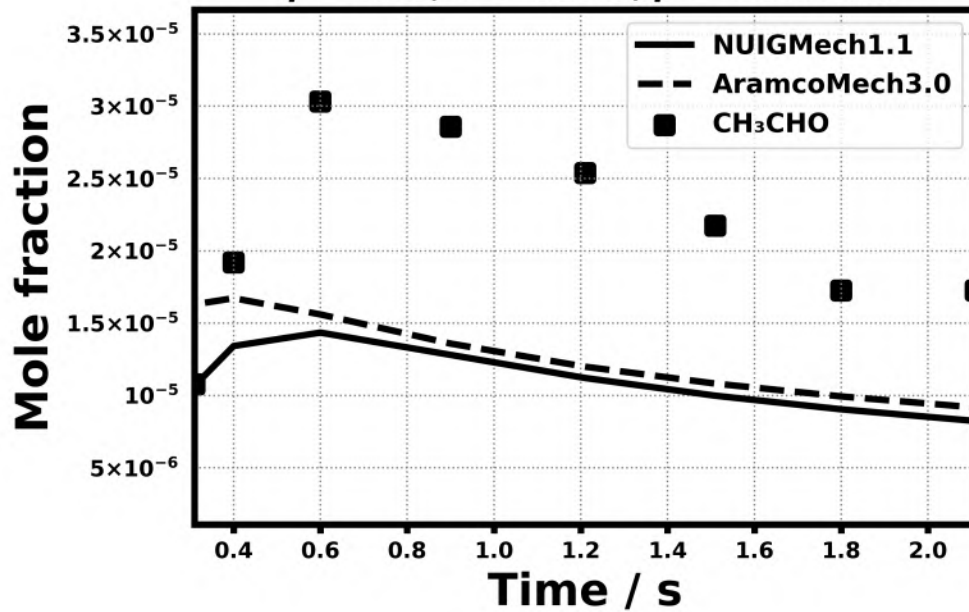
0.15% C₃H₈
1.0% O₂, 98.85% N₂
 $\phi = 0.75, T = 935 \text{ K}, p = 10.0 \text{ atm}$



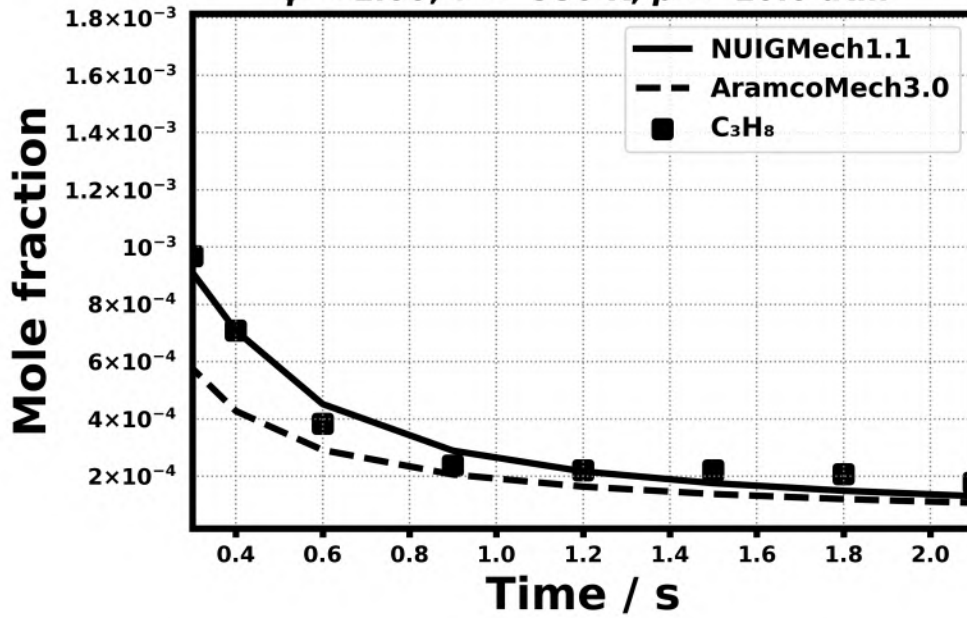
0.15% C₃H₈
1.0% O₂, 98.85% N₂
 $\phi = 0.75, T = 935 \text{ K}, p = 10.0 \text{ atm}$



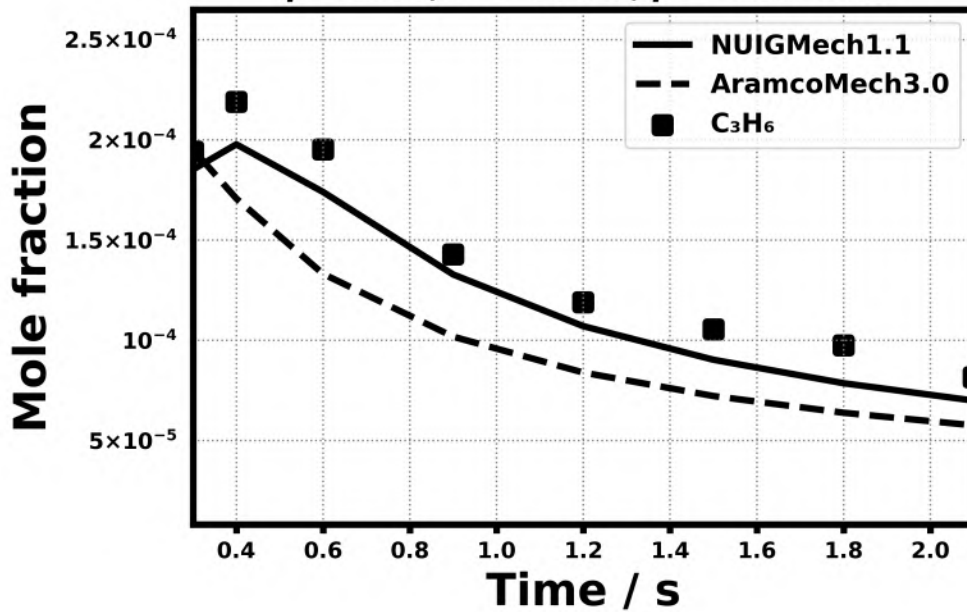
0.15% C₃H₈
1.0% O₂, 98.85% N₂
 $\phi = 0.75, T = 935 \text{ K}, p = 10.0 \text{ atm}$



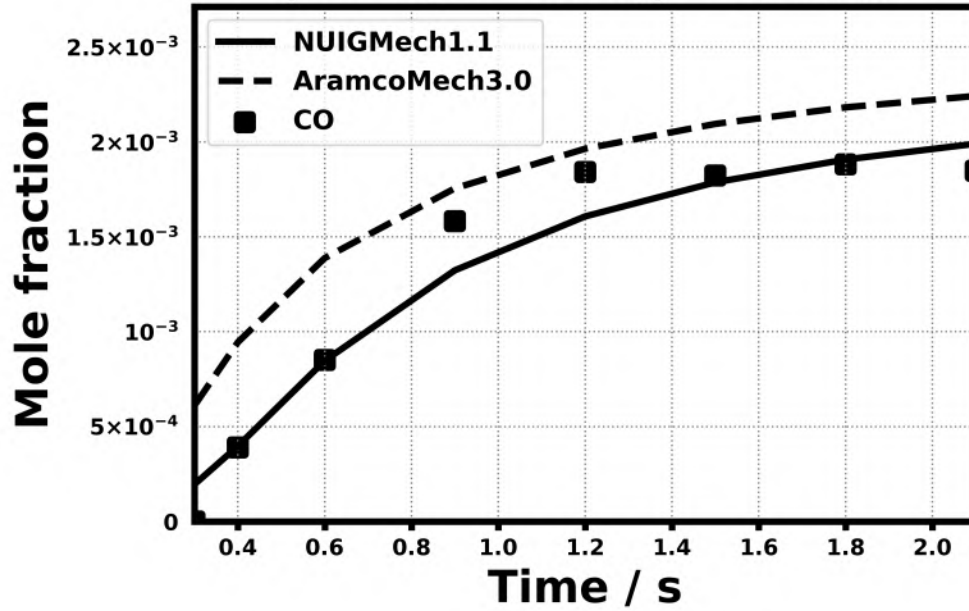
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



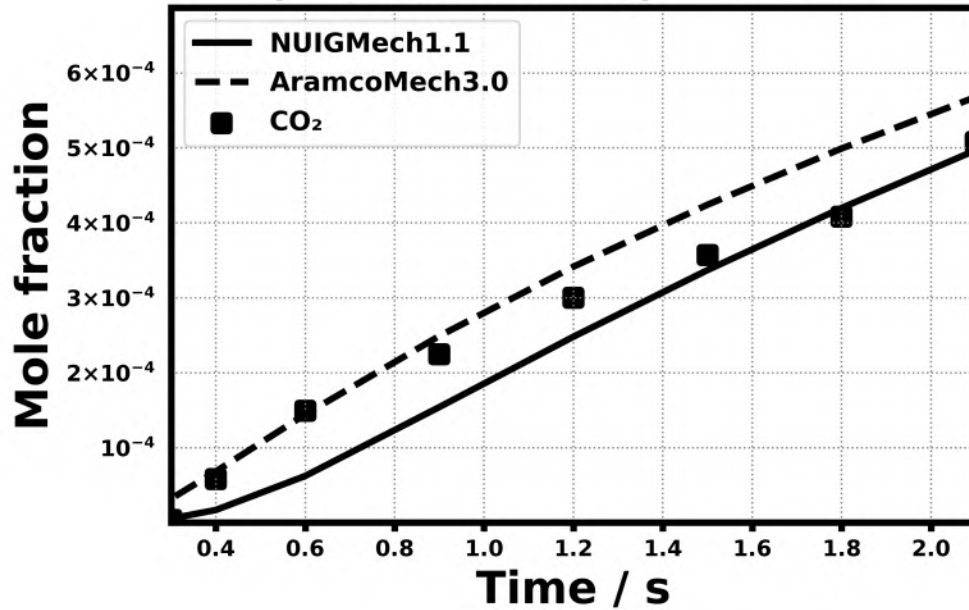
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



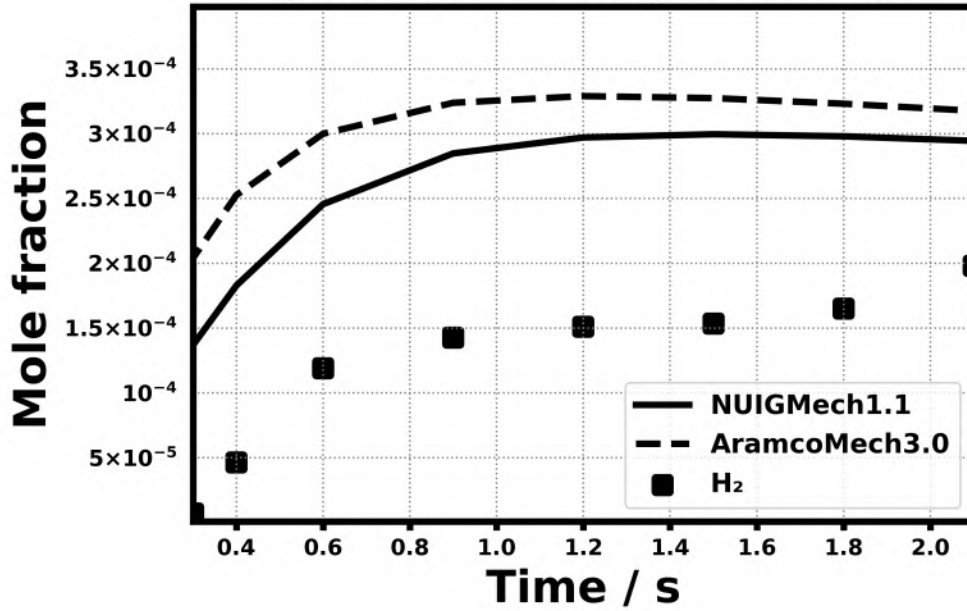
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



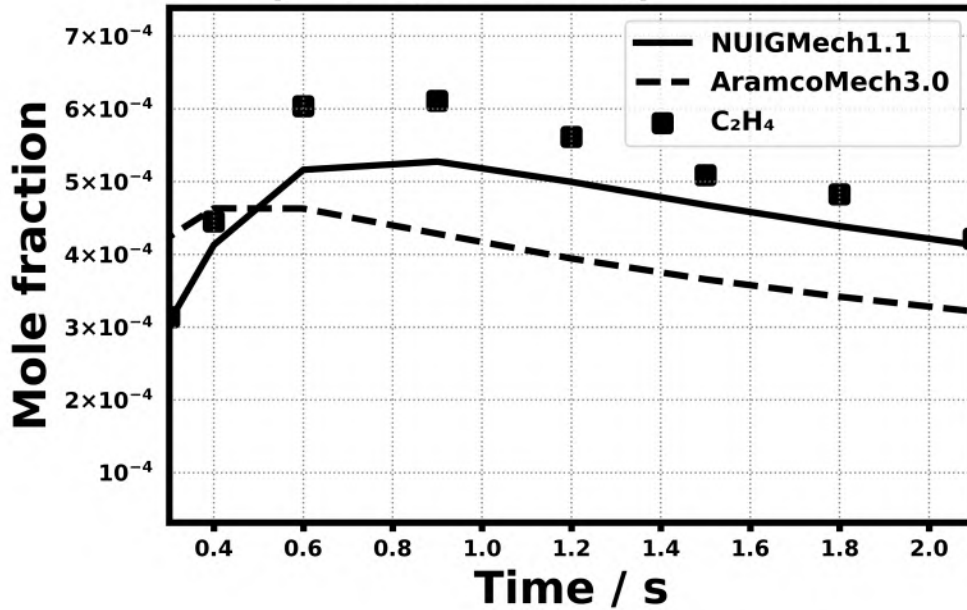
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



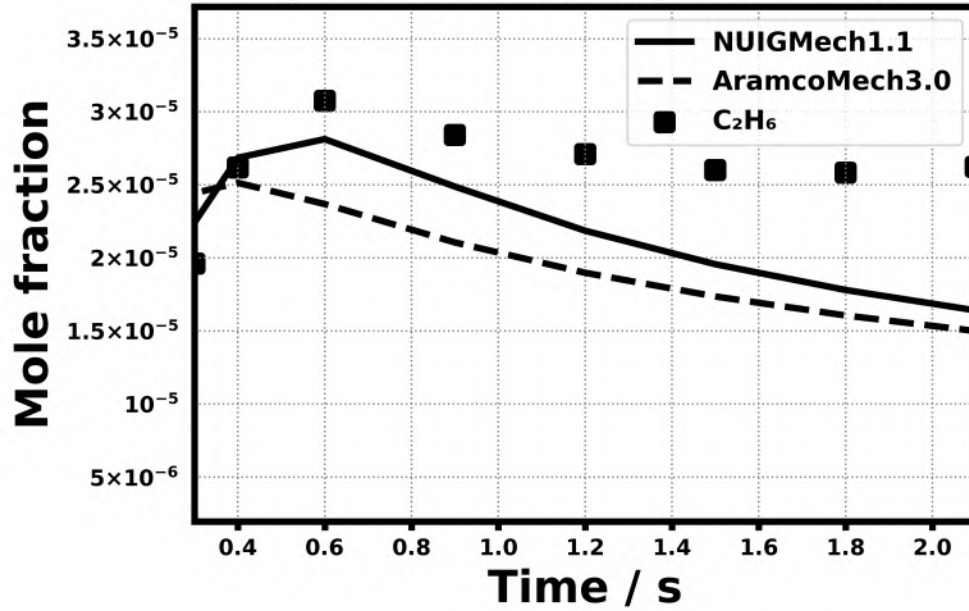
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



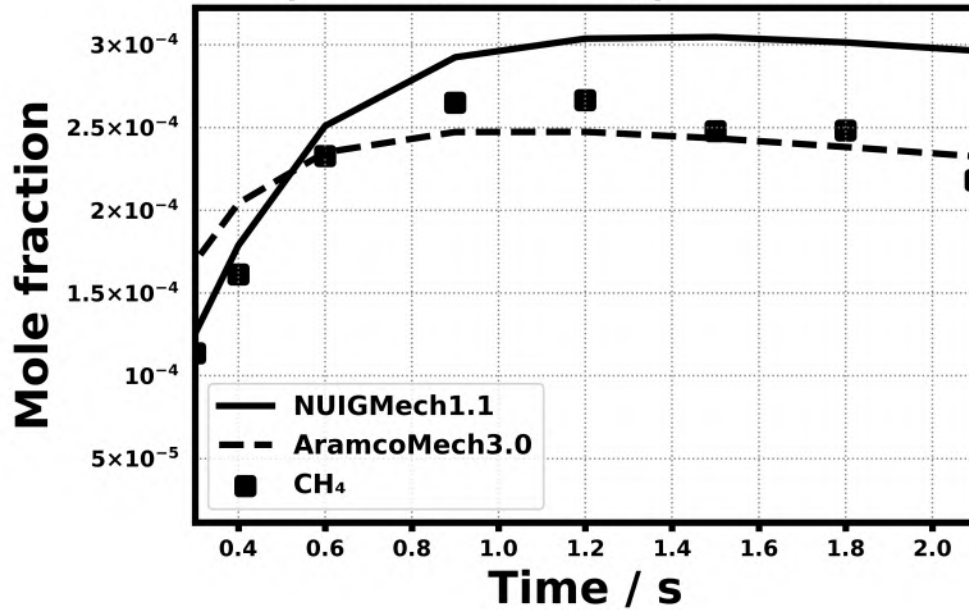
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



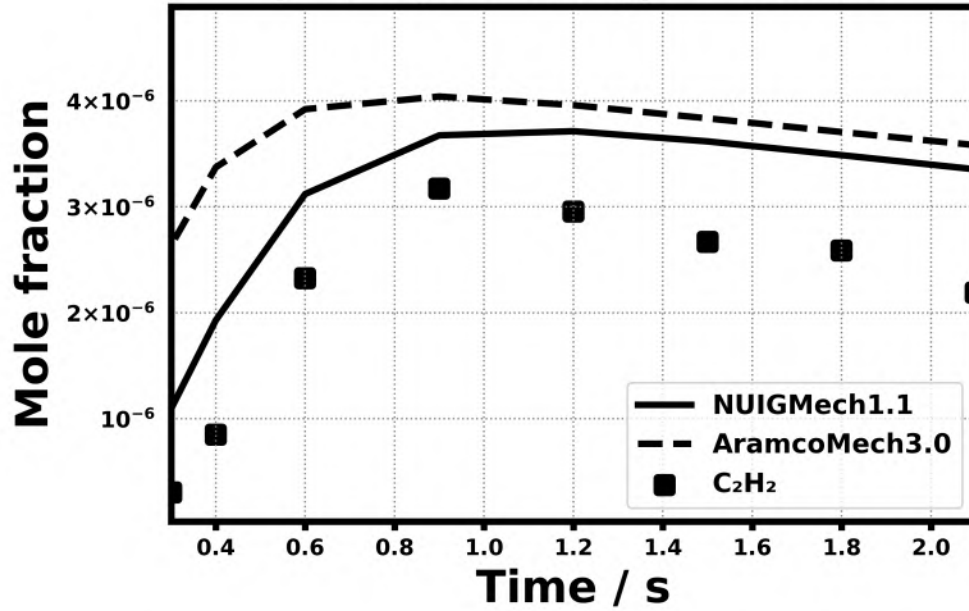
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



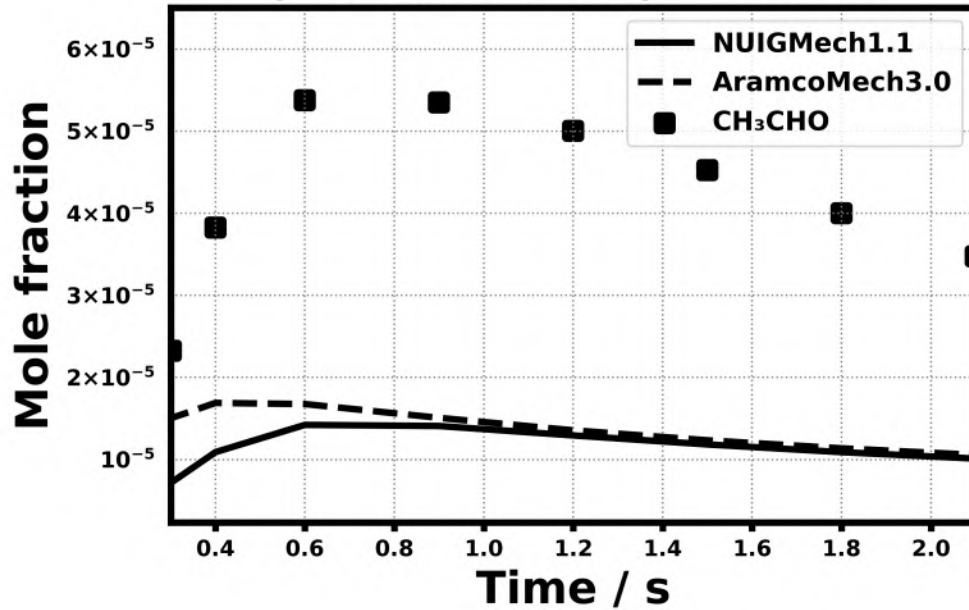
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



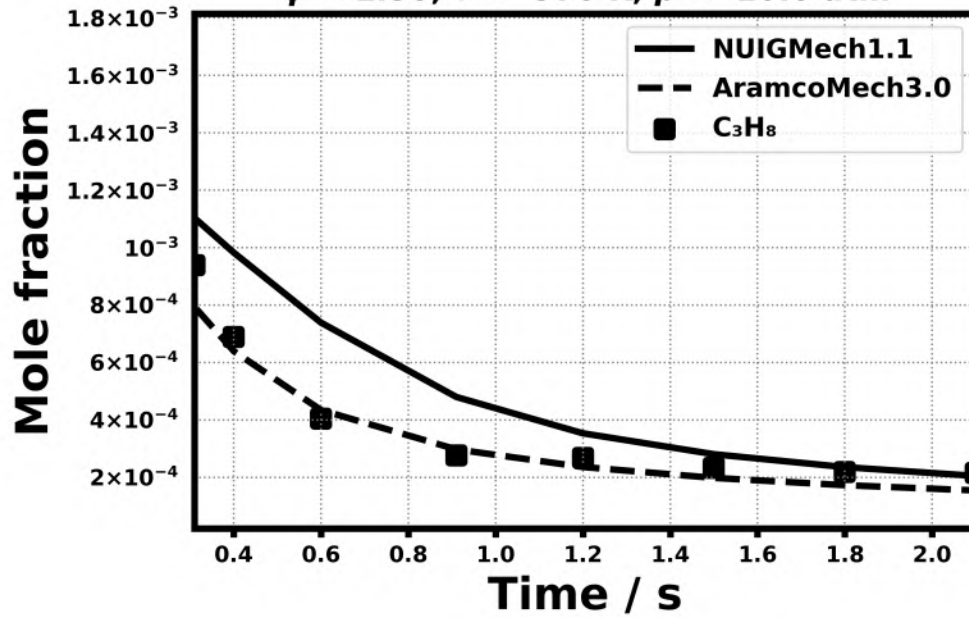
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



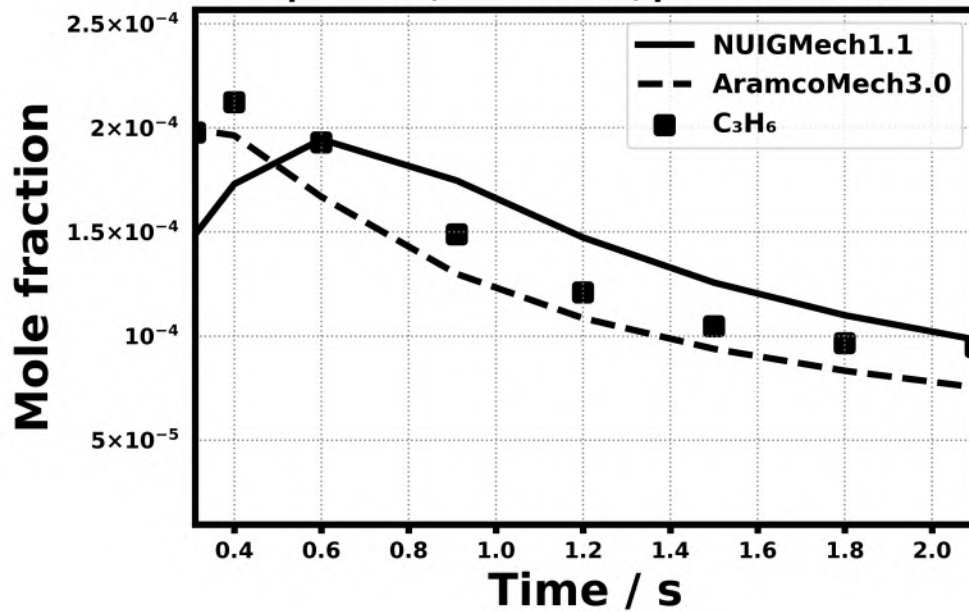
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 950 \text{ K}, p = 10.0 \text{ atm}$



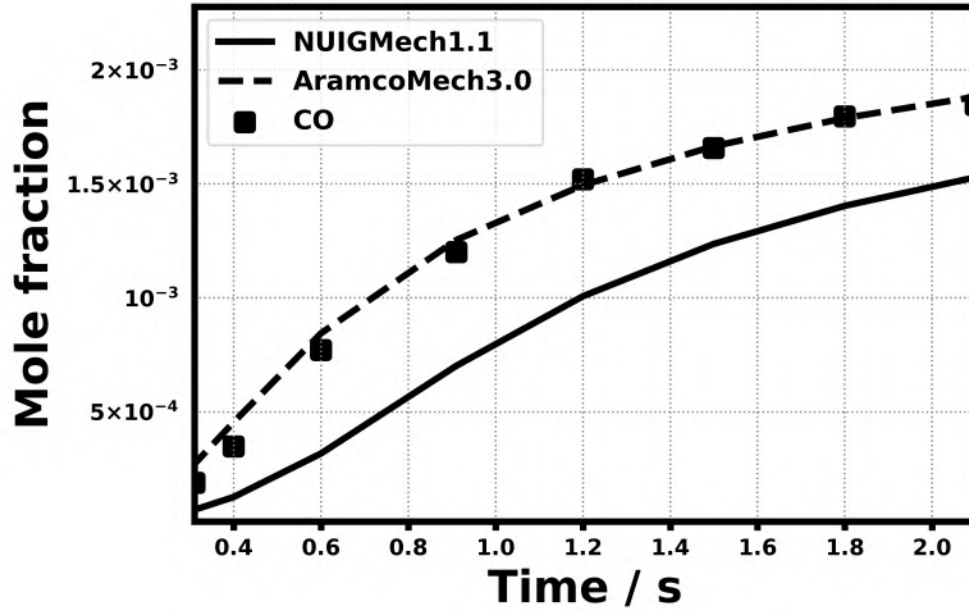
0.15% C₃H₈
0.5% O₂, 99.35% N₂
 $\phi = 1.50, T = 970 \text{ K}, p = 10.0 \text{ atm}$



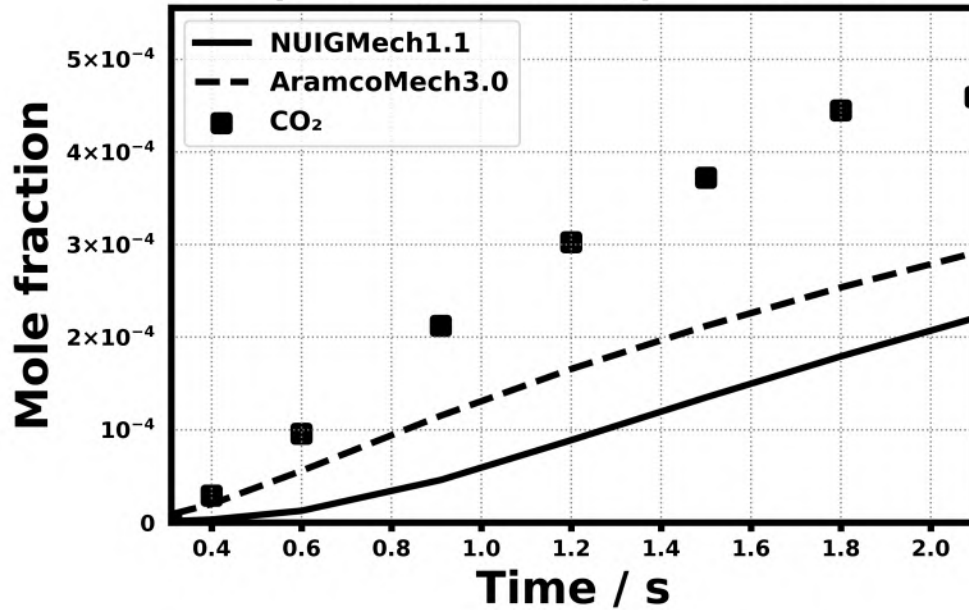
0.15% C₃H₈
0.5% O₂, 99.35% N₂
 $\phi = 1.50, T = 970 \text{ K}, p = 10.0 \text{ atm}$



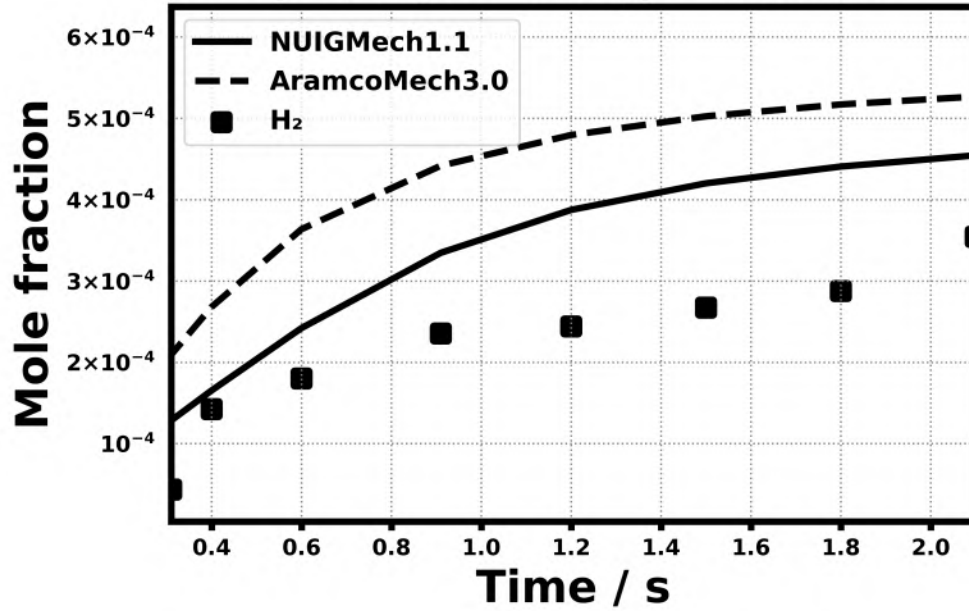
0.15% C₃H₈
0.5% O₂, 99.35% N₂
 $\phi = 1.50, T = 970 \text{ K}, p = 10.0 \text{ atm}$



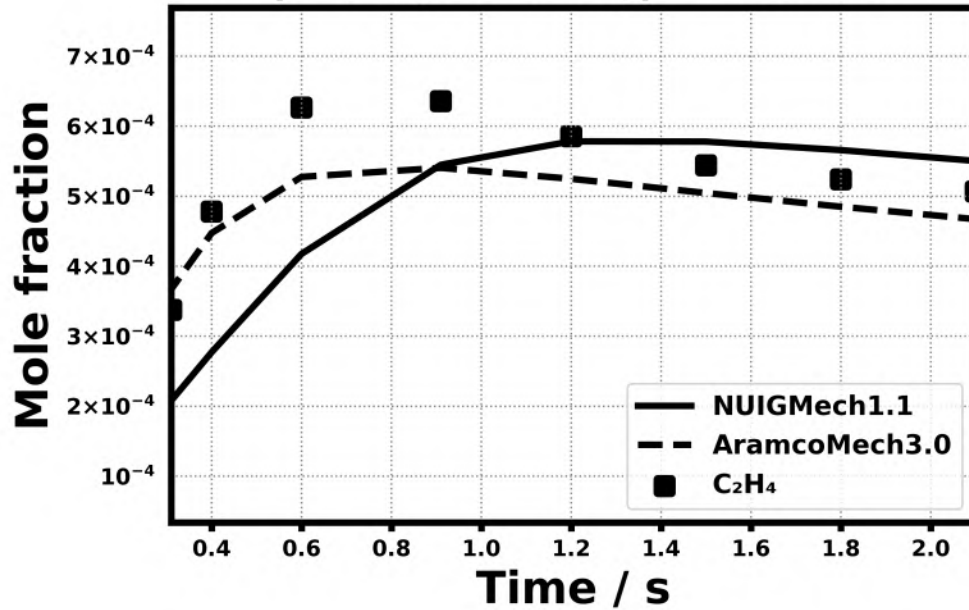
0.15% C₃H₈
0.5% O₂, 99.35% N₂
 $\phi = 1.50, T = 970 \text{ K}, p = 10.0 \text{ atm}$

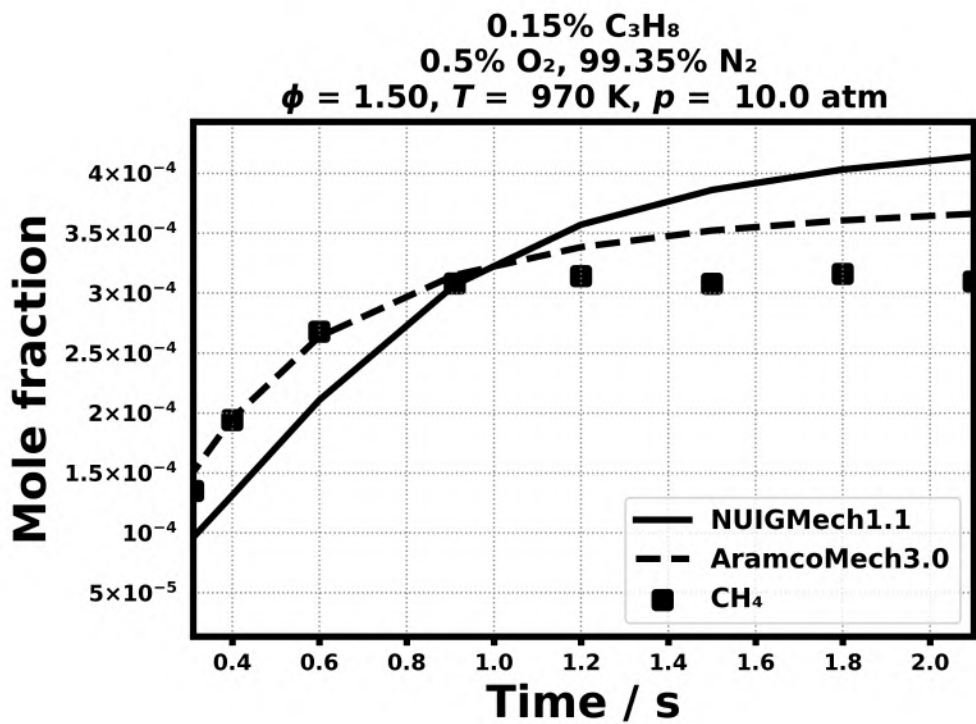
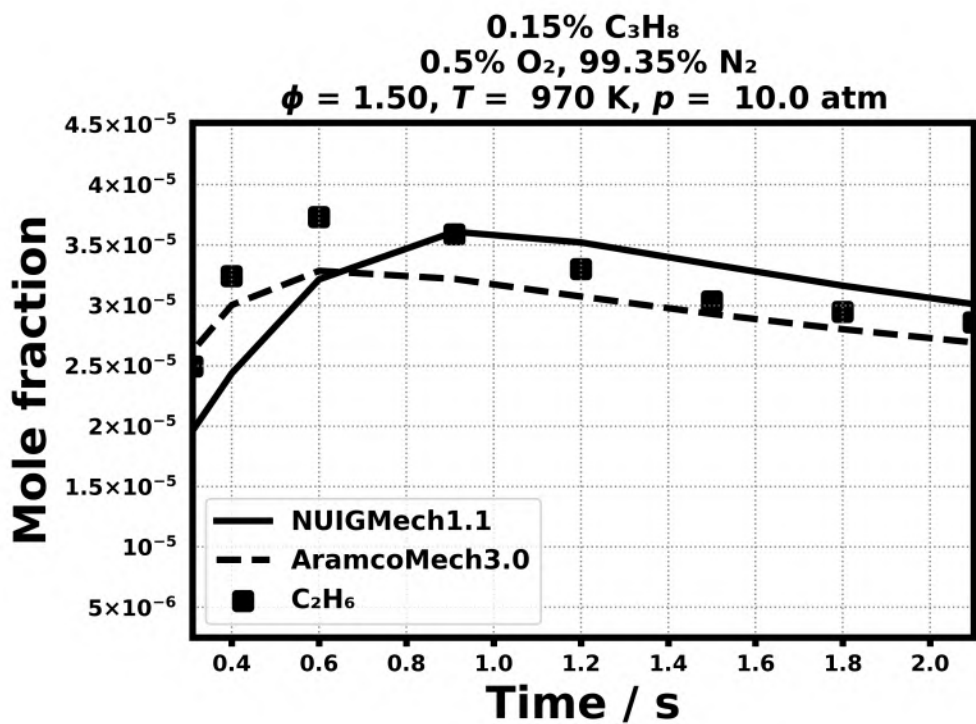


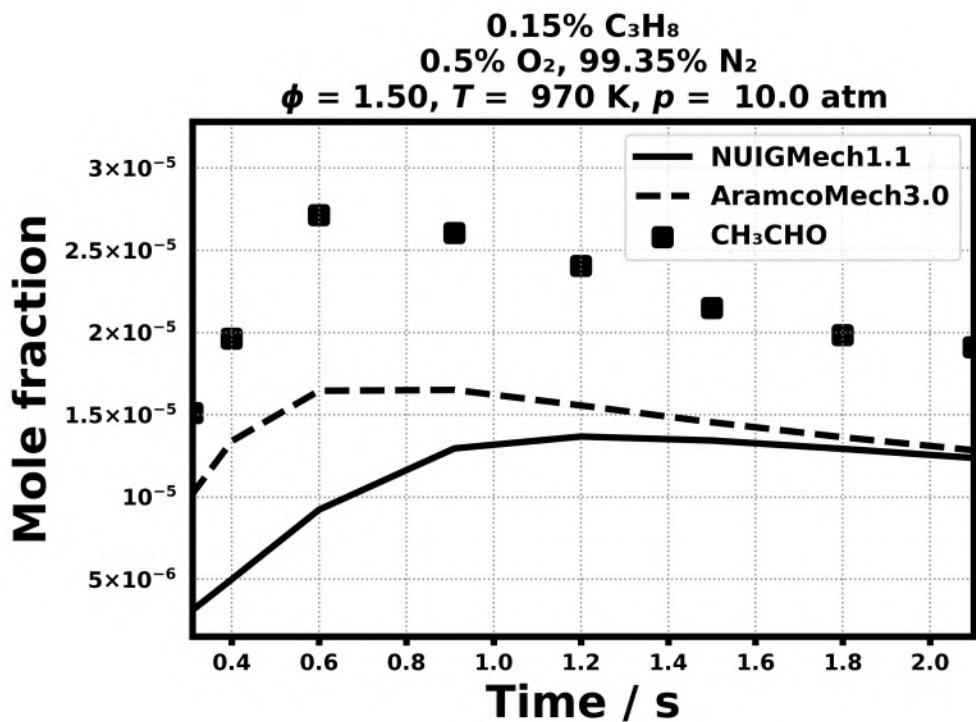
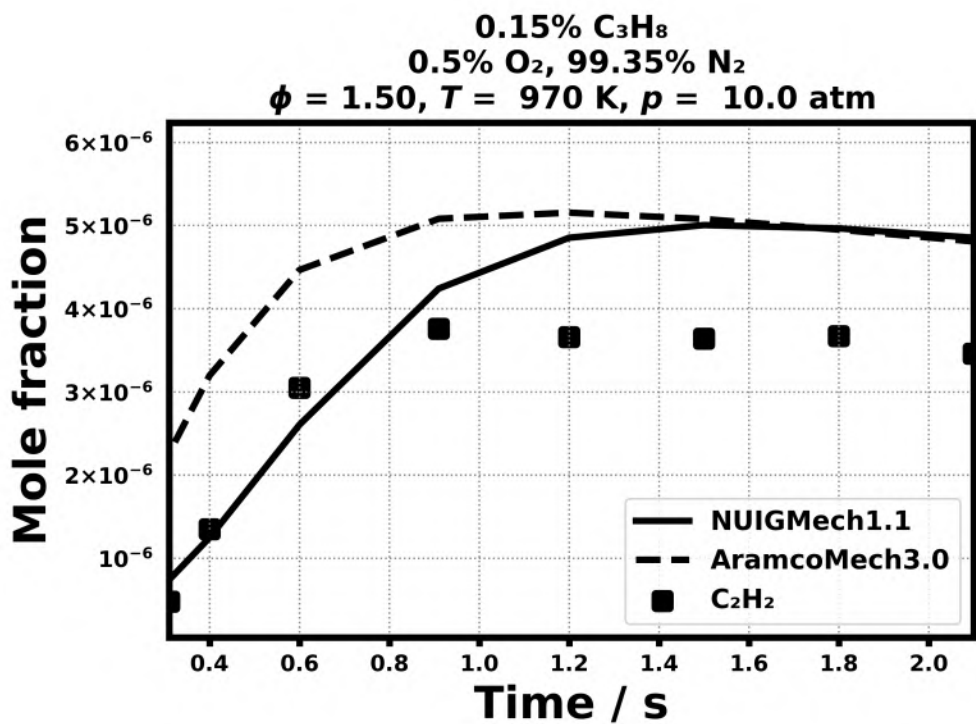
0.15% C₃H₈
0.5% O₂, 99.35% N₂
 $\phi = 1.50, T = 970 \text{ K}, p = 10.0 \text{ atm}$



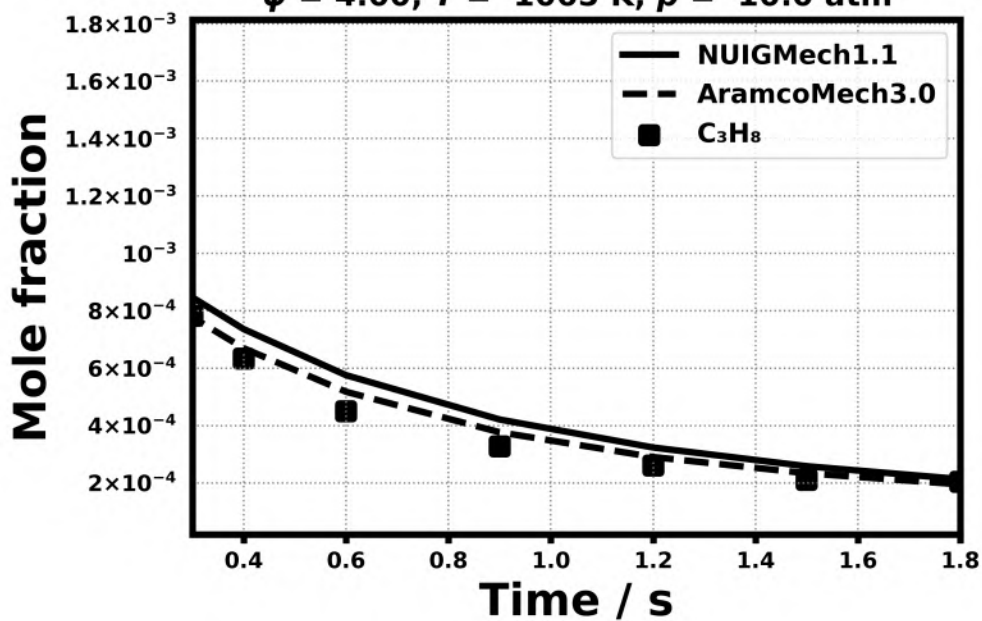
0.15% C₃H₈
0.5% O₂, 99.35% N₂
 $\phi = 1.50, T = 970 \text{ K}, p = 10.0 \text{ atm}$



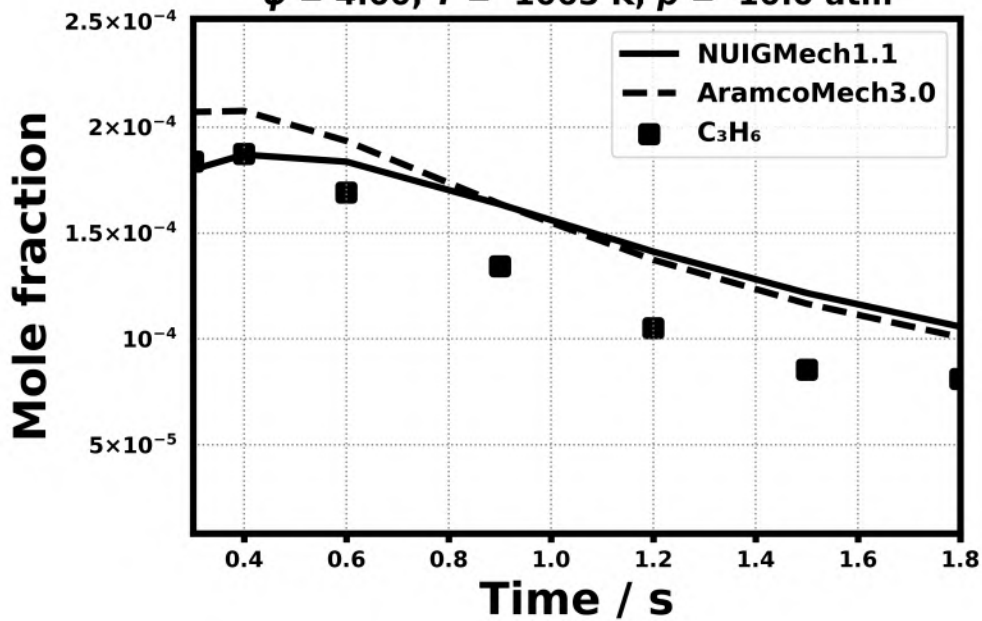




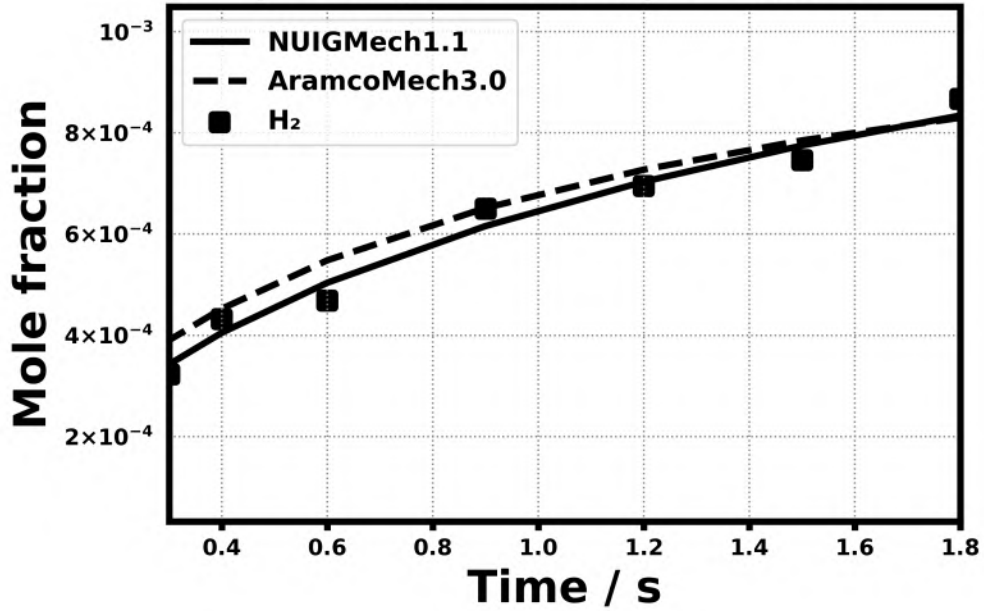
0.15% C₃H₈
0.188% O₂, 99.662% N₂
 $\phi = 4.00, T = 1065 \text{ K}, p = 10.0 \text{ atm}$



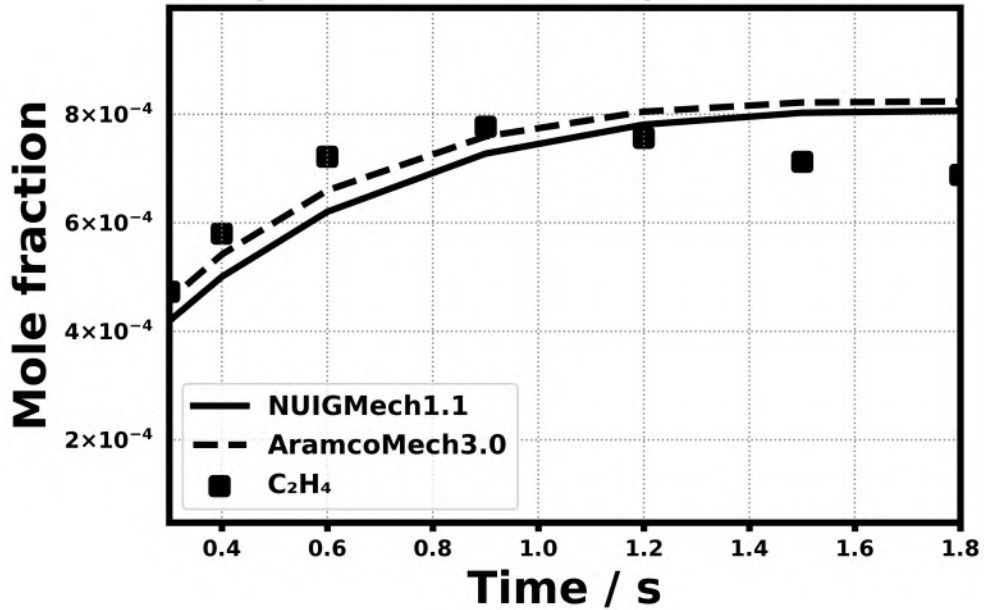
0.15% C₃H₈
0.188% O₂, 99.662% N₂
 $\phi = 4.00, T = 1065 \text{ K}, p = 10.0 \text{ atm}$



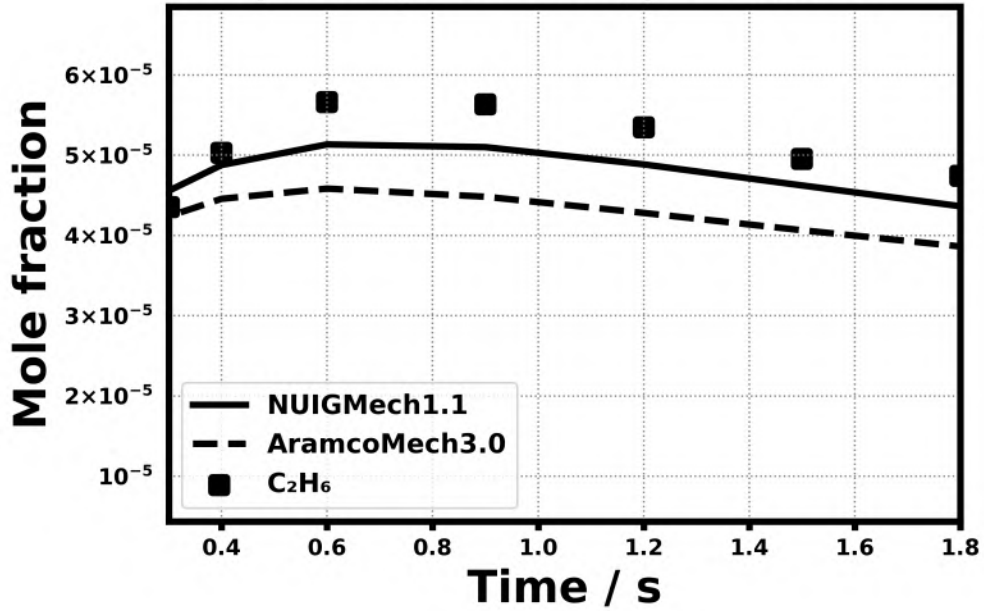
0.15% C₃H₈
0.188% O₂, 99.662% N₂
 $\phi = 4.00, T = 1065 \text{ K}, p = 10.0 \text{ atm}$



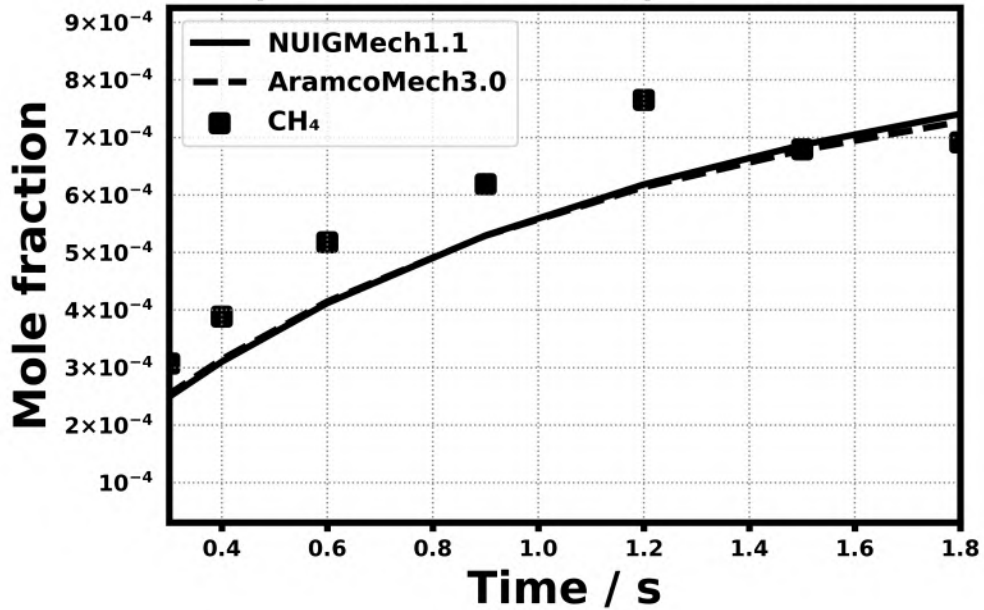
0.15% C₃H₈
0.188% O₂, 99.662% N₂
 $\phi = 4.00, T = 1065 \text{ K}, p = 10.0 \text{ atm}$



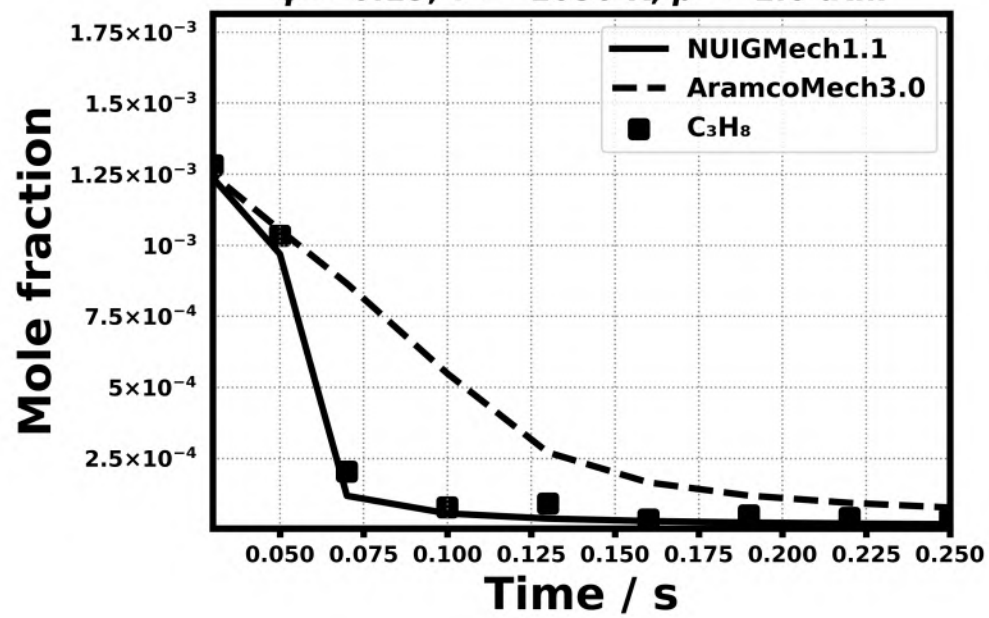
0.15% C₃H₈
0.188% O₂, 99.662% N₂
 $\phi = 4.00, T = 1065 \text{ K}, p = 10.0 \text{ atm}$



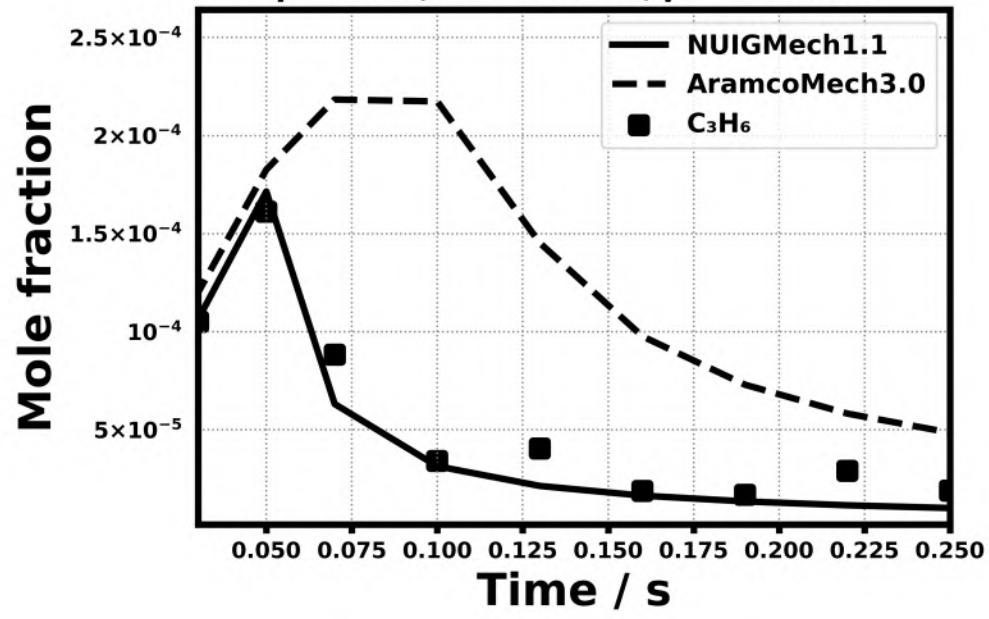
0.15% C₃H₈
0.188% O₂, 99.662% N₂
 $\phi = 4.00, T = 1065 \text{ K}, p = 10.0 \text{ atm}$



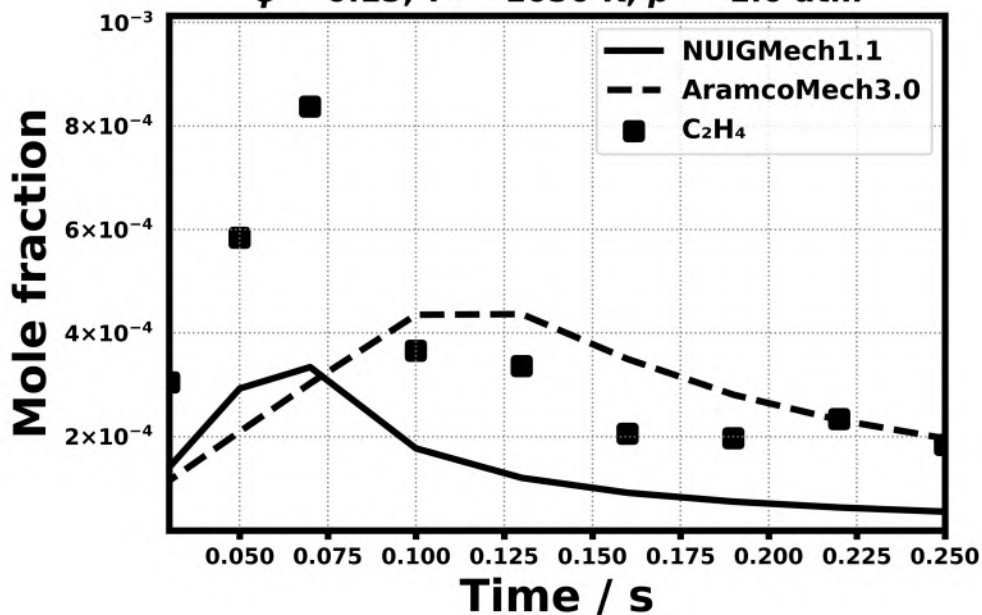
0.15% C₃H₈
5.0% O₂, 94.85% N₂
 $\phi = 0.15, T = 1050 \text{ K}, p = 1.0 \text{ atm}$



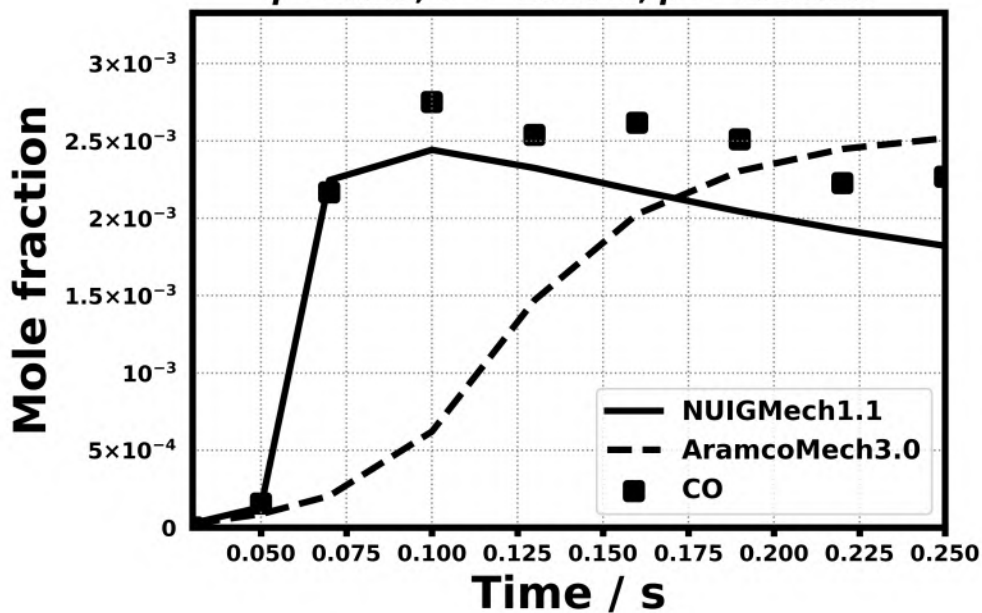
0.15% C₃H₈
5.0% O₂, 94.85% N₂
 $\phi = 0.15, T = 1050 \text{ K}, p = 1.0 \text{ atm}$

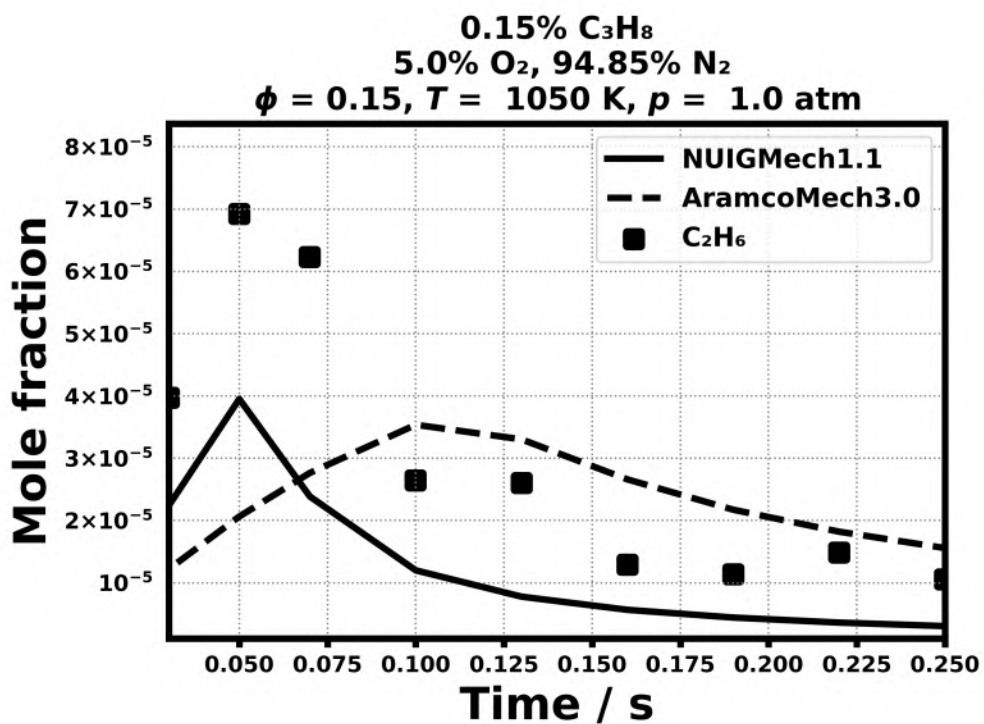
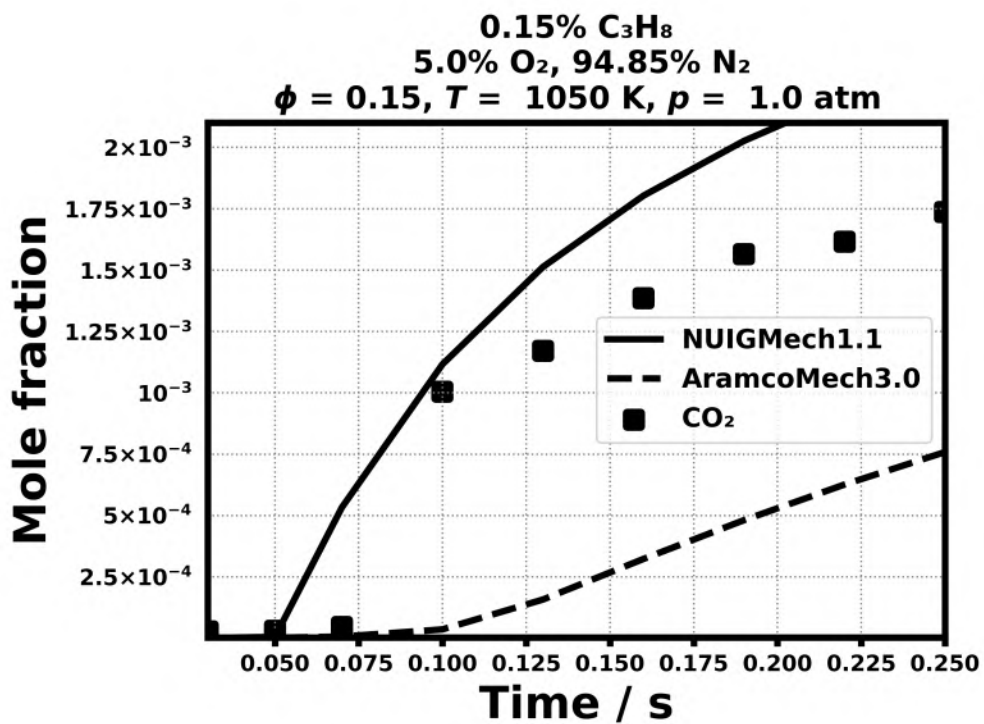


0.15% C₃H₈
 5.0% O₂, 94.85% N₂
 $\phi = 0.15, T = 1050 \text{ K}, p = 1.0 \text{ atm}$

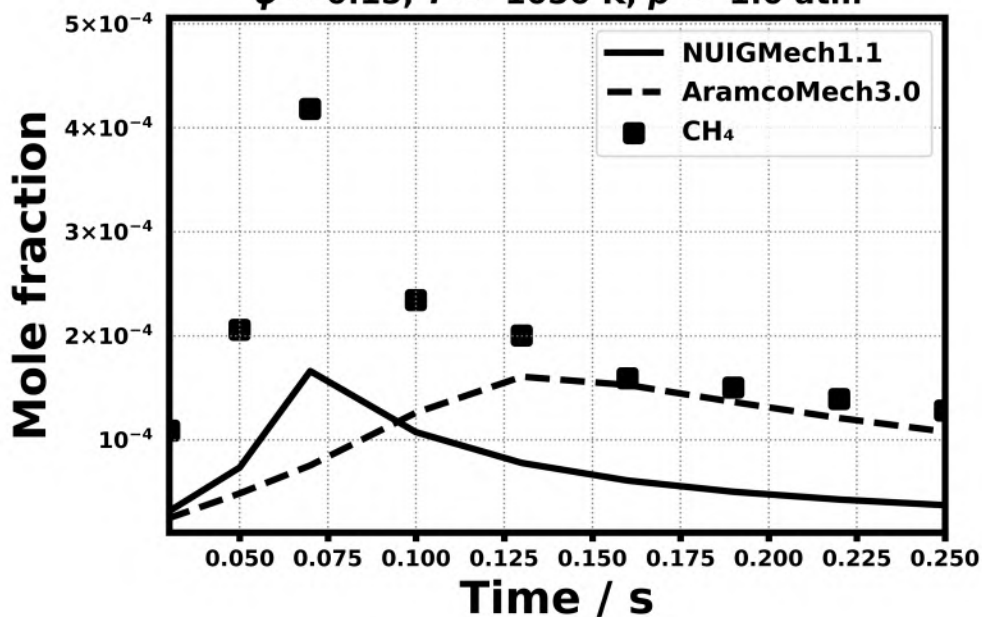


0.15% C₃H₈
 5.0% O₂, 94.85% N₂
 $\phi = 0.15, T = 1050 \text{ K}, p = 1.0 \text{ atm}$

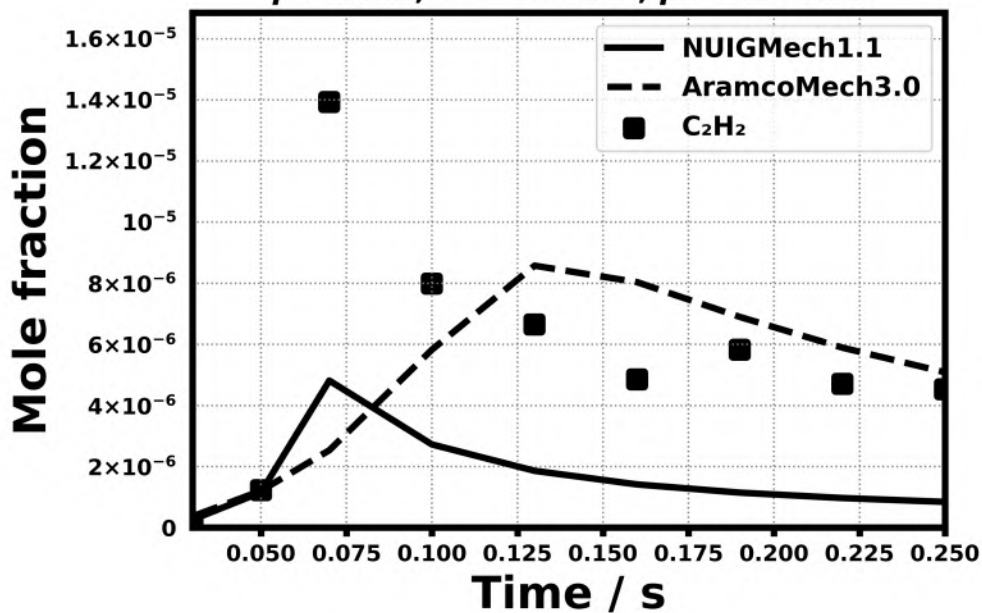




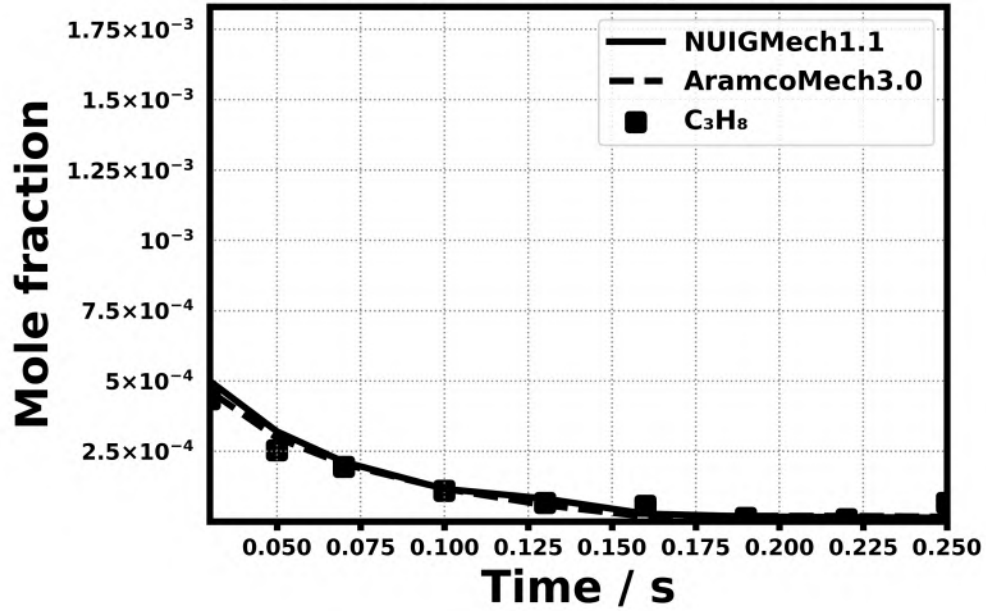
0.15% C₃H₈
5.0% O₂, 94.85% N₂
 $\phi = 0.15, T = 1050 \text{ K}, p = 1.0 \text{ atm}$



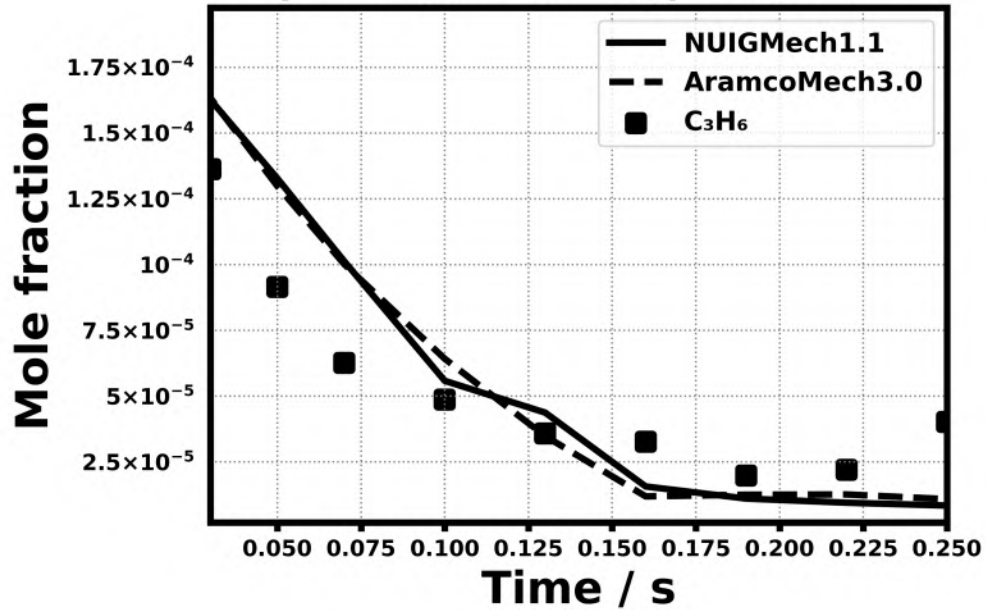
0.15% C₃H₈
5.0% O₂, 94.85% N₂
 $\phi = 0.15, T = 1050 \text{ K}, p = 1.0 \text{ atm}$



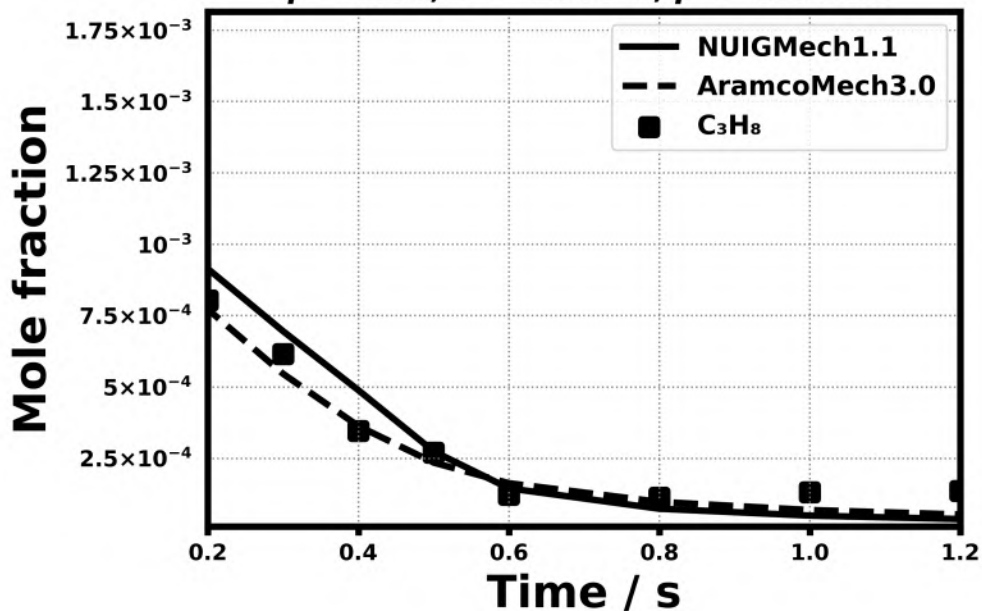
0.15% C₃H₈
0.5% O₂, 98.35% N₂
 $\phi = 1.50, T = 1210 \text{ K}, p = 1.0 \text{ atm}$



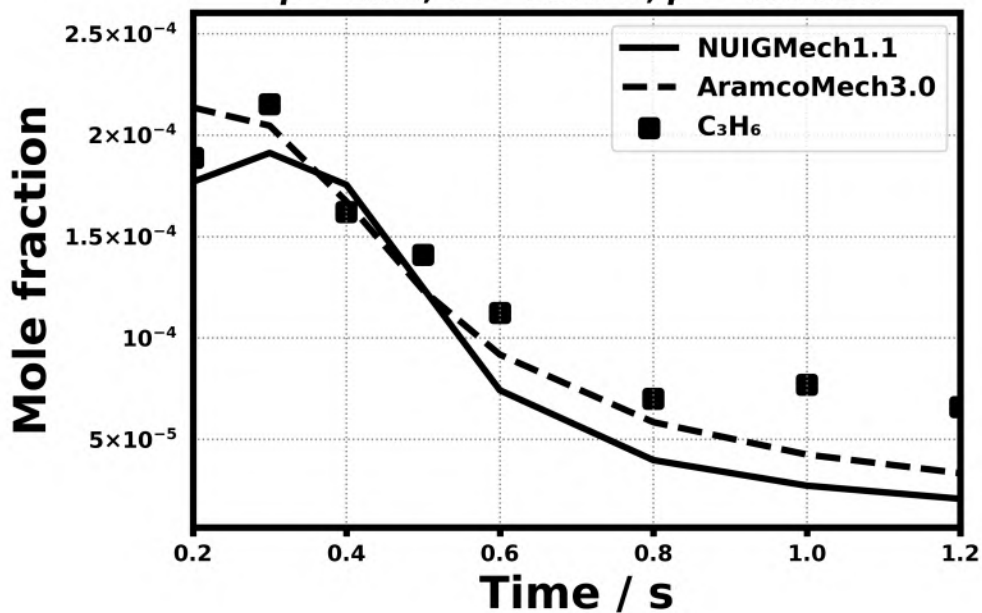
0.15% C₃H₈
0.5% O₂, 98.35% N₂
 $\phi = 1.50, T = 1210 \text{ K}, p = 1.0 \text{ atm}$



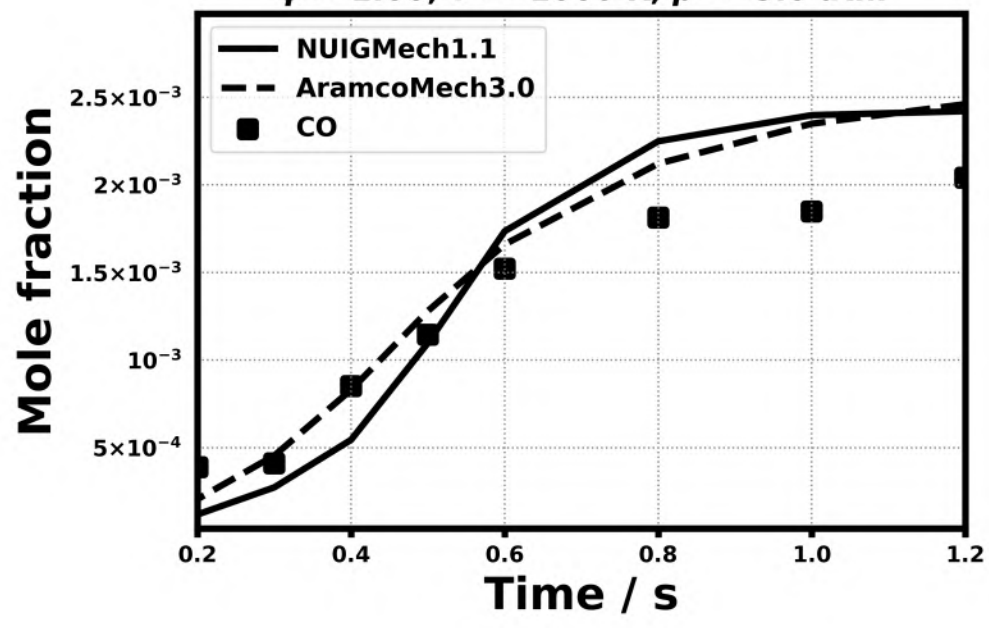
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 1060 \text{ K}, p = 5.0 \text{ atm}$



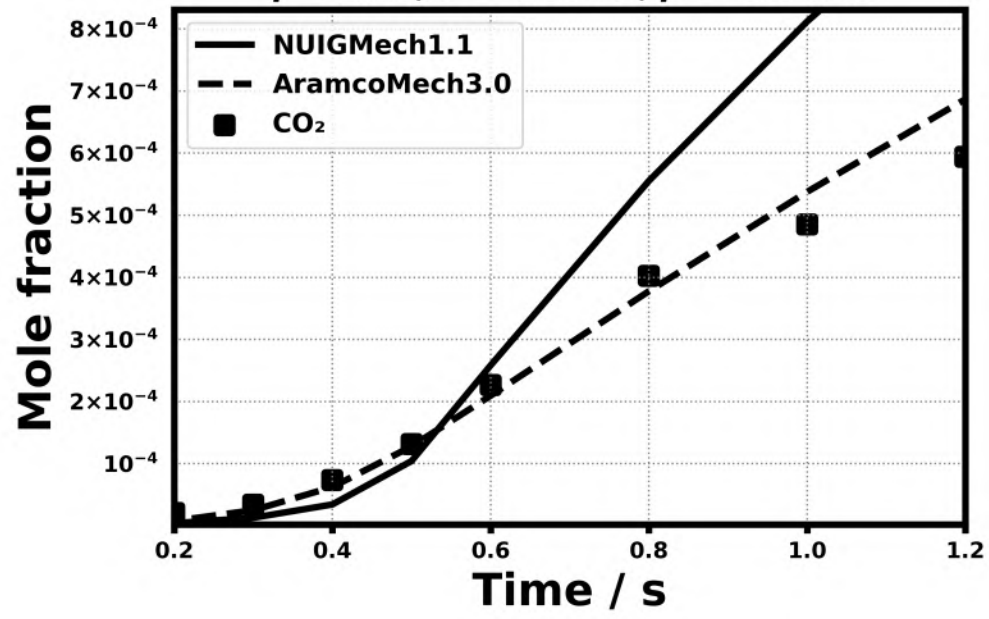
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 1060 \text{ K}, p = 5.0 \text{ atm}$

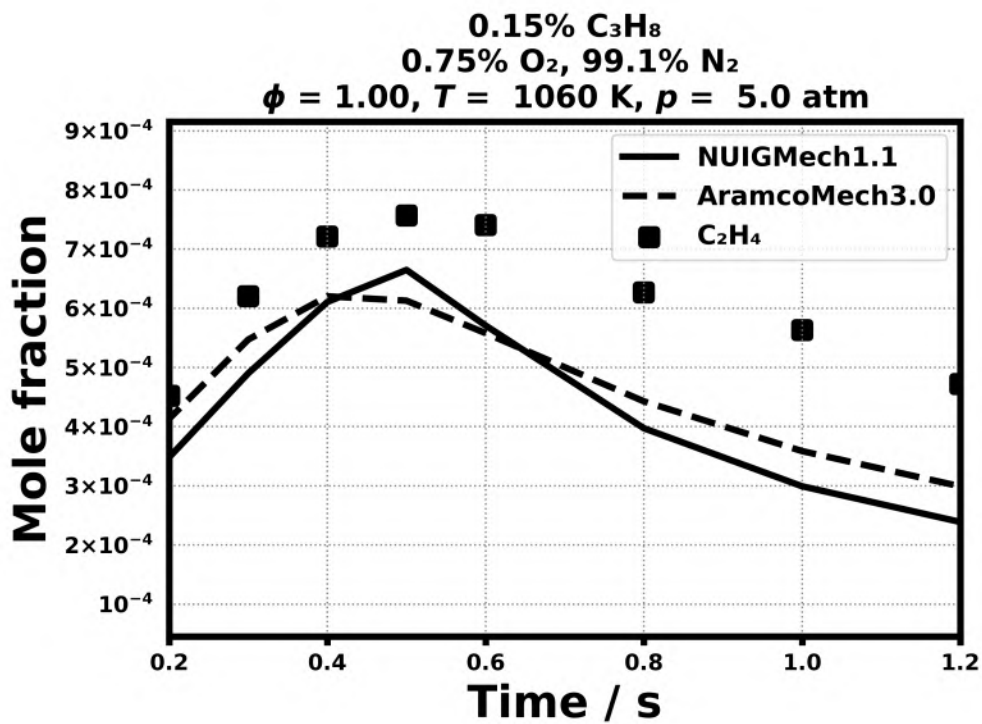
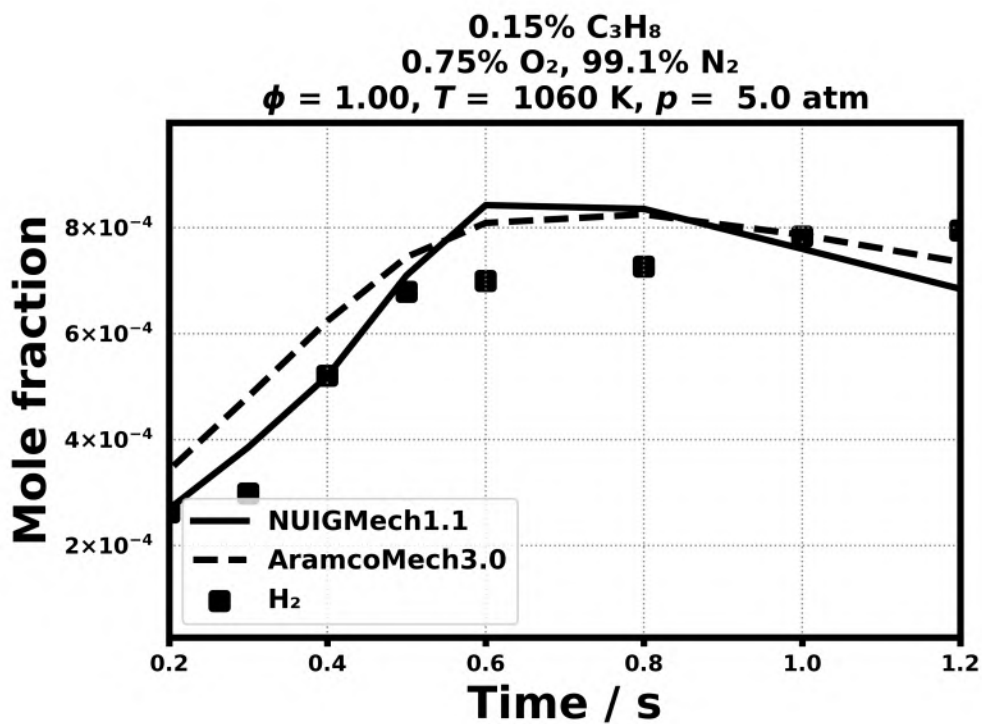


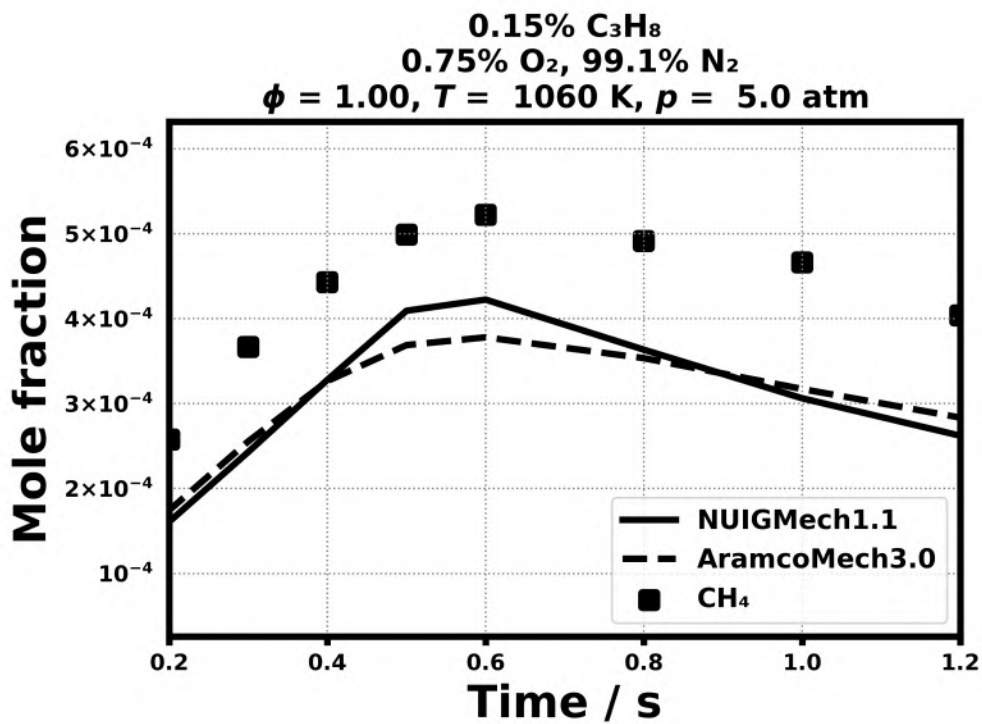
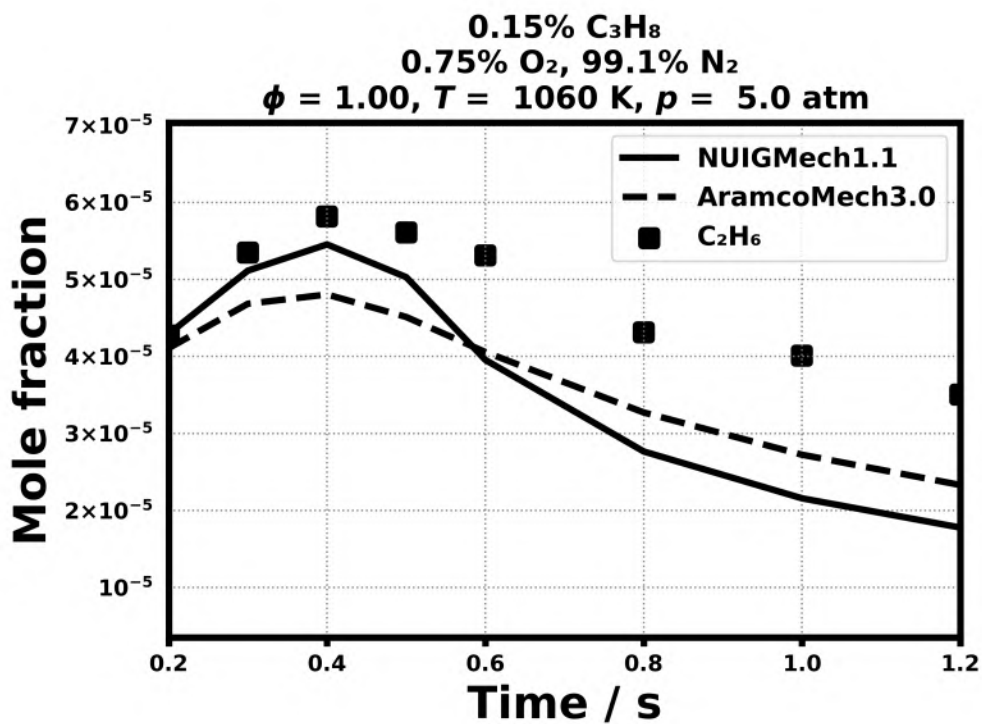
0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 1060 \text{ K}, p = 5.0 \text{ atm}$

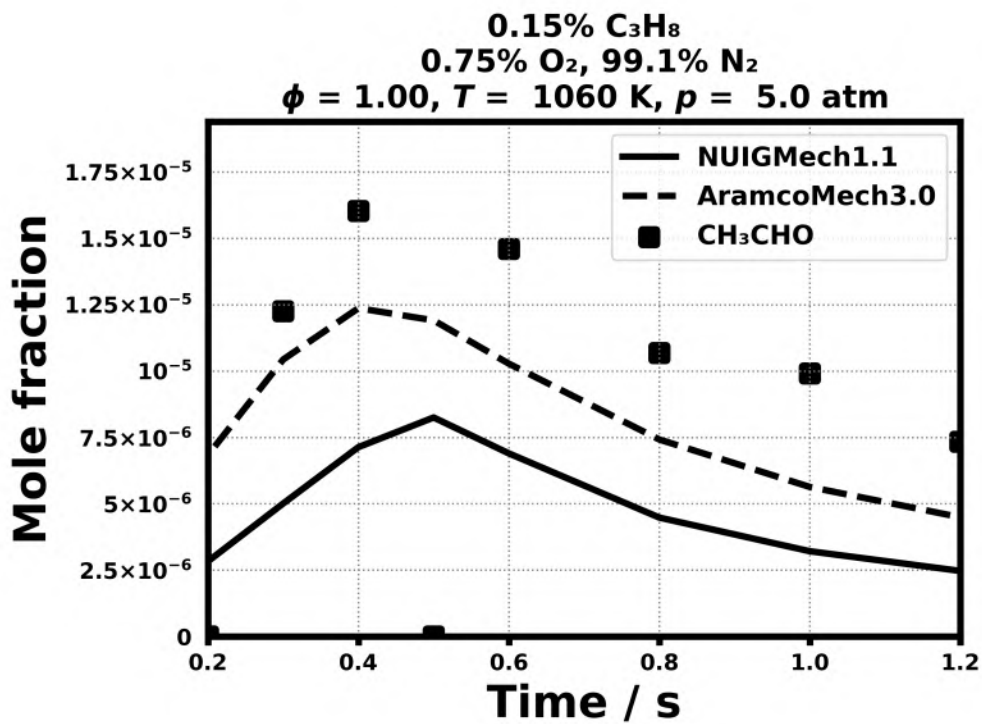
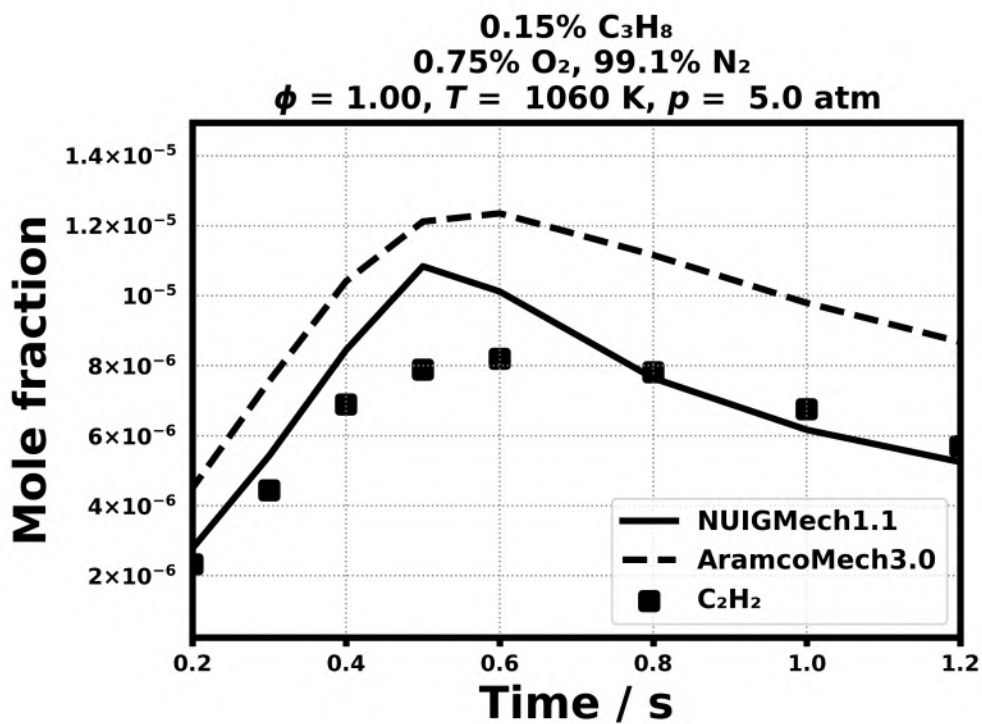


0.15% C₃H₈
0.75% O₂, 99.1% N₂
 $\phi = 1.00, T = 1060 \text{ K}, p = 5.0 \text{ atm}$

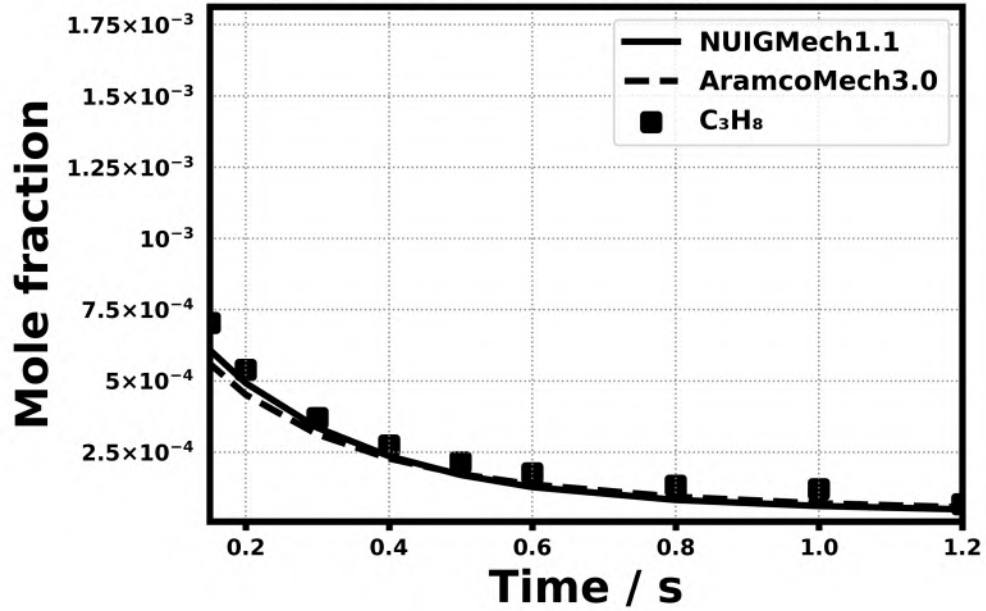




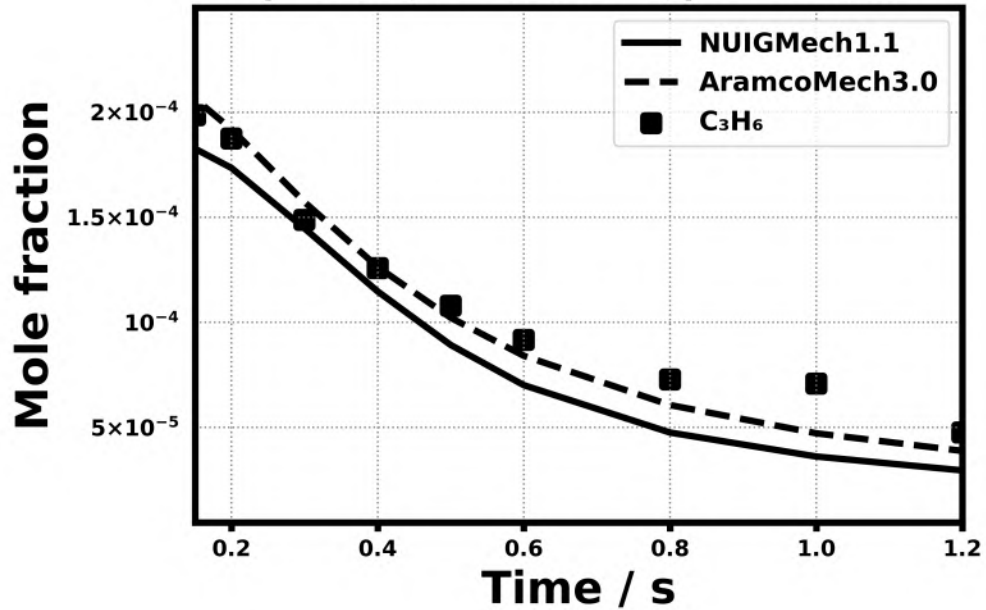




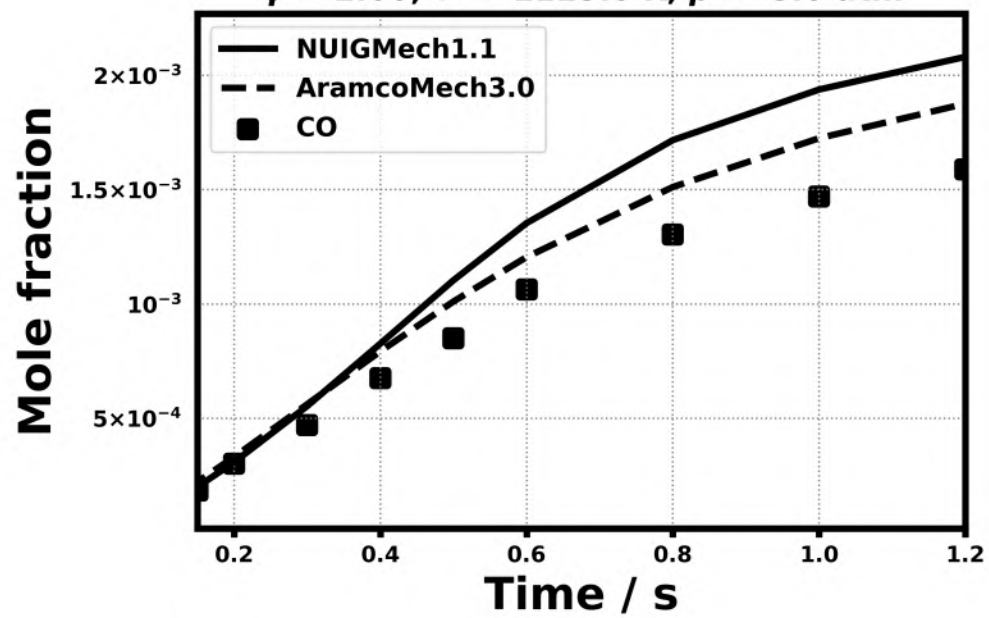
0.15% C₃H₈
0.375% O₂, 99.475% N₂
 $\phi = 2.00$, $T = 1115.0$ K, $p = 5.0$ atm



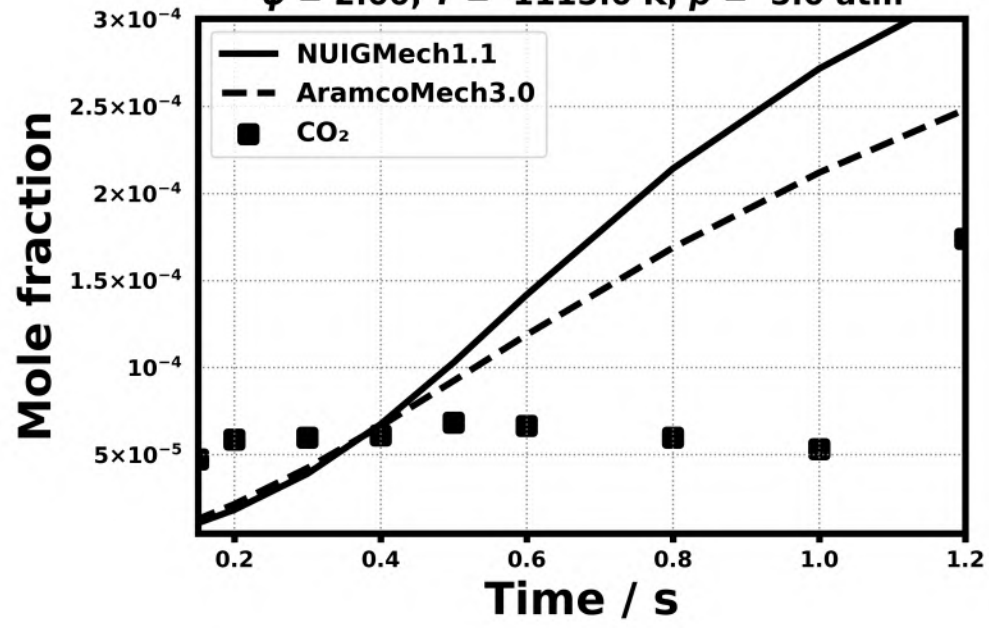
0.15% C₃H₈
0.375% O₂, 99.475% N₂
 $\phi = 2.00$, $T = 1115.0$ K, $p = 5.0$ atm



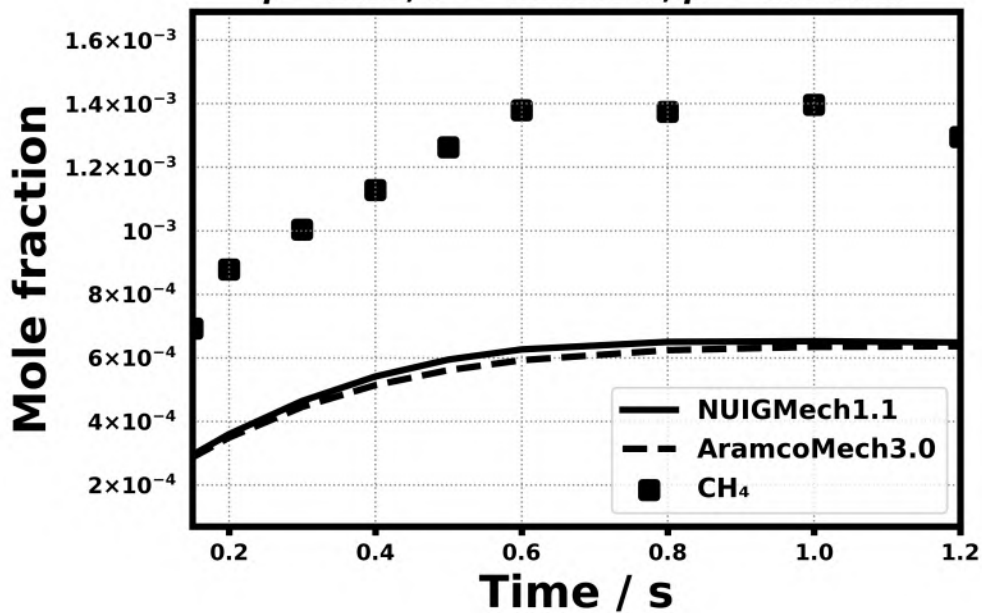
0.15% C₃H₈
0.375% O₂, 99.475% N₂
 $\phi = 2.00, T = 1115.0 \text{ K}, p = 5.0 \text{ atm}$



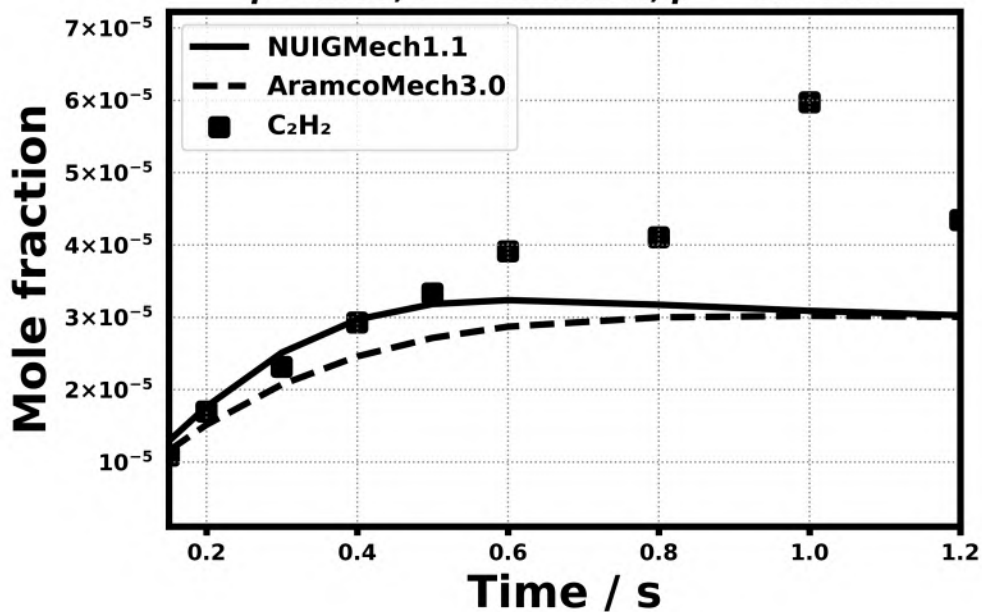
0.15% C₃H₈
0.375% O₂, 99.475% N₂
 $\phi = 2.00, T = 1115.0 \text{ K}, p = 5.0 \text{ atm}$



0.15% C₃H₈
0.375% O₂, 99.475% N₂
 $\phi = 2.00, T = 1115.0 \text{ K}, p = 5.0 \text{ atm}$

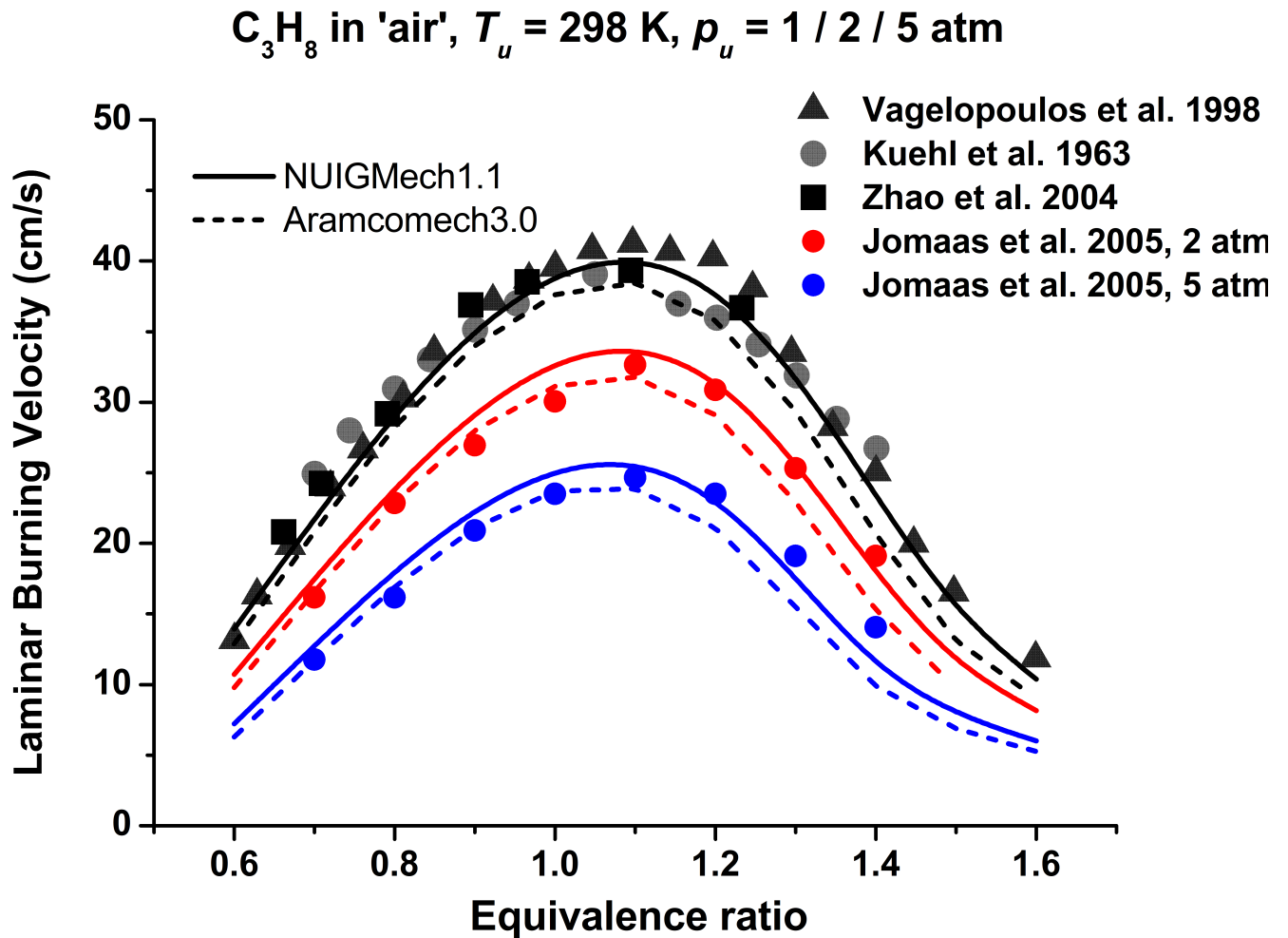


0.15% C₃H₈
0.375% O₂, 99.475% N₂
 $\phi = 2.00, T = 1115.0 \text{ K}, p = 5.0 \text{ atm}$



Laminar flame speed

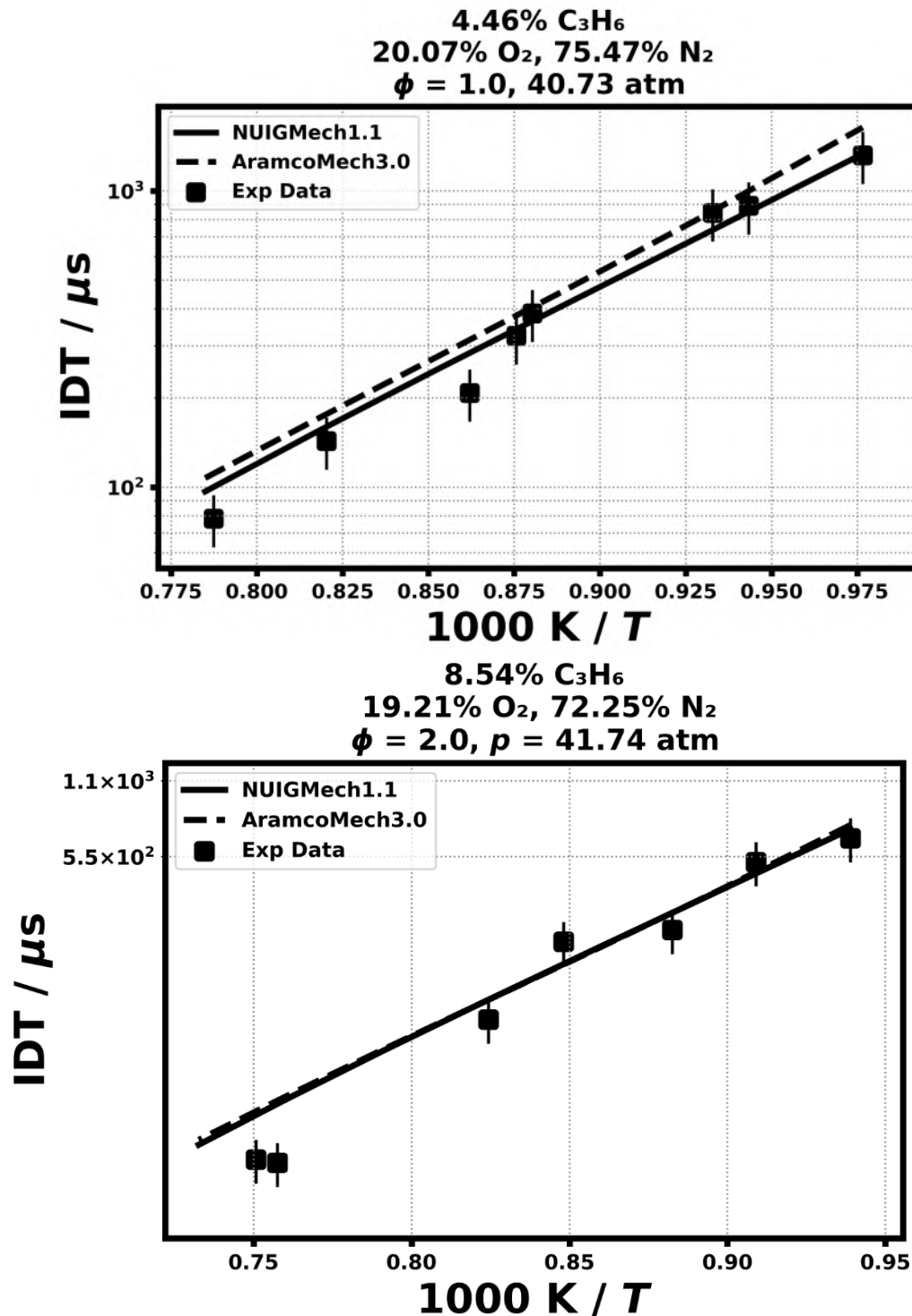
- 15.10) Vagelopoulos, C.M., Egolfopoulos, F.N., Proceedings of the Combustion Institute 27 (1998) 513-519.
15.11) Jomaas, G. J., Zheng, X. L., Zhu, D. L., Law, C. K. , Proceedings of the Combustion Institute 30 (2005) 193–200.
15.12) Zhao, Z., Kazakov, A., Li, J., & Dryer, F. L., Combustion science and technology, 176(10) (2004) 1705-1723
15.13) Kuehl, K., Proceeding of Combustion Institute, 8 (1963) 510



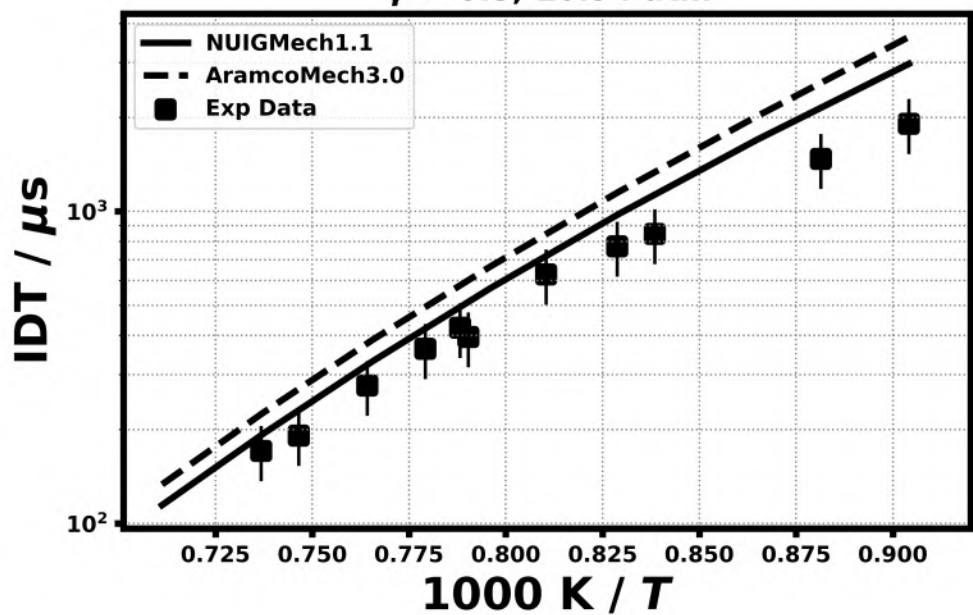
16. Validation for C₃H₆

Shock tube ignition delay time

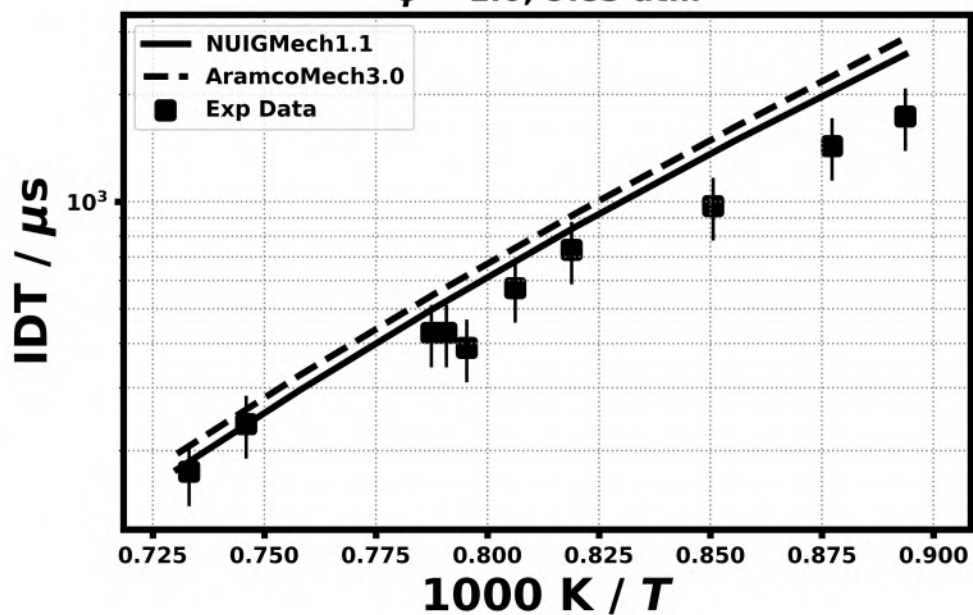
16.1) Burke, S. M., Burke, U., Mc Donagh, R., Mathieu, O., Osorio, I., Keesee, C., ... & Oehlschlaeger, M. A., *Combustion and Flame*, 162(2) (2015) 296-314.



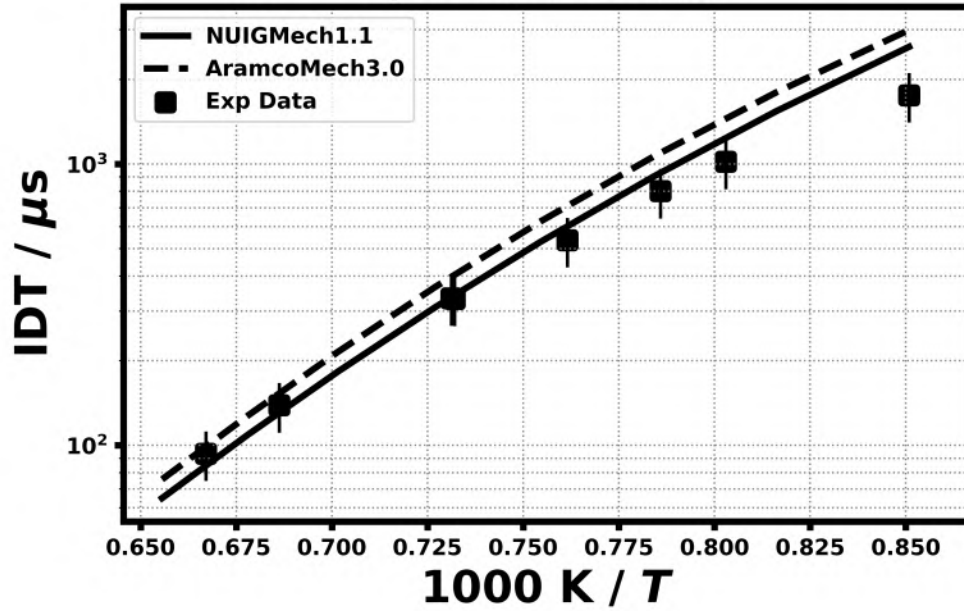
2.281% C₃H₆
20.52% O₂, 77.19% N₂
 $\phi = 0.5$, 10.94 atm



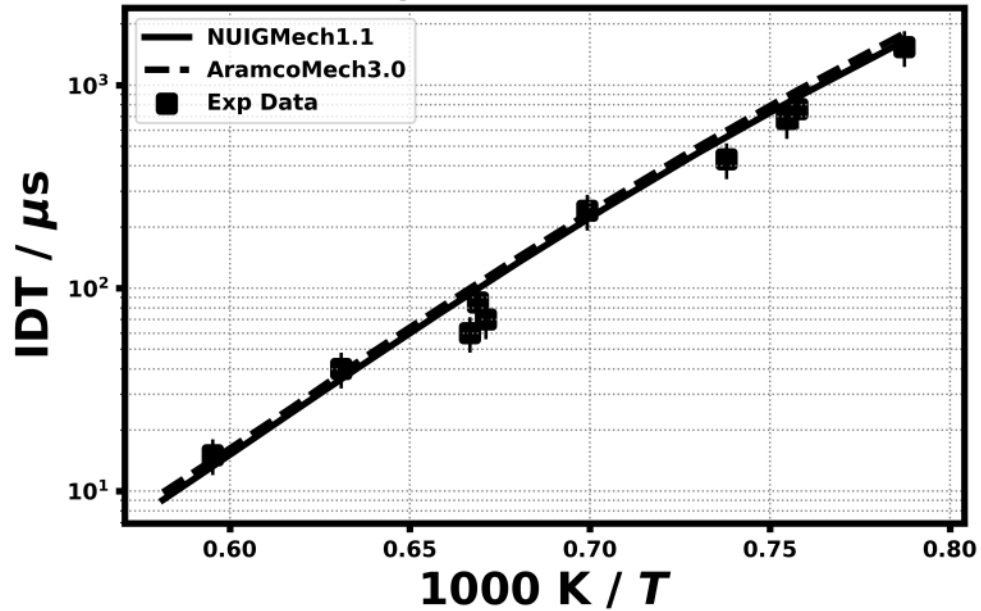
4.46% C₃H₆
20.07% O₂, 75.47% N₂
 $\phi = 1.0$, 9.83 atm

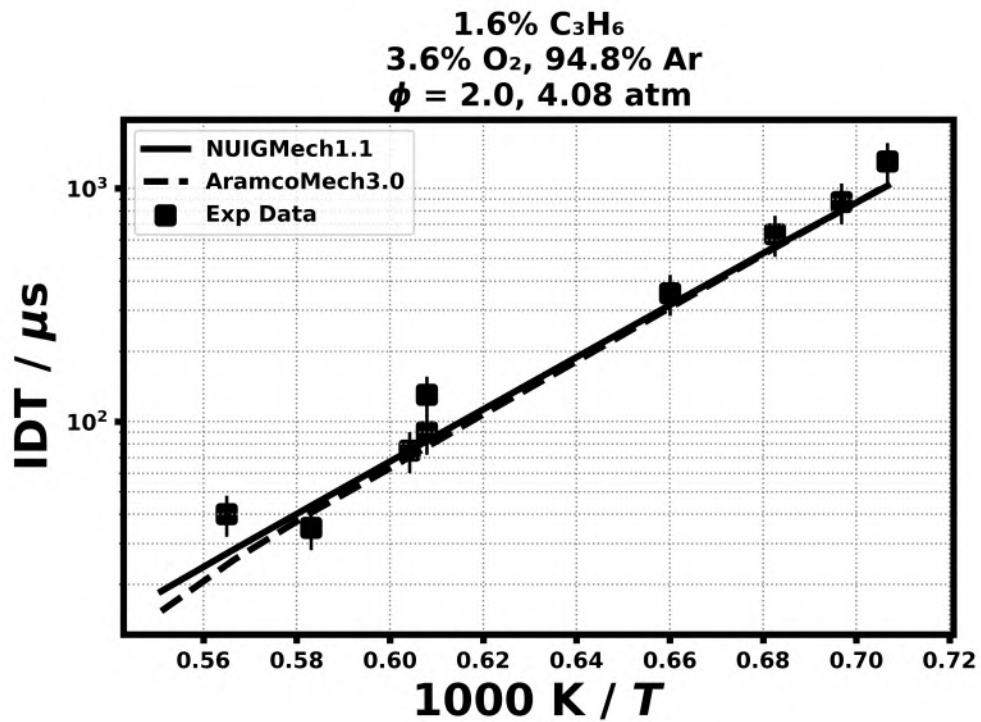
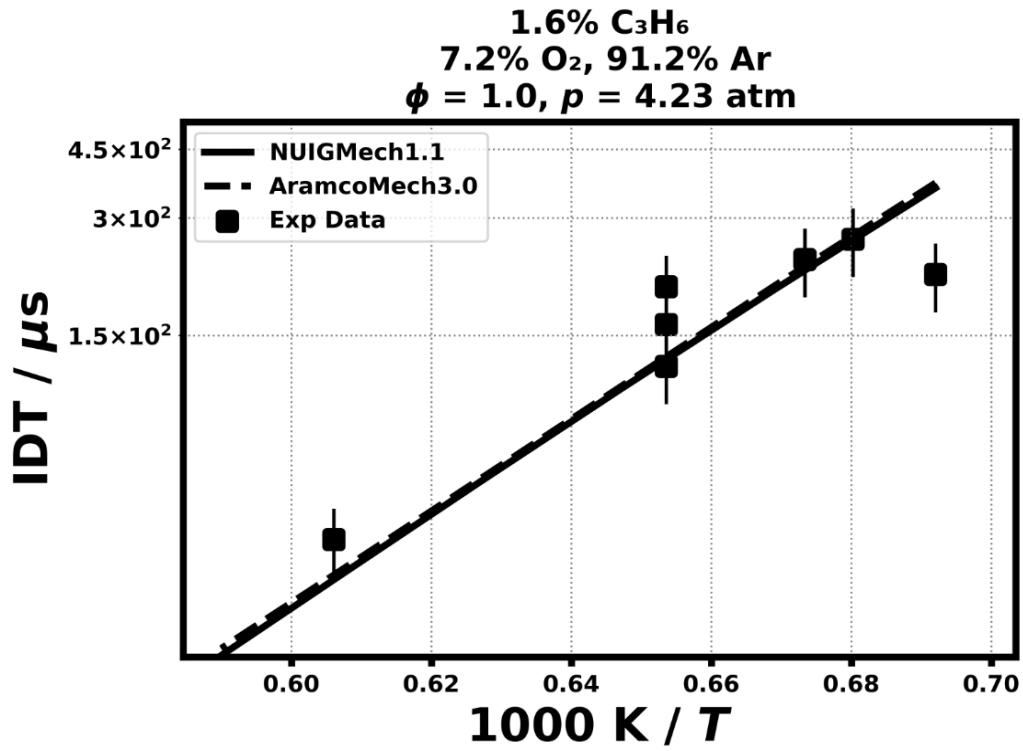


0.89% C₃H₆
4.0% O₂, 95.11% Ar
 $\phi = 1.0$, 40.12 atm

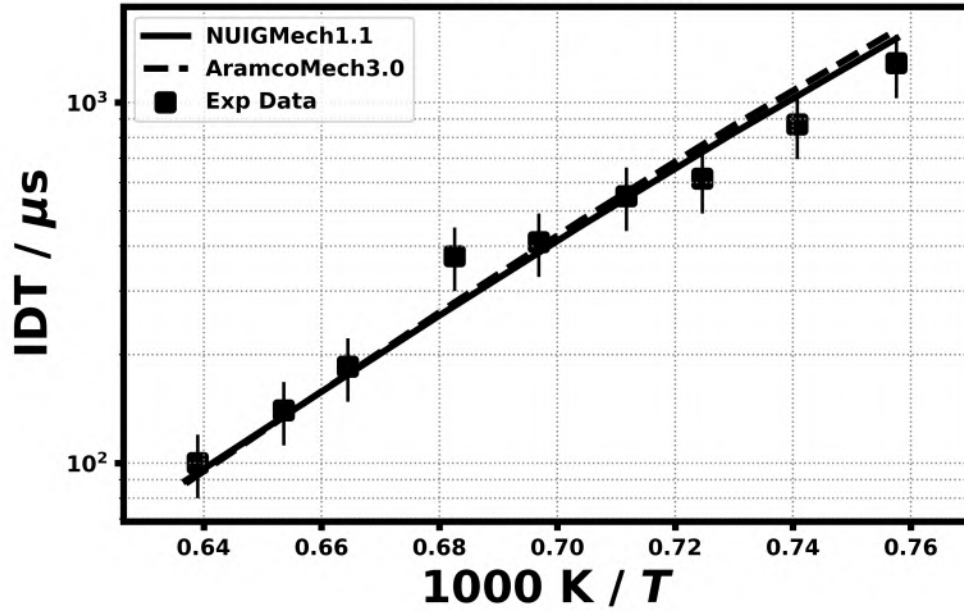


1.6% C₃H₆
14.4% O₂, 84.0% Ar
 $\phi = 0.5$, 3.94 atm

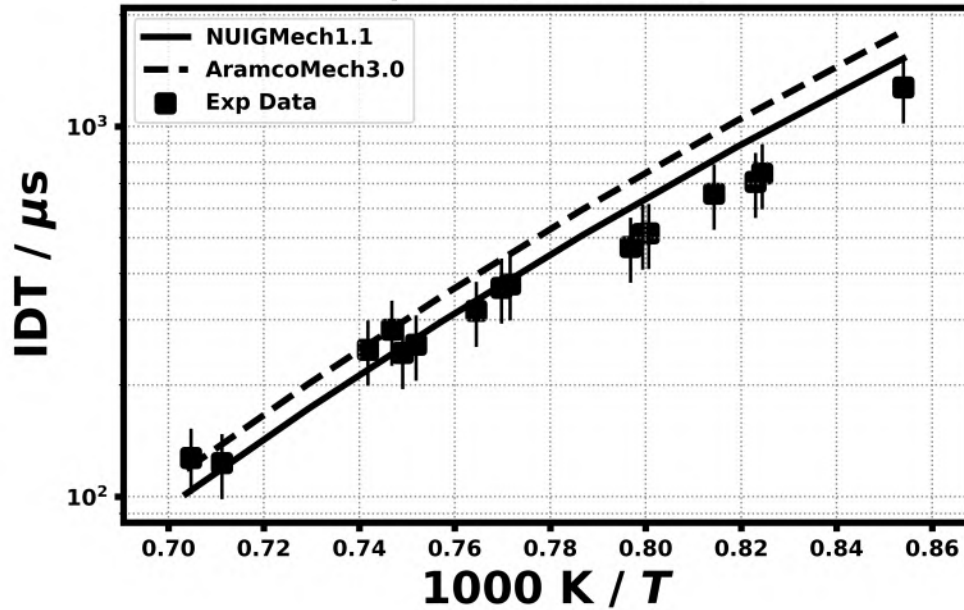




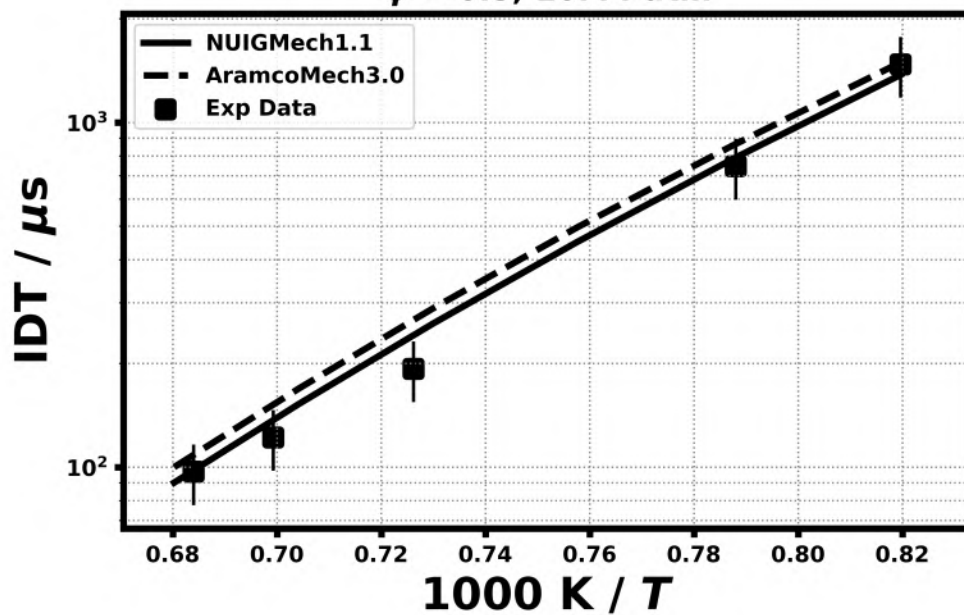
3.2% C₃H₆
7.8% O₂, 89.0% Ar
 $\phi = 1.8, 3.92 \text{ atm}$



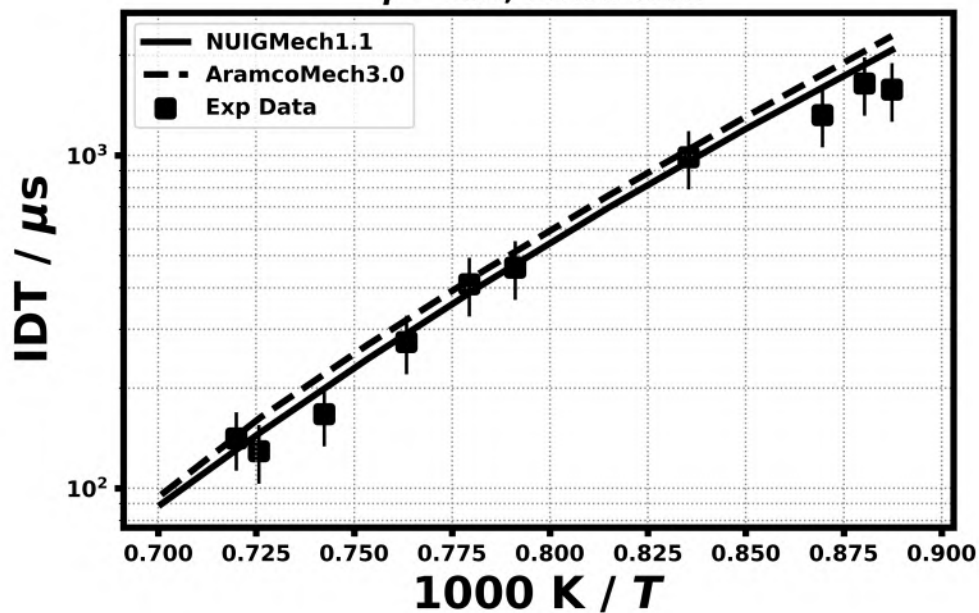
2.281% C₃H₆
20.52% O₂, 77.19% N₂
 $\phi = 0.5, 10.43 \text{ atm}$



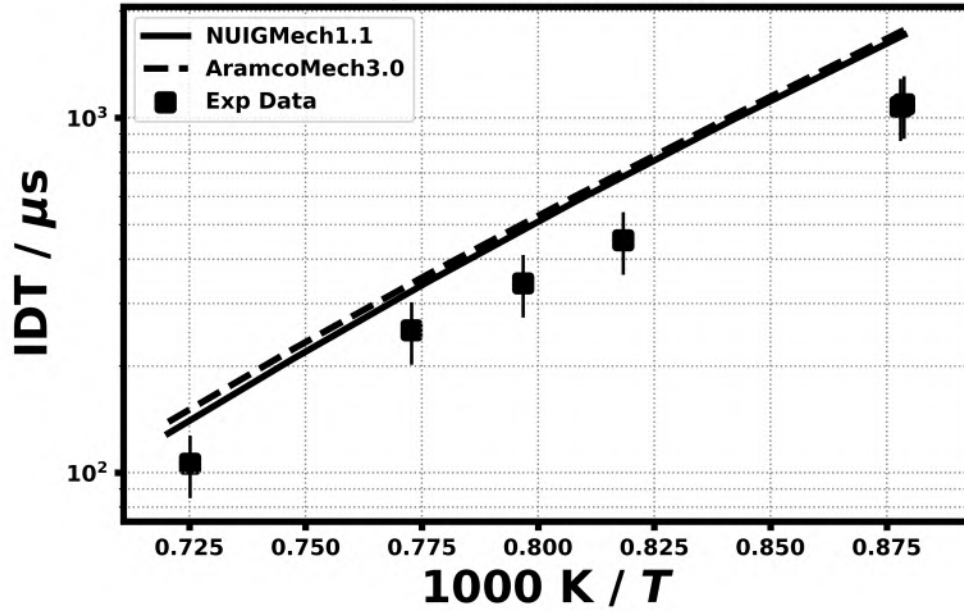
2.667% C₃H₆
12.0% O₂, 85.33% Ar
 $\phi = 0.5$, 10.44 atm



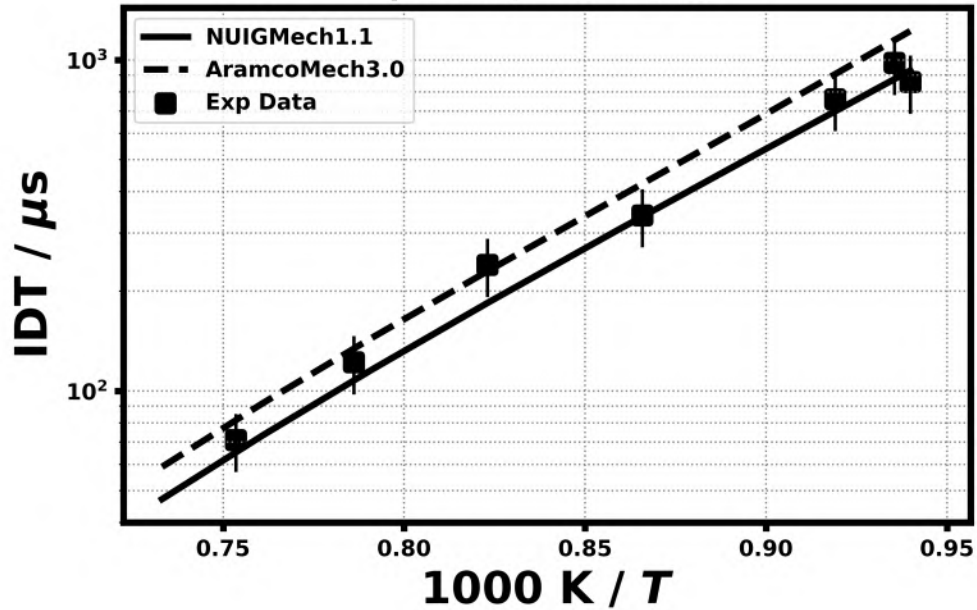
4.46% C₃H₆
20.07% O₂, 75.47% N₂
 $\phi = 1.0$, 10.98 atm



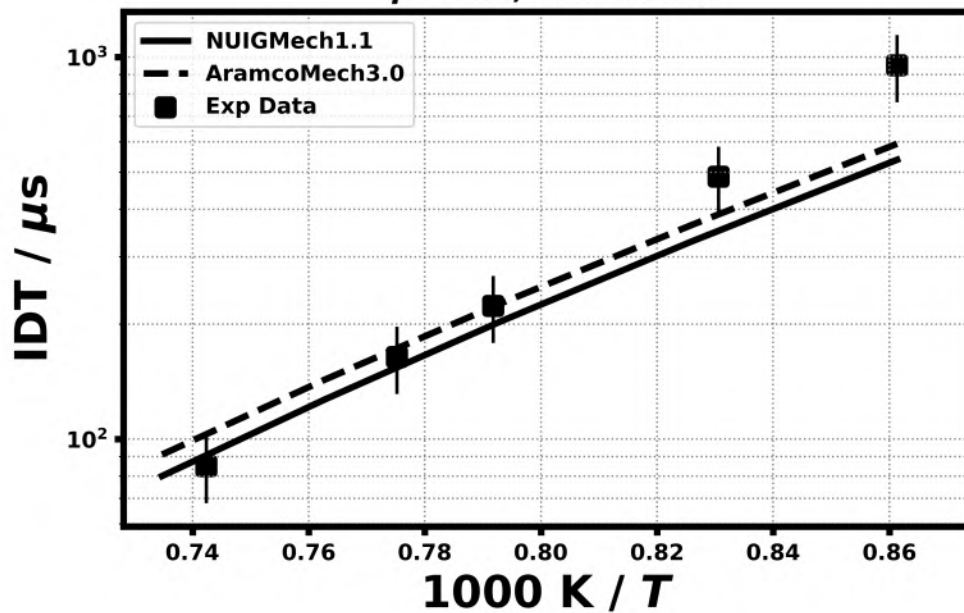
8.54% C₃H₆
19.21% O₂, 72.25% N₂
 $\phi = 2.0$, 10.37 atm



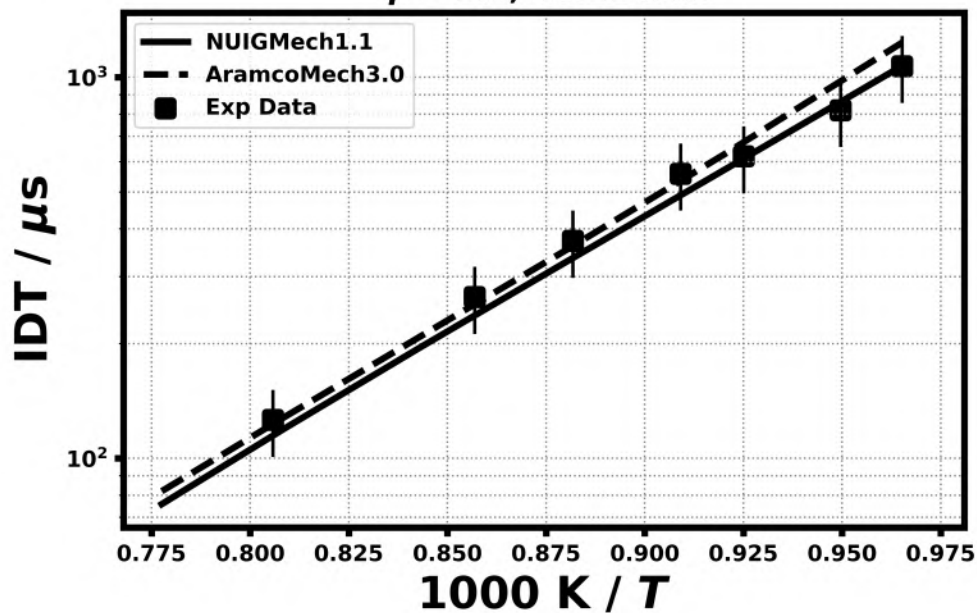
2.281% C₃H₆
20.52% O₂, 77.19% N₂
 $\phi = 0.5$, 41.26 atm



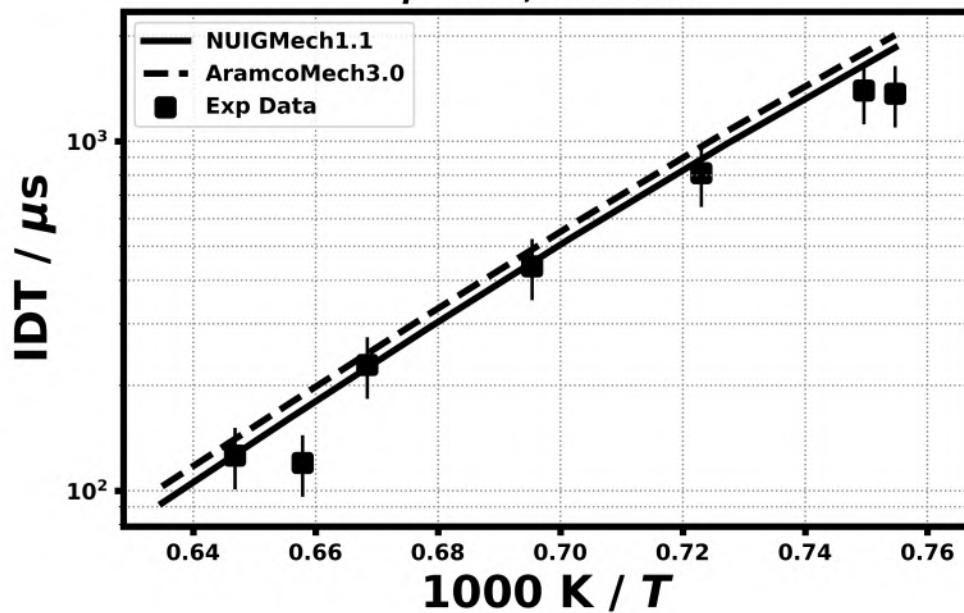
2.67% C₃H₆
12.0% O₂, 85.33% Ar
 $\phi = 1.0$, 39.88 atm



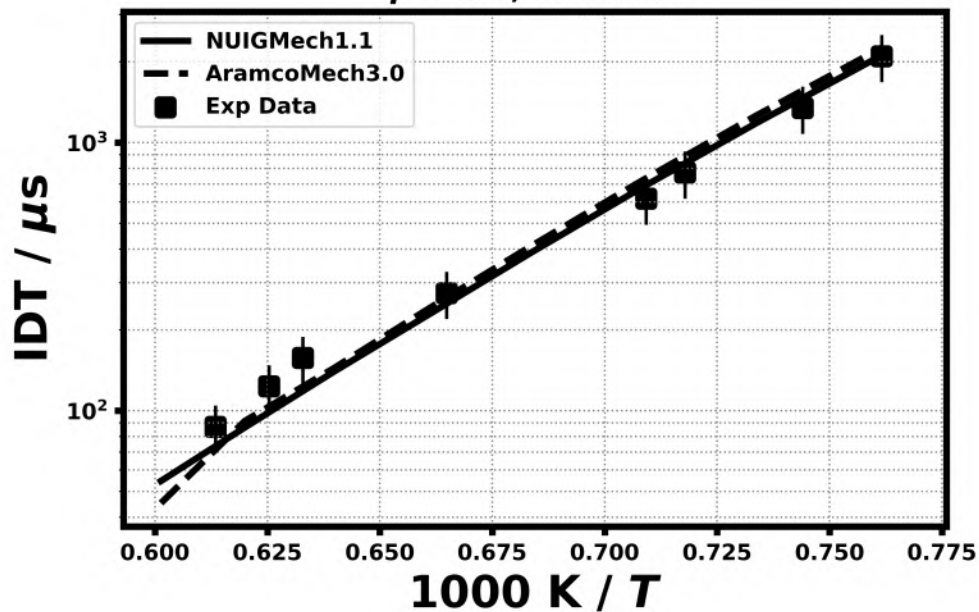
4.46% C₃H₆
20.07% O₂, 75.47% Ar
 $\phi = 1.0$, 40.11 atm



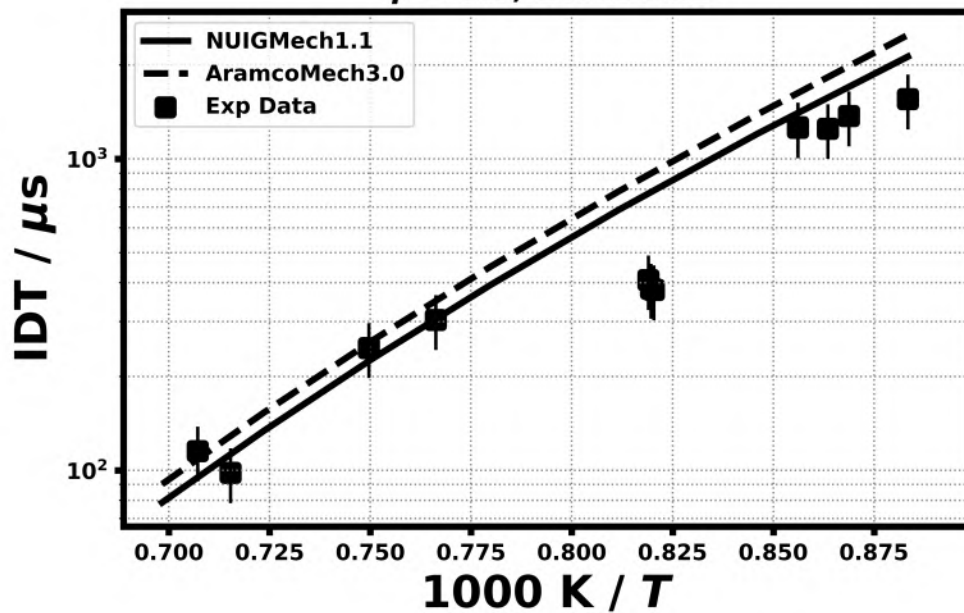
0.889% C₃H₆
4.0% O₂, 95.111% Ar
 $\phi = 1.0$, 9.61 atm



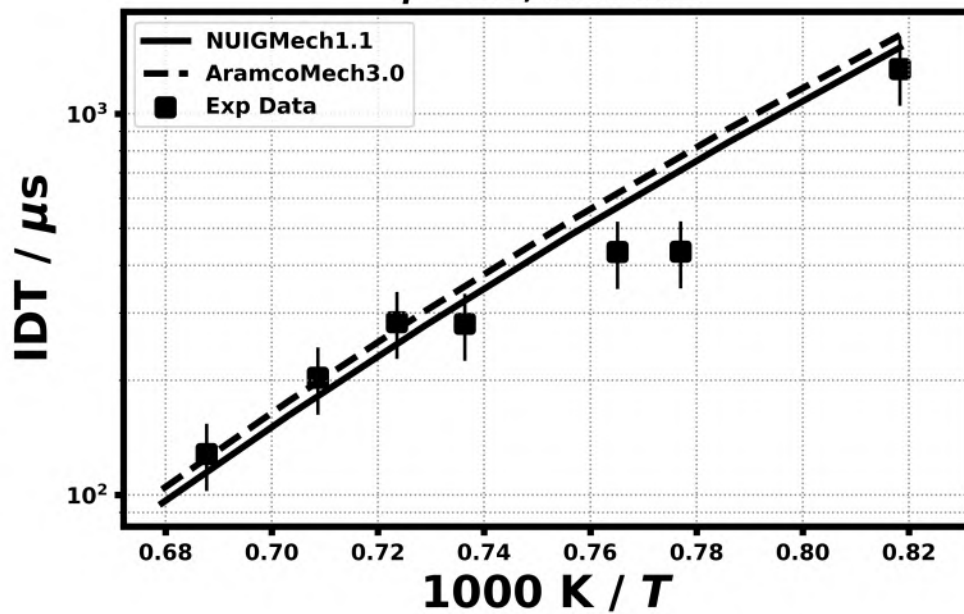
1.778% C₃H₆
4.0% O₂, 94.222% Ar
 $\phi = 2.0$, 9.21 atm



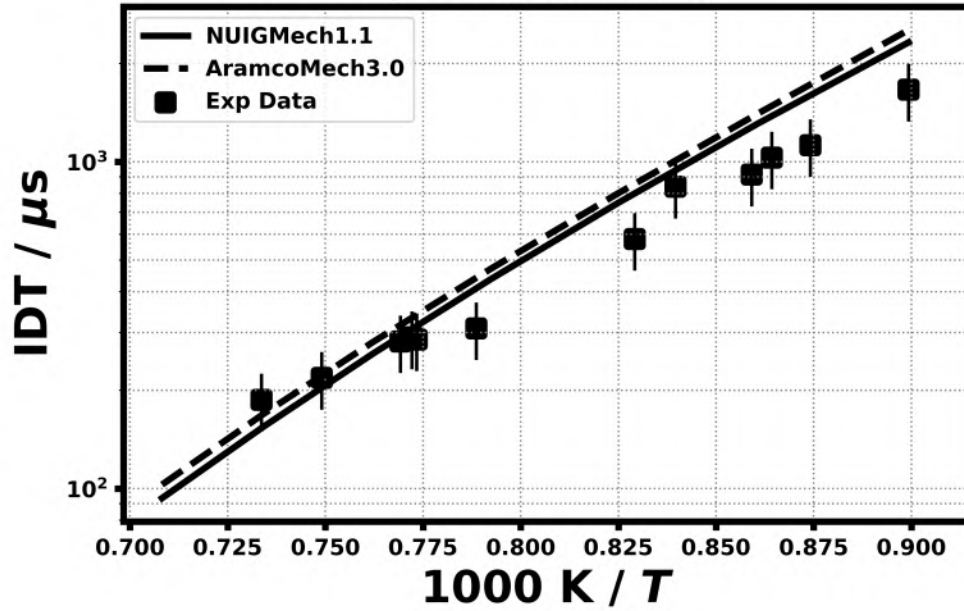
2.281% C₃H₆
20.52% O₂, 77.19% Ar
 $\phi = 0.5$, 10.01 atm



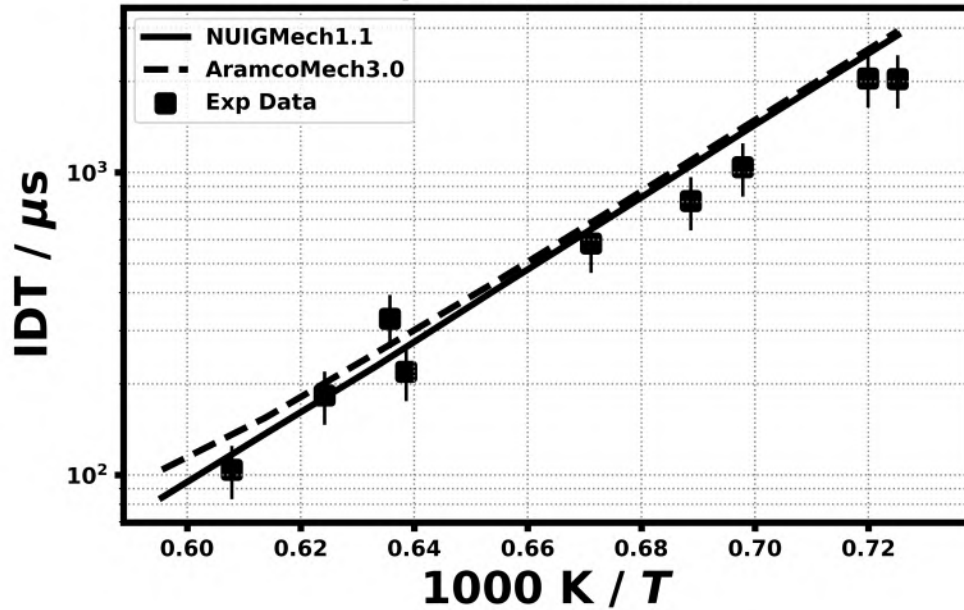
2.667% C₃H₆
12.0% O₂, 85.333% Ar
 $\phi = 1.0$, 9.44 atm



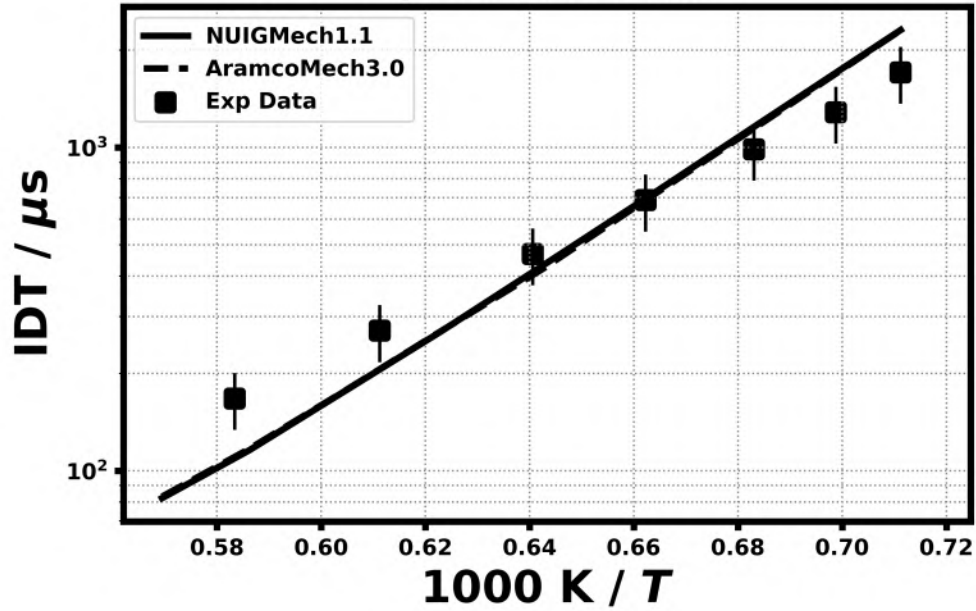
4.46% C₃H₆
20.07% O₂, 75.47% Ar
 $\phi = 1.0$, 10.06 atm



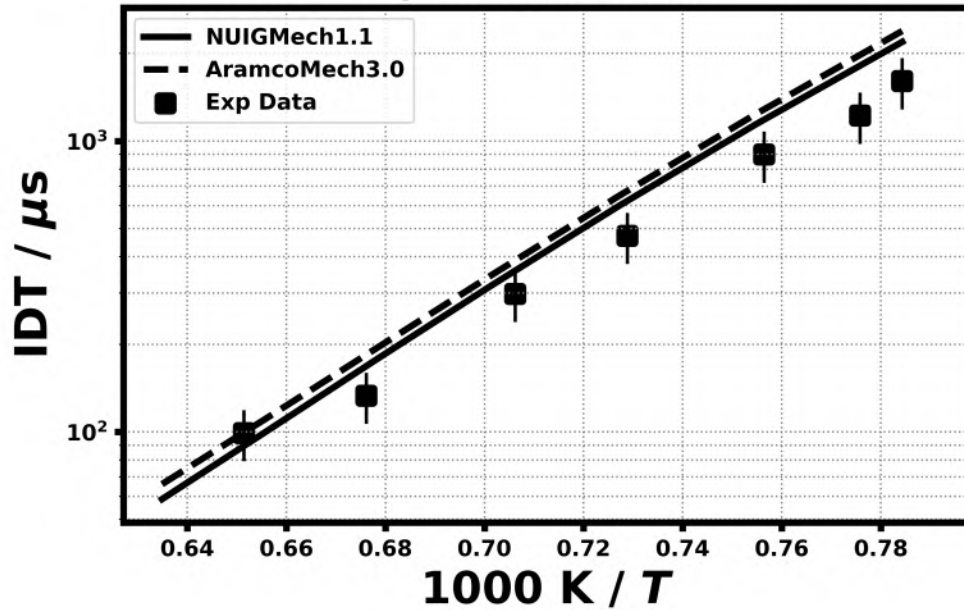
0.889% C₃H₆
4.0% O₂, 95.111% Ar
 $\phi = 1.0$, 1.76 atm

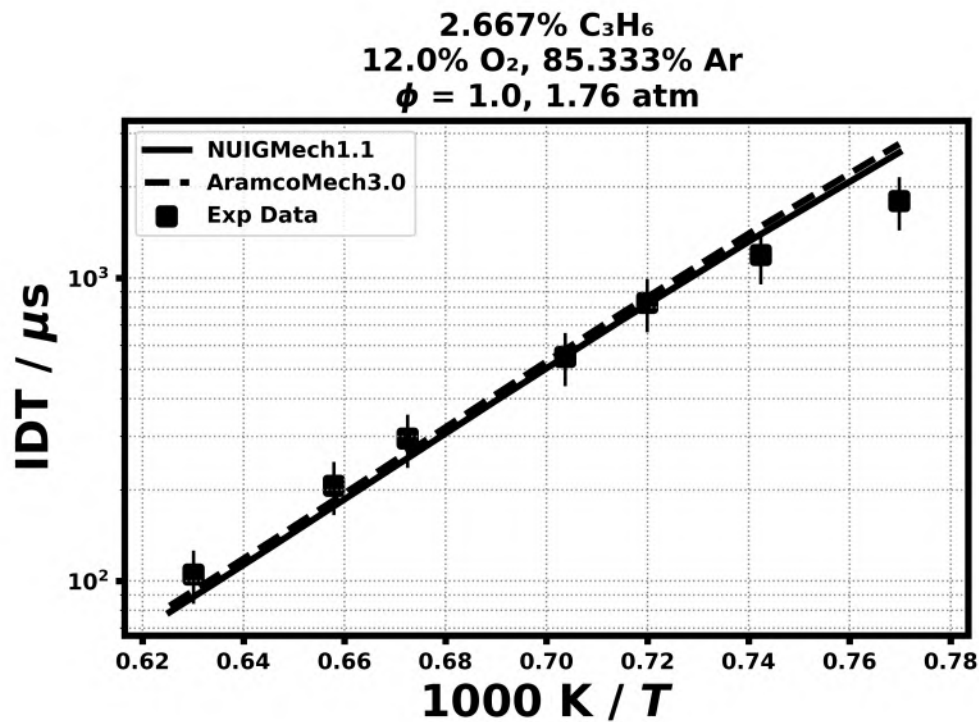


1.778% C₃H₆
4.0% O₂, 94.222% Ar
 $\phi = 2.0$, 1.66 atm



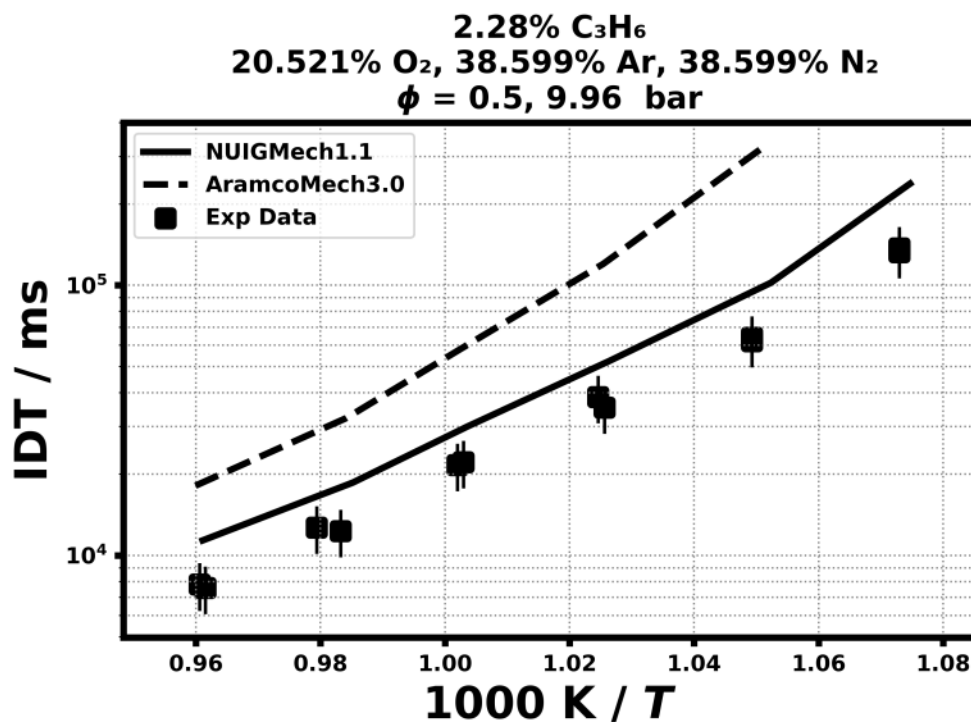
2.281% C₃H₆
20.52% O₂, 77.19% Ar
 $\phi = 0.5$, 1.66 atm



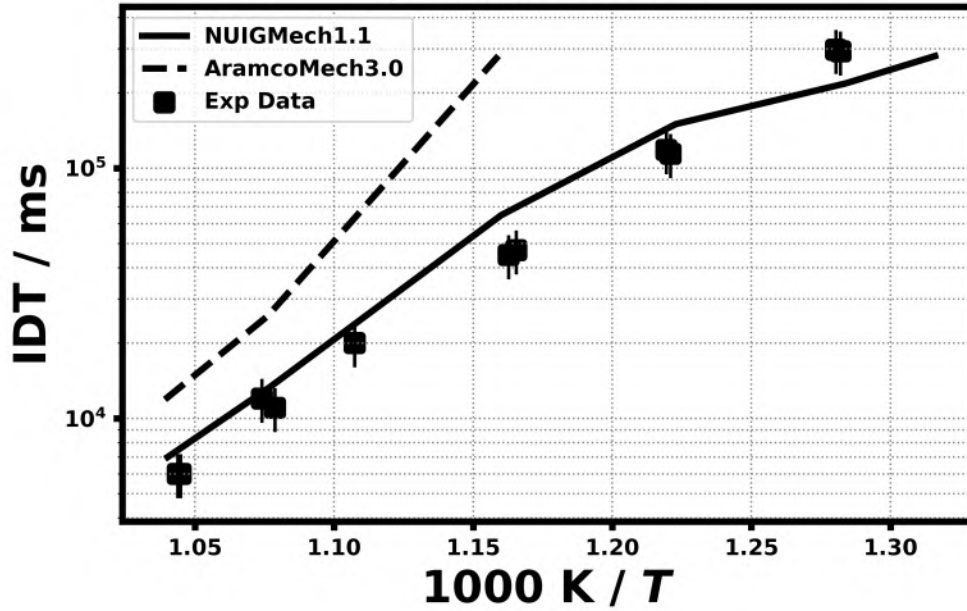


RCM Ignition delay time

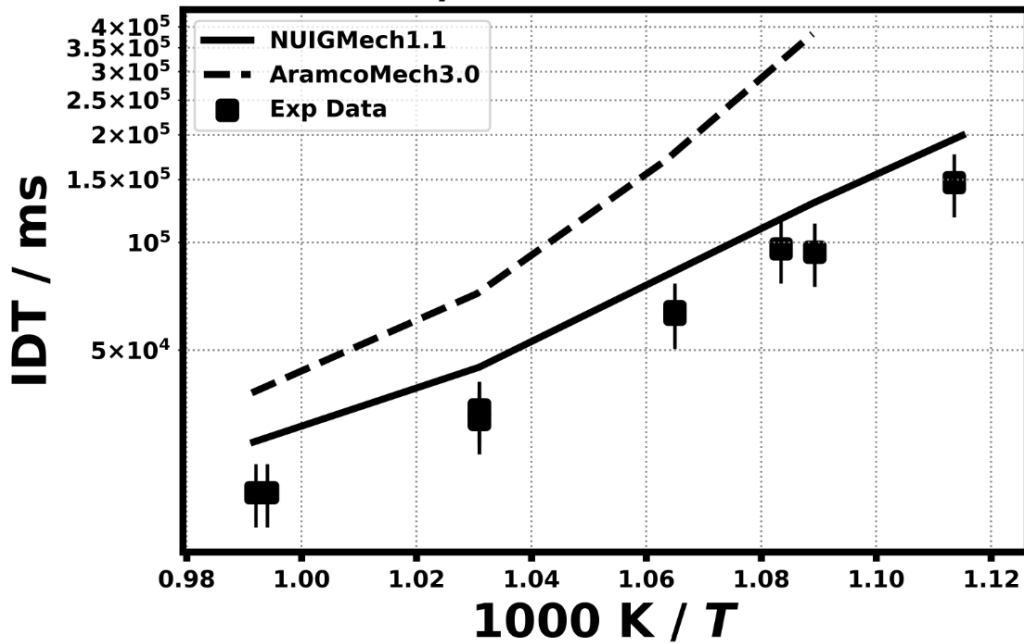
16.2) Burke, S. M., Burke, U., Mc Donagh, R., Mathieu, O., Osorio, I., Keesee, C., ... & Oehlschlaeger, M. A., *Combustion and Flame*, 162(2) (2015) 296-314.



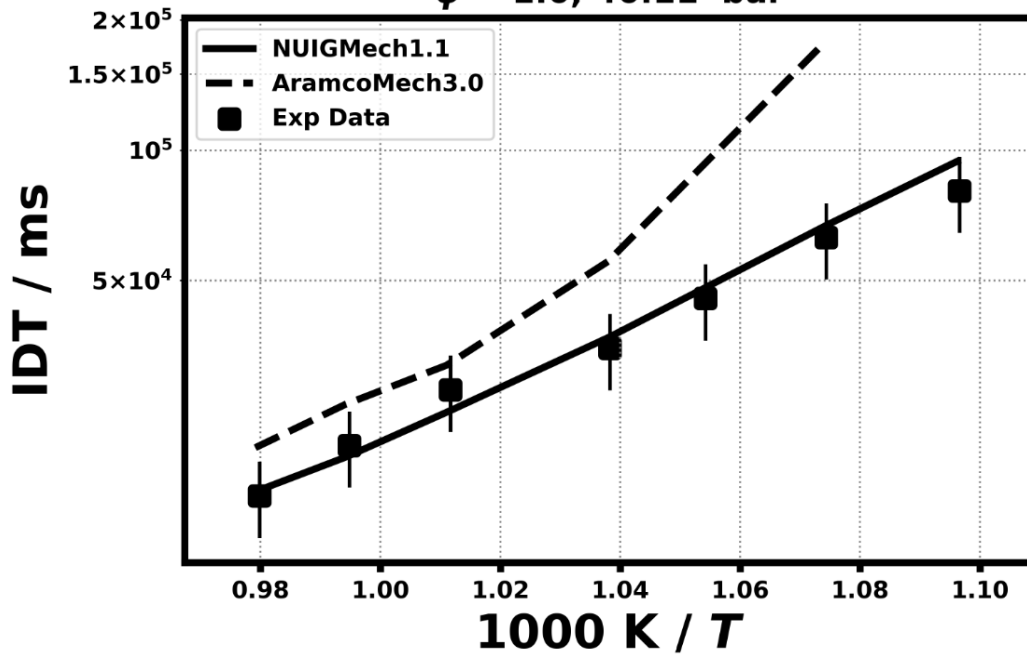
2.667% C₃H₆
12.0% O₂, 85.333% N₂
 $\phi = 1.0$, 39.84 bar



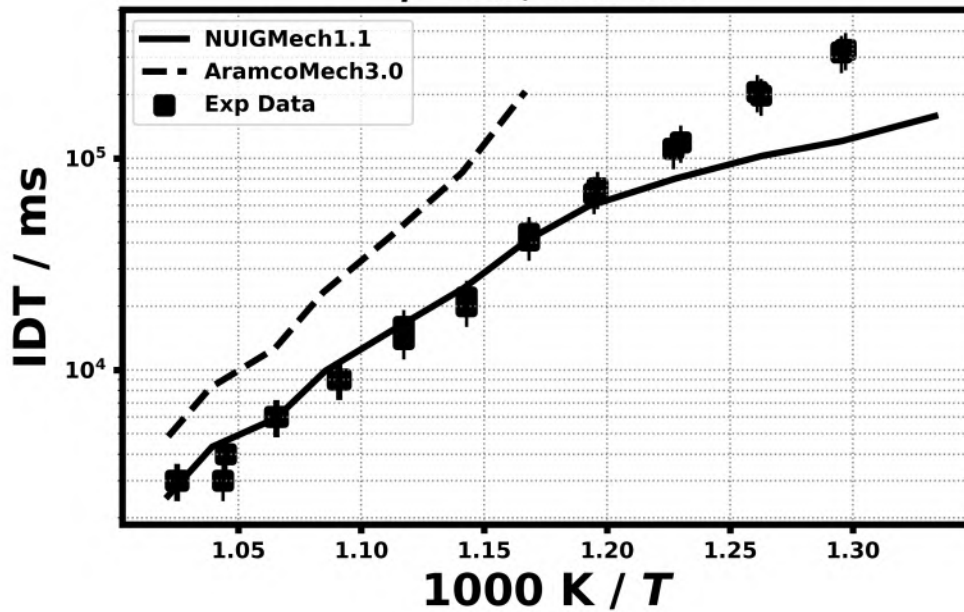
0.889% C₃H₆
4.0% O₂, 95.111% N₂
 $\phi = 1.0$, 40.04 bar



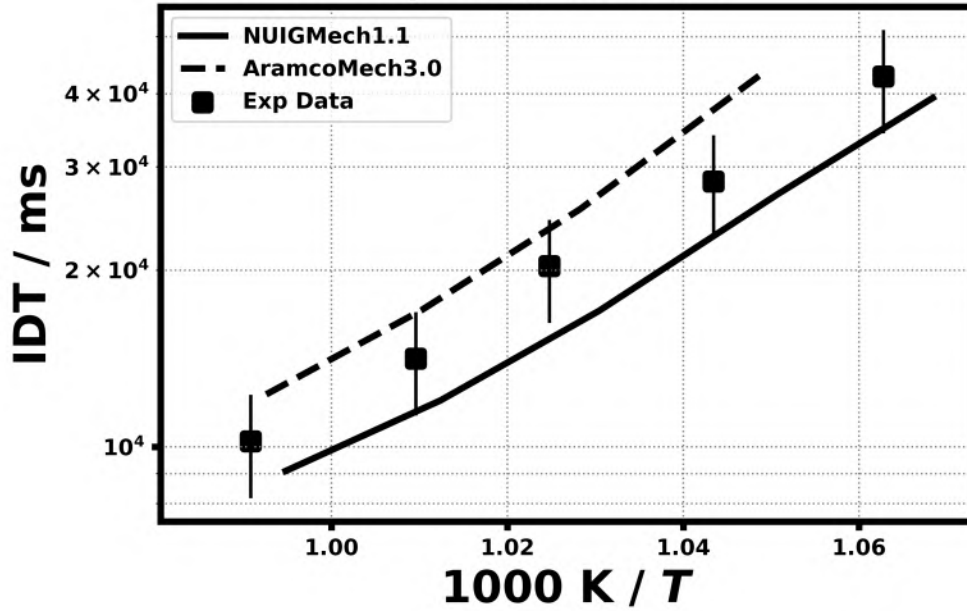
0.89% C₃H₆
4.0% O₂, 95.11% N₂
 $\phi = 1.0$, 40.11 bar



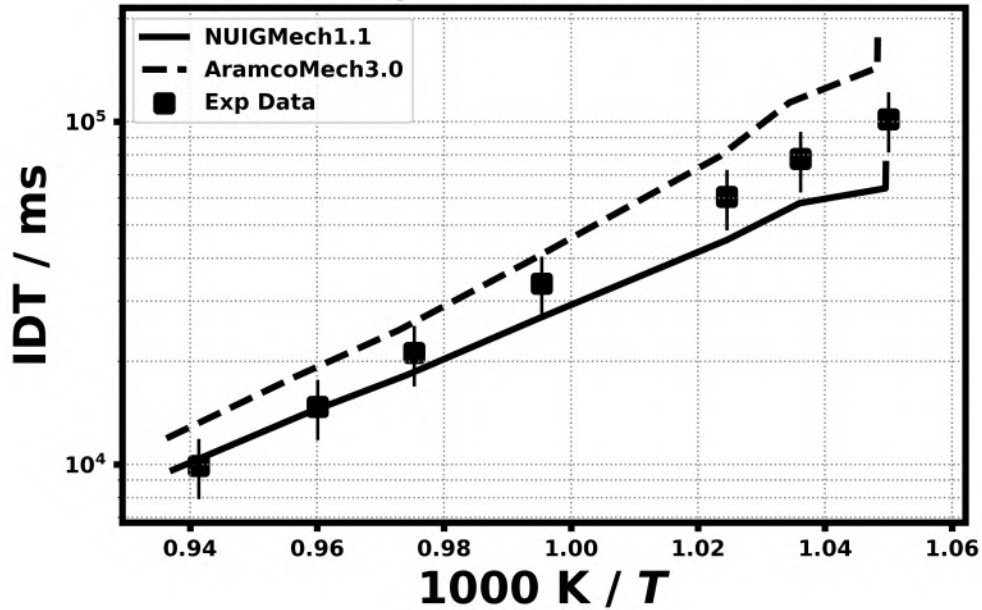
2.28% C₃H₆
20.521% O₂, 77.199% N₂
 $\phi = 0.5$, 40.1 bar

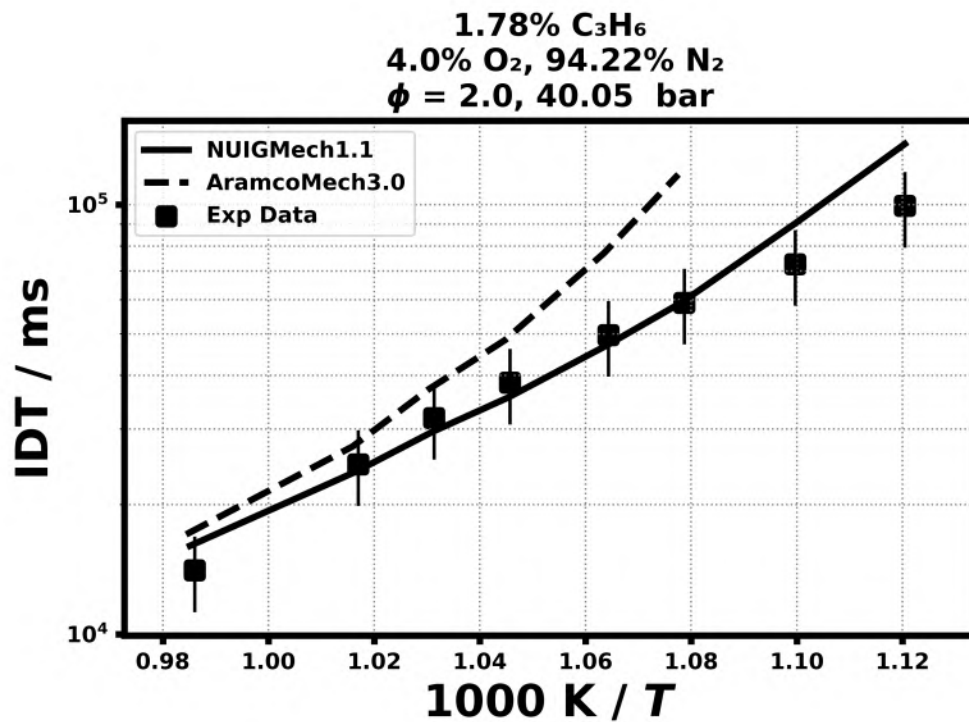


4.458% C₃H₆
20.062% O₂, 37.765% Ar, 37.715% N₂
 $\phi = 1.0$, 10.01 bar

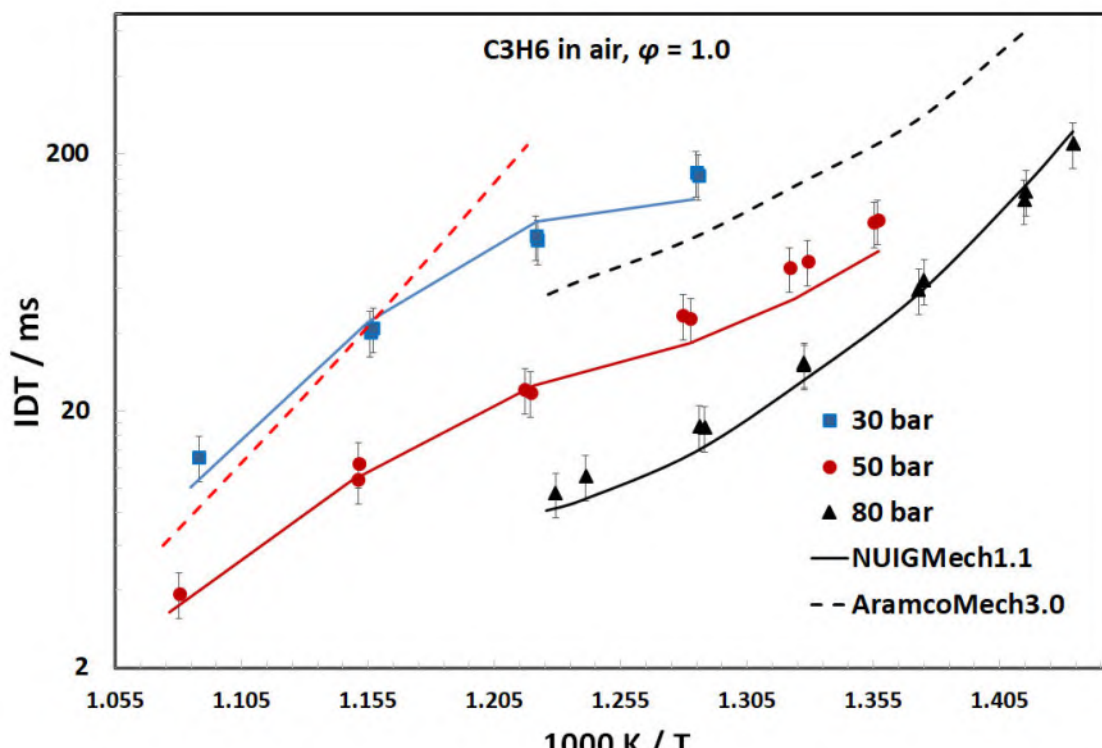


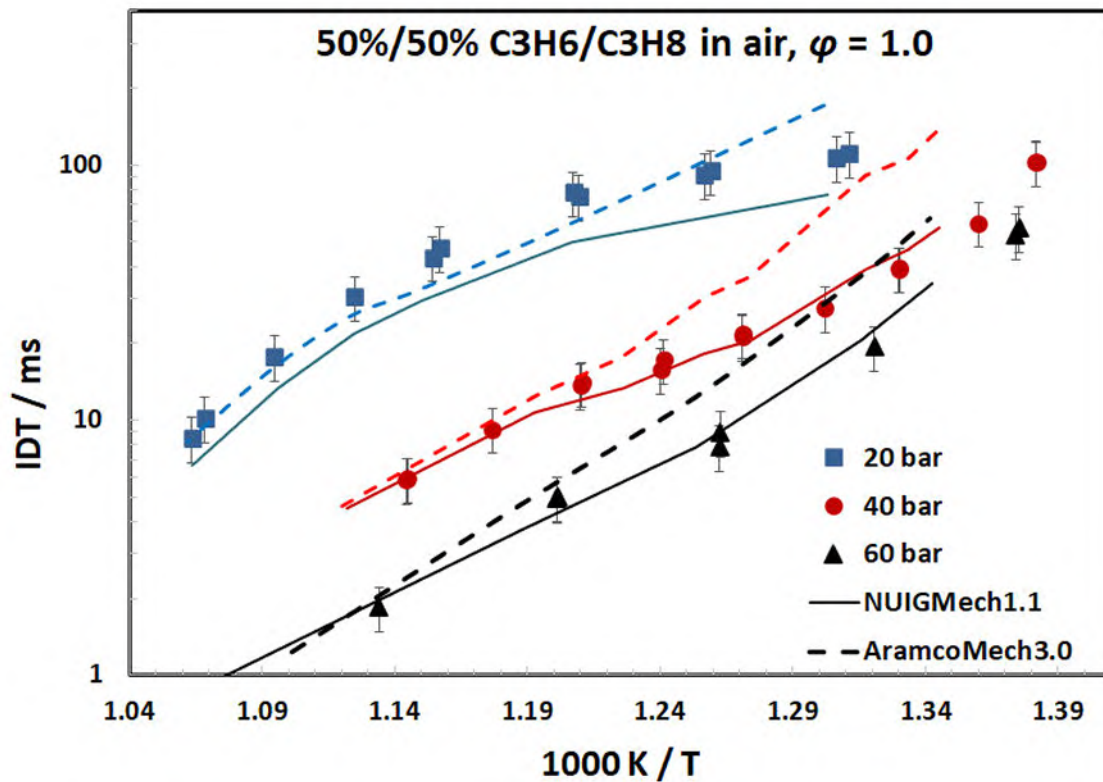
2.667% C₃H₆
12.0% O₂, 42.667% Ar, 42.667% N₂
 $\phi = 1.0$, 9.96 bar





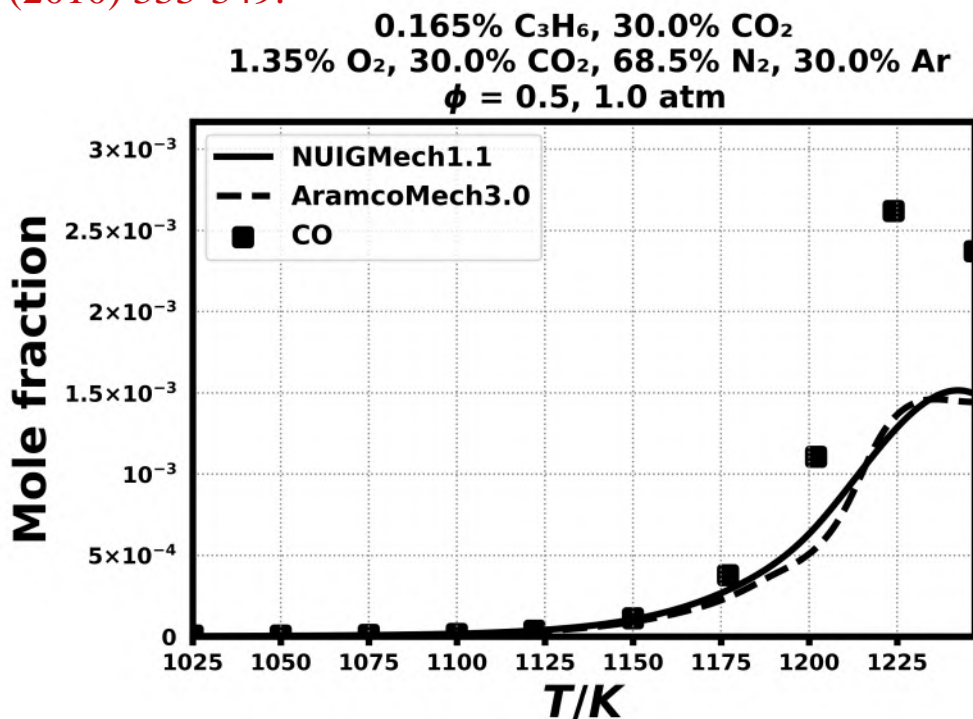
16.3) Ramalingam, A., Panigrahy, S., Fenard, Y., Curran, H., & Heufer, K. A. *Combustion and Flame*, 223 (2021) 361-375.



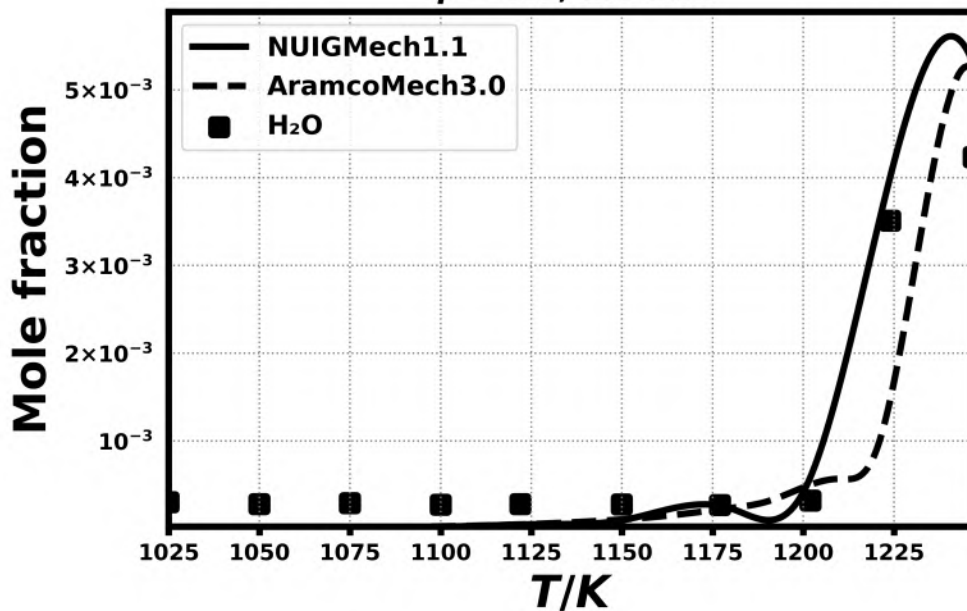


Speciation in Jet-stirred reactor

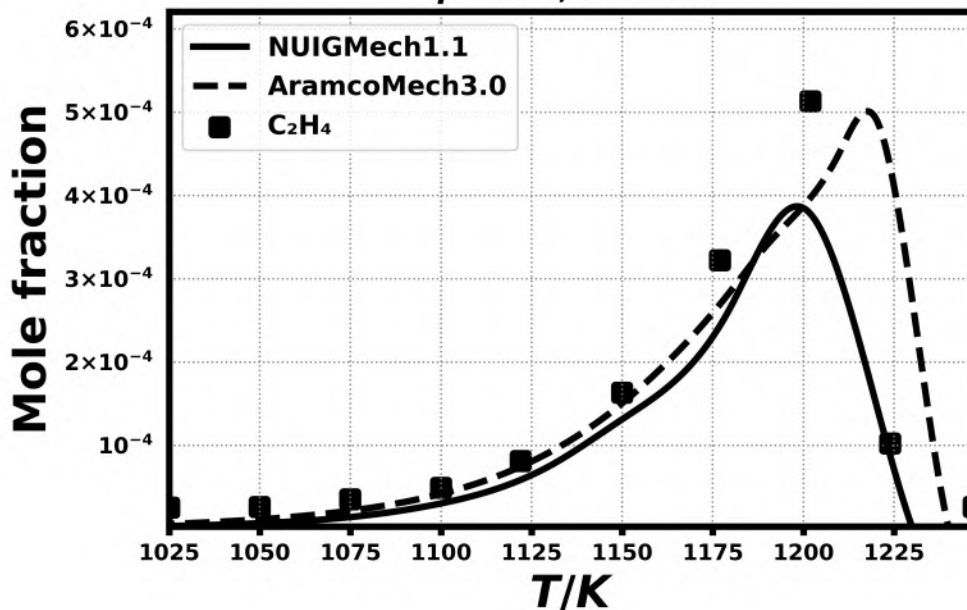
16.4) Cong, T. L., Bedjanian, E., & Dagaut, P., *Combustion science and technology*, 182(4-6) (2010) 333-349.



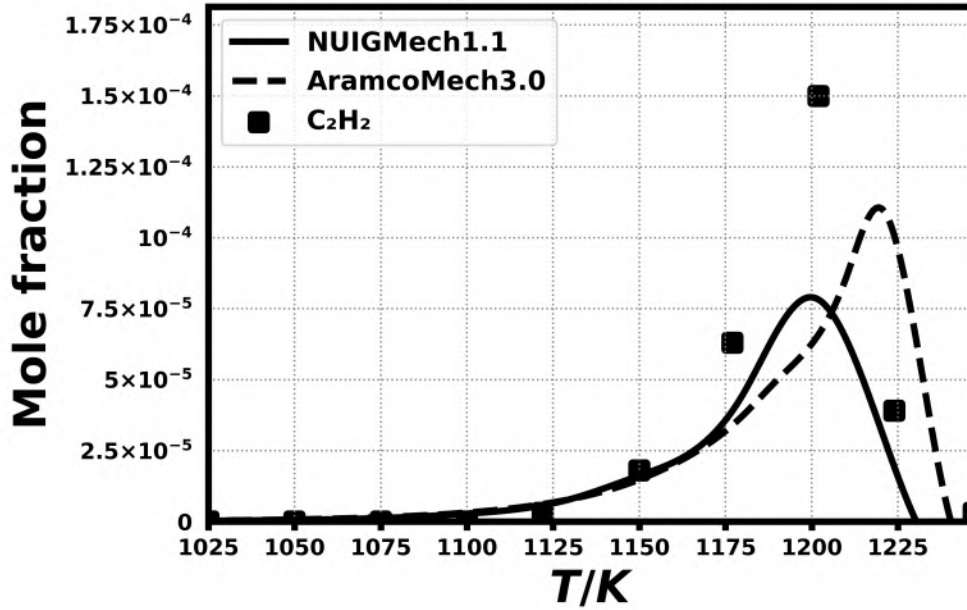
0.165% C₃H₆, 30.0% CO₂
 1.35% O₂, 30.0% CO₂, 68.5% N₂, 30.0% Ar
 $\phi = 0.5, 1.0 \text{ atm}$



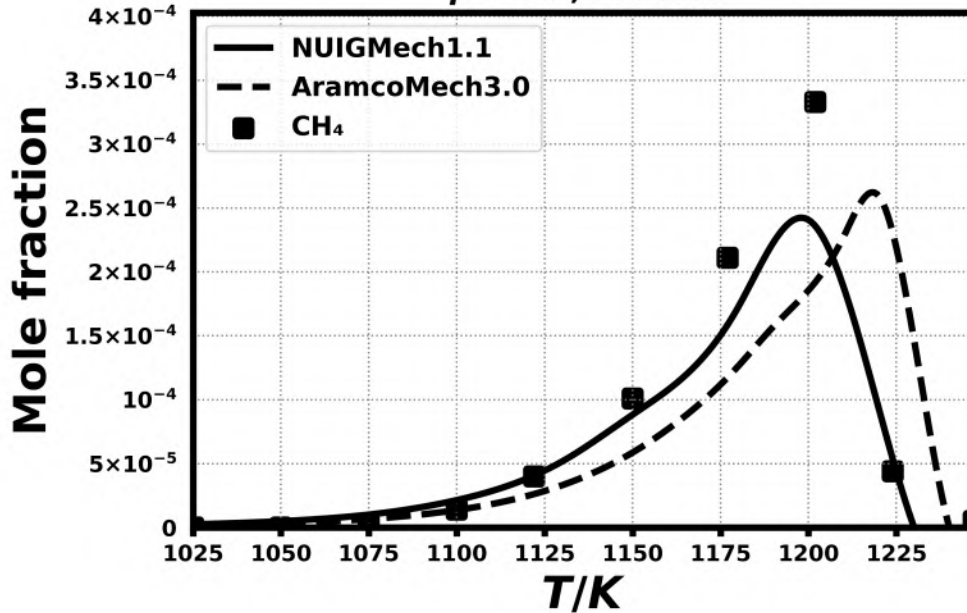
0.165% C₃H₆, 30.0% CO₂
 1.35% O₂, 30.0% CO₂, 68.5% N₂, 30.0% Ar
 $\phi = 0.5, 1.0 \text{ atm}$



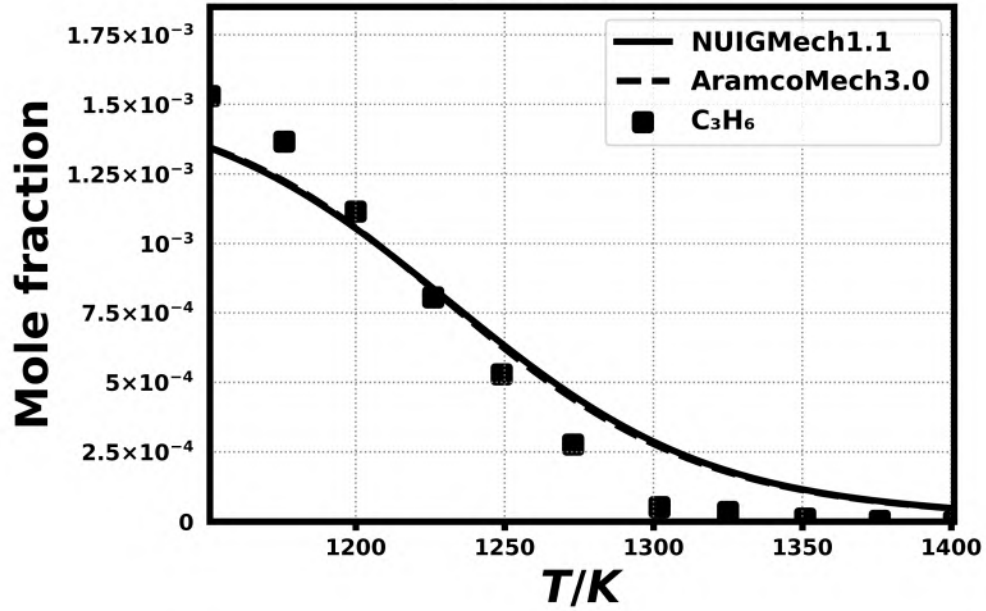
0.165% C₃H₆, 30.0% CO₂
 1.35% O₂, 30.0% CO₂, 68.5% N₂, 30.0% Ar
 $\phi = 0.5, 1.0 \text{ atm}$



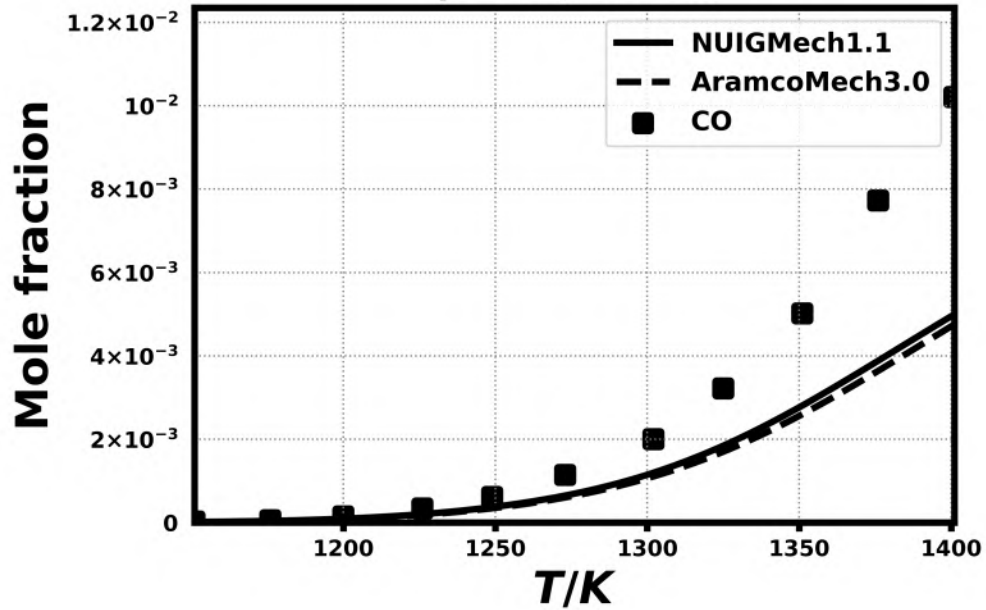
0.165% C₃H₆, 30.0% CO₂
 1.35% O₂, 30.0% CO₂, 68.5% N₂, 30.0% Ar
 $\phi = 0.5, 1.0 \text{ atm}$



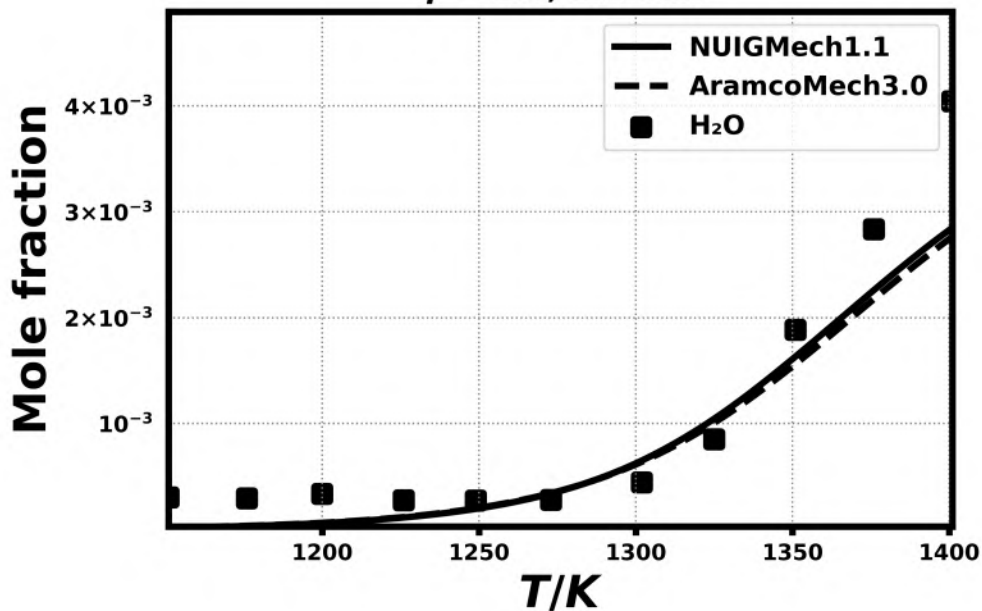
0.15% C₃H₆, 30.0% CO₂
0.338% O₂, 30.0% CO₂, 69.513% N₂, 30.0% Ar
 $\phi = 2.0, 1.0 \text{ atm}$



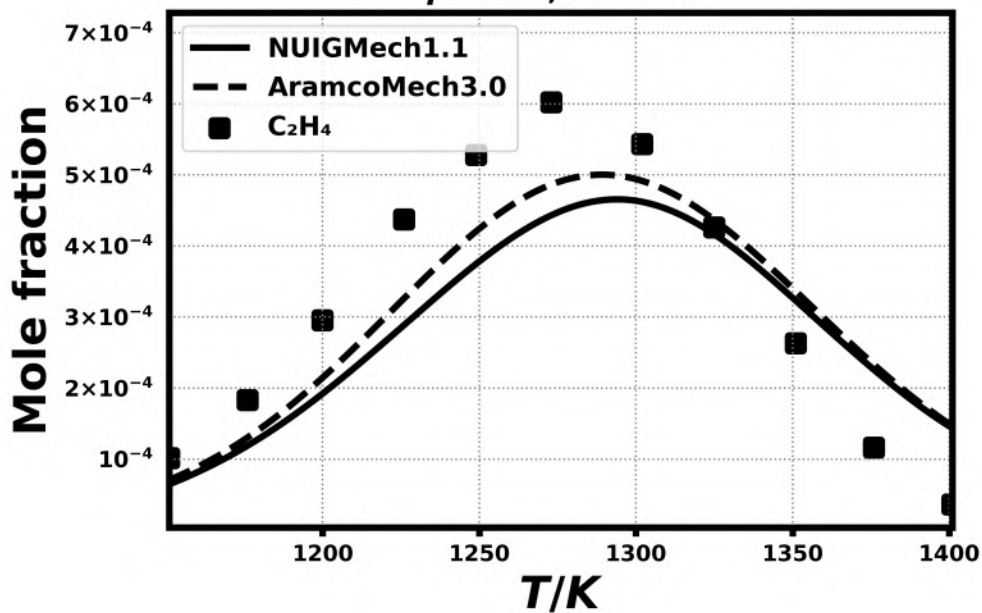
0.15% C₃H₆, 30.0% CO₂
0.338% O₂, 30.0% CO₂, 69.513% N₂, 30.0% Ar
 $\phi = 2.0, 1.0 \text{ atm}$



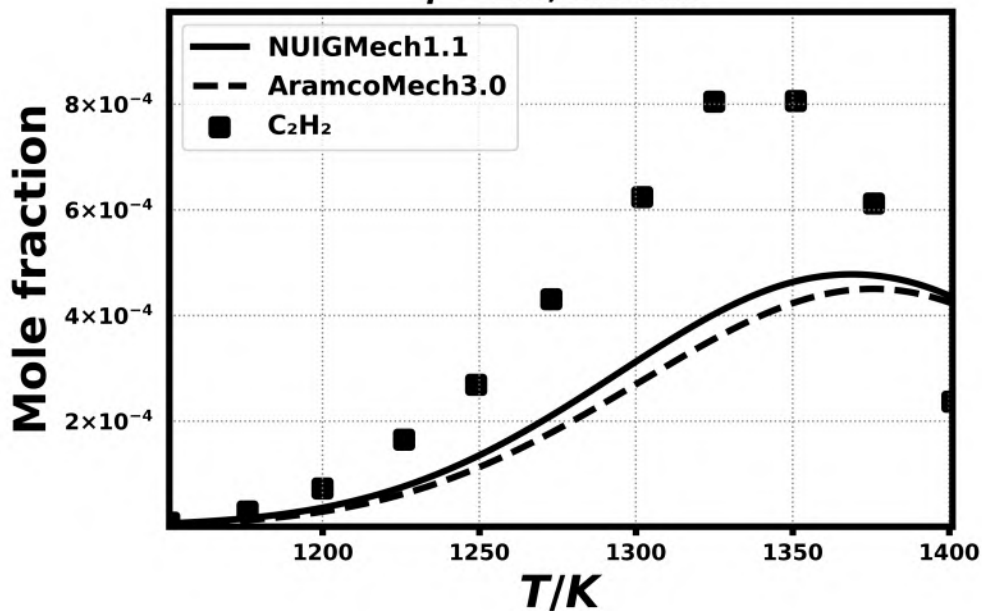
0.15% C₃H₆, 30.0% CO₂
0.338% O₂, 30.0% CO₂, 69.513% N₂, 30.0% Ar
 $\phi = 2.0, 1.0 \text{ atm}$



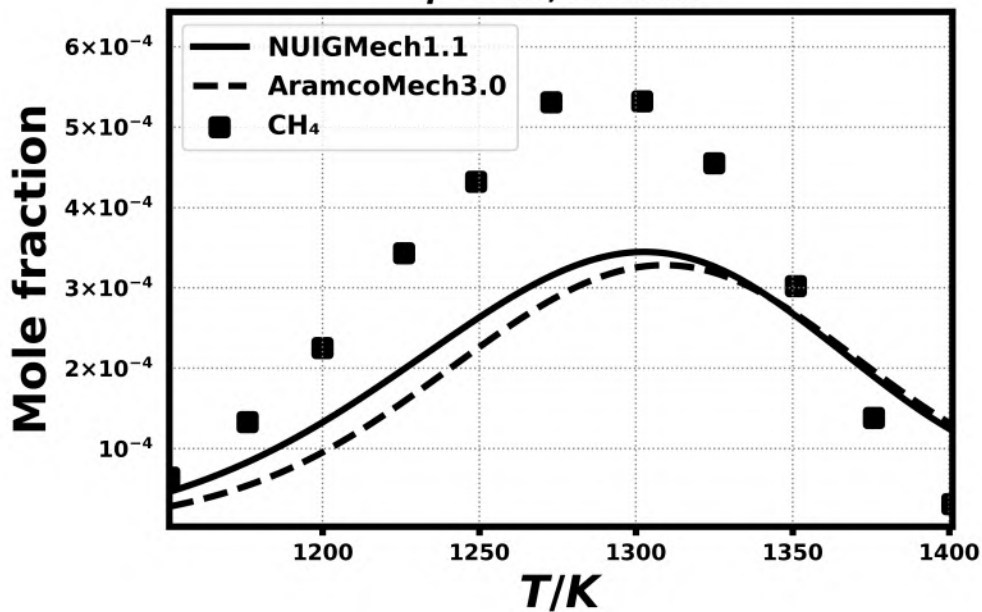
0.15% C₃H₆, 30.0% CO₂
0.338% O₂, 30.0% CO₂, 69.513% N₂, 30.0% Ar
 $\phi = 2.0, 1.0 \text{ atm}$



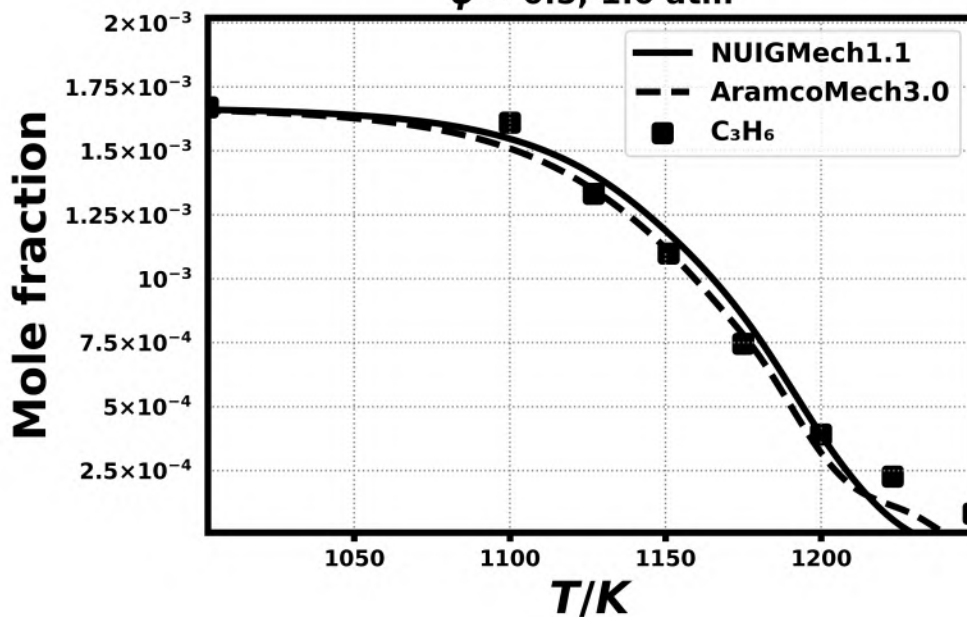
0.15% C₃H₆, 30.0% CO₂
0.338% O₂, 30.0% CO₂, 69.513% N₂, 30.0% Ar
 $\phi = 2.0, 1.0$ atm



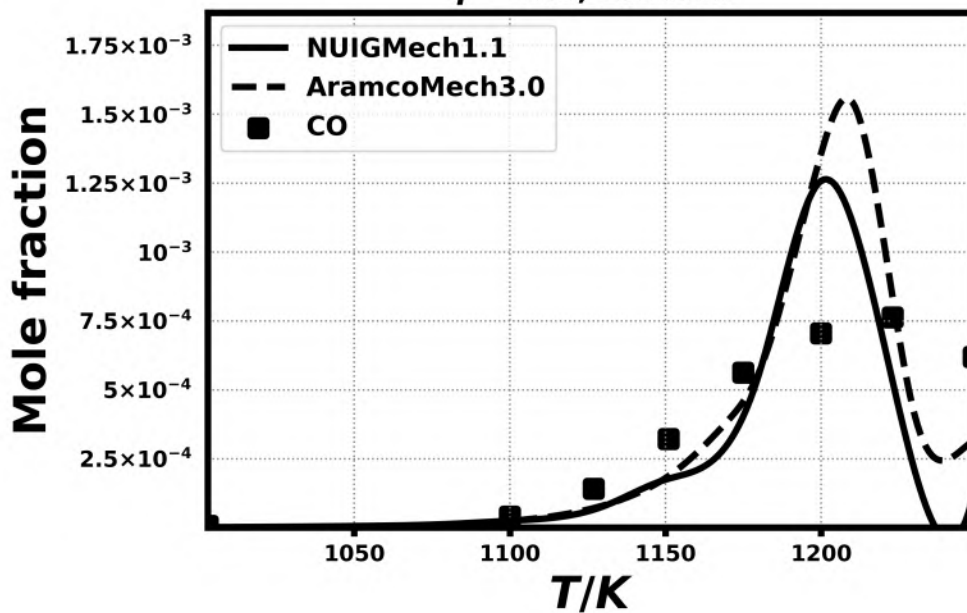
0.15% C₃H₆, 30.0% CO₂
0.338% O₂, 30.0% CO₂, 69.513% N₂, 30.0% Ar
 $\phi = 2.0, 1.0$ atm



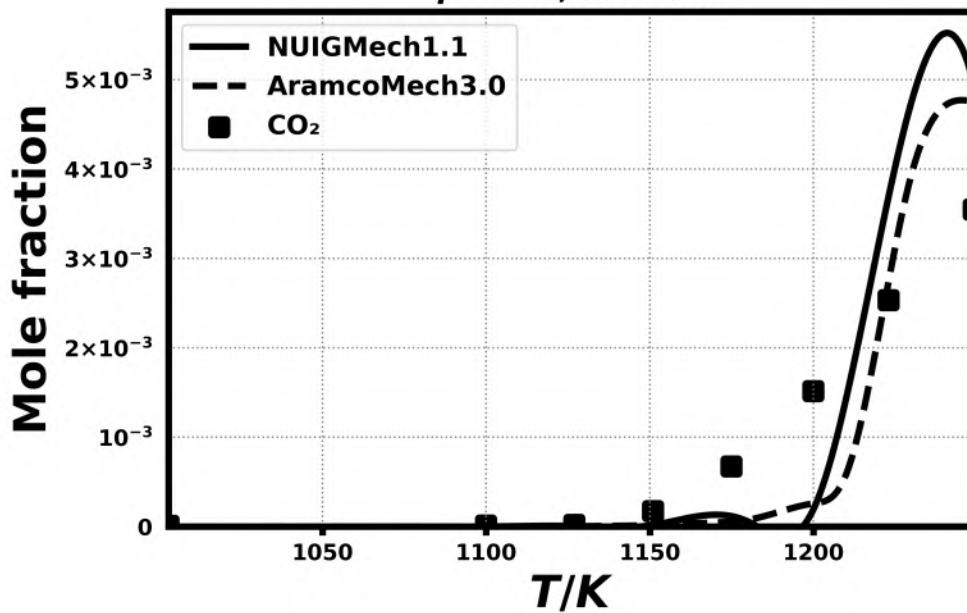
0.167% C₃H₆
1.35% O₂, 88.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



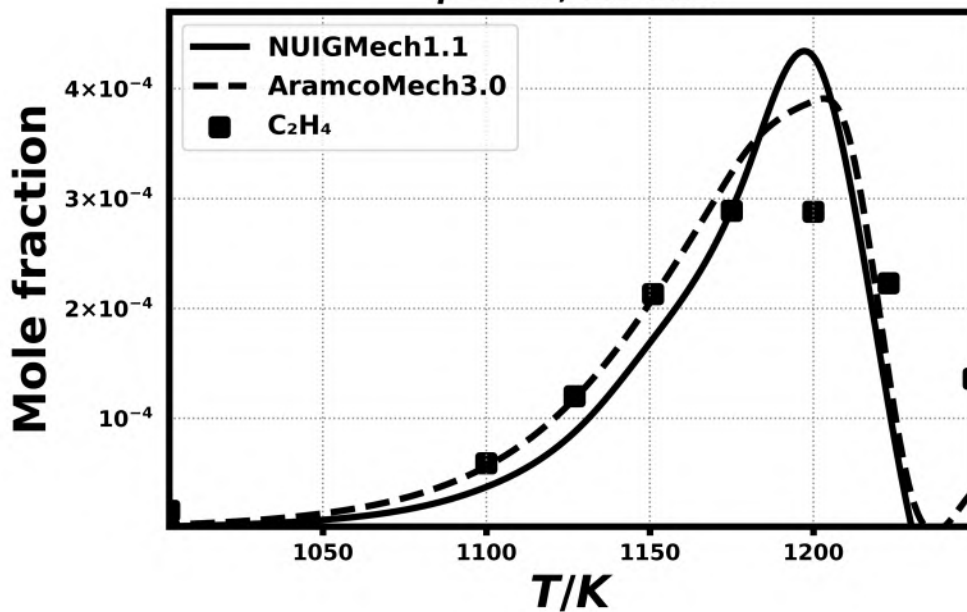
0.167% C₃H₆
1.35% O₂, 88.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



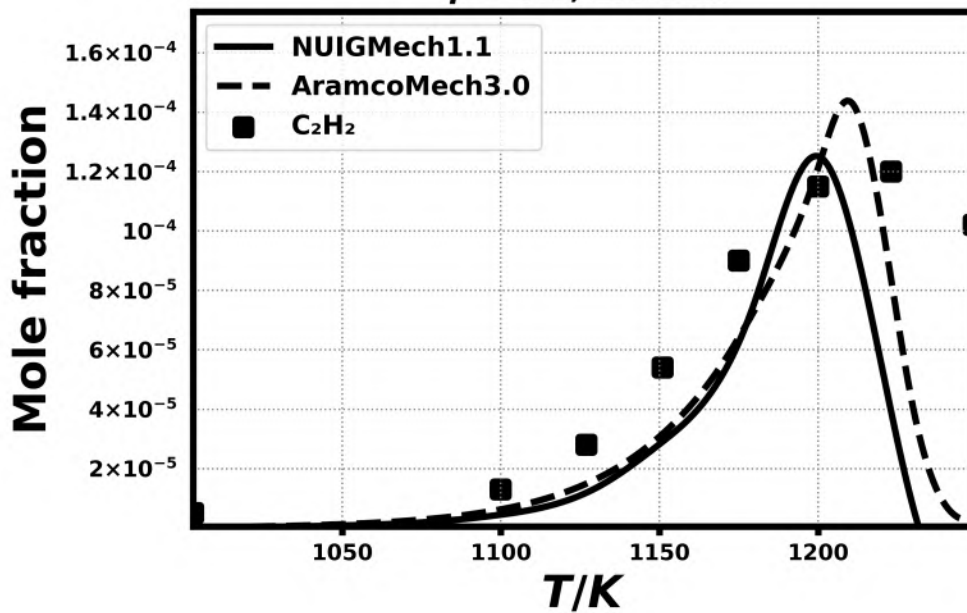
0.167% C₃H₆
1.35% O₂, 88.5% N₂
 $\phi = 0.5, 1.0$ atm



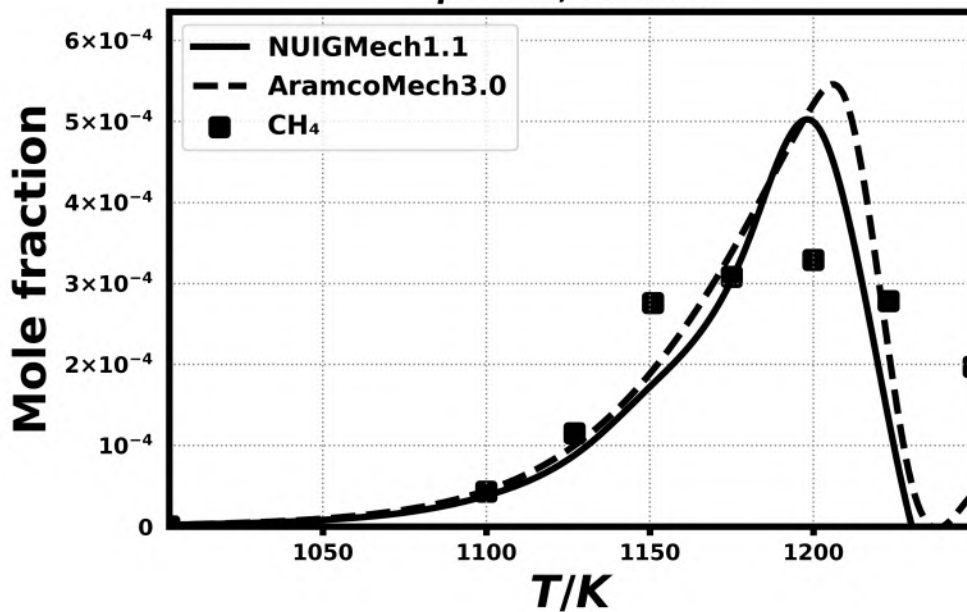
0.167% C₃H₆
1.35% O₂, 88.5% N₂
 $\phi = 0.5, 1.0$ atm



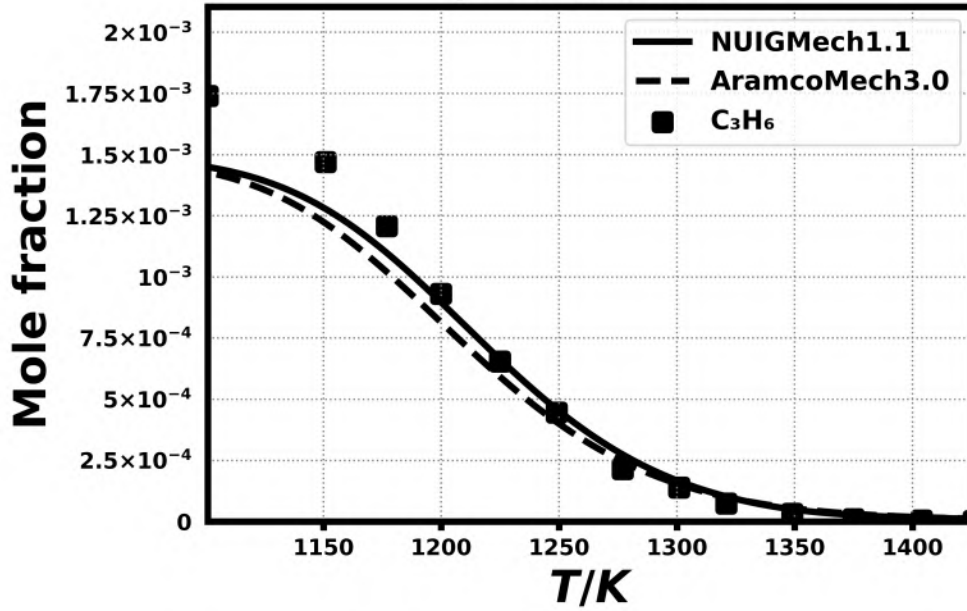
0.167% C₃H₆
1.35% O₂, 88.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



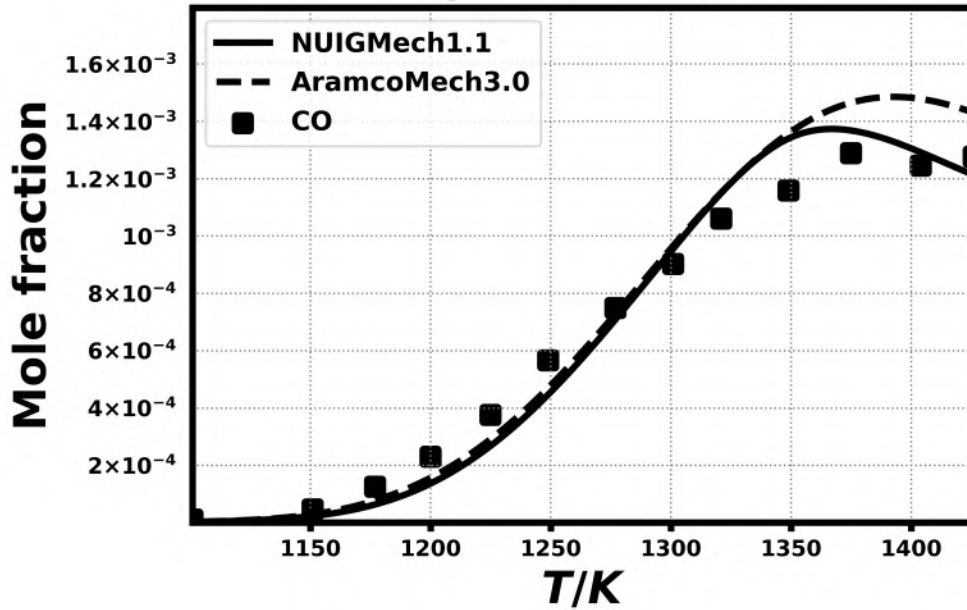
0.167% C₃H₆
1.35% O₂, 88.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



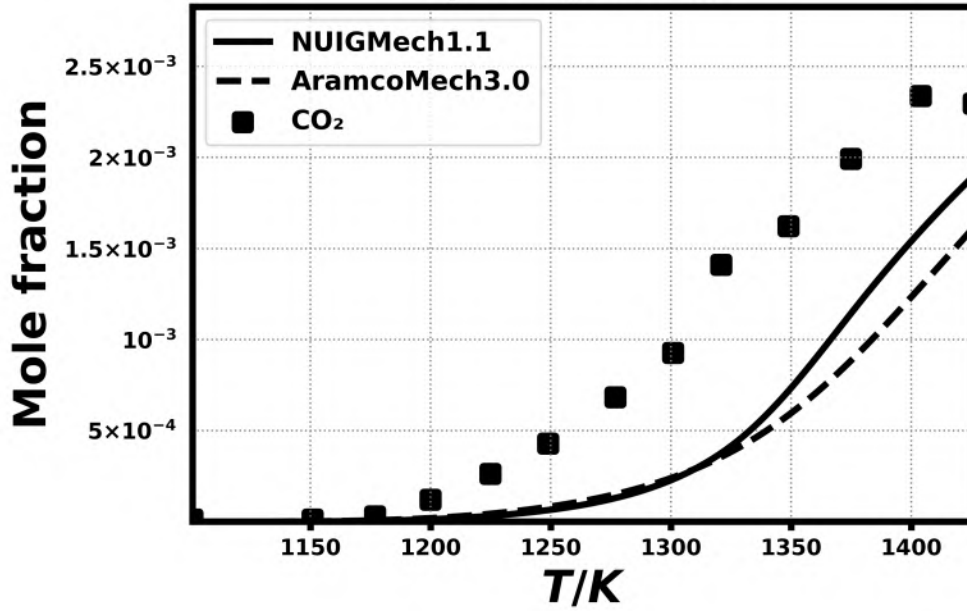
0.15% C₃H₆
0.338% O₂, 89.513% N₂
 $\phi = 2.0, 1.0 \text{ atm}$



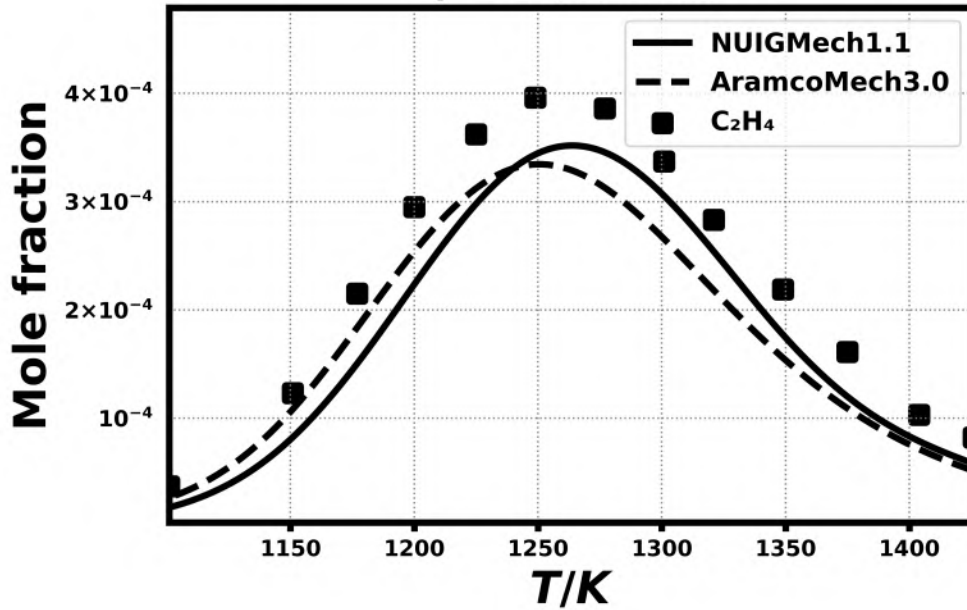
0.15% C₃H₆
0.338% O₂, 89.513% N₂
 $\phi = 2.0, 1.0 \text{ atm}$



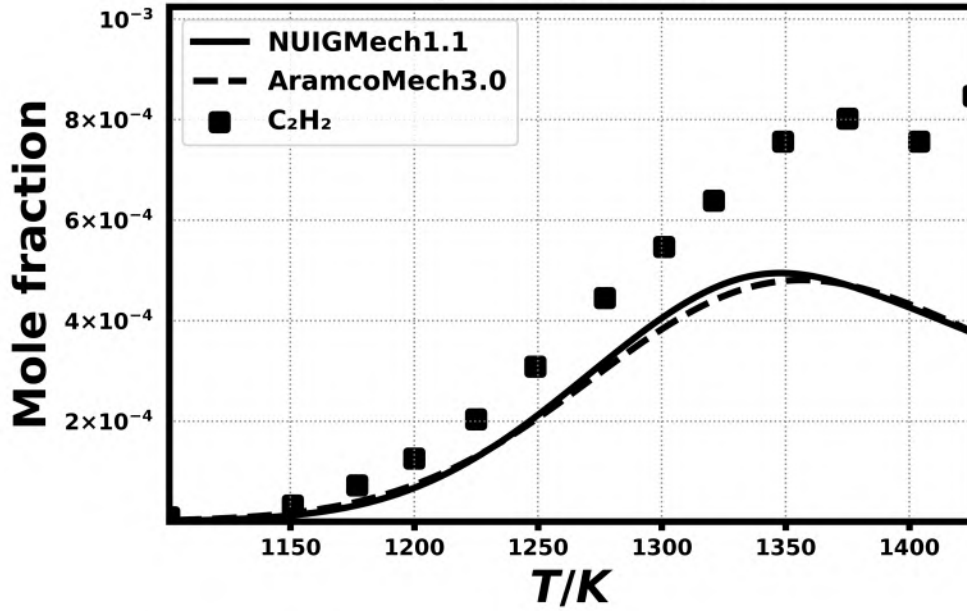
0.15% C₃H₆
0.338% O₂, 89.513% N₂
 $\phi = 2.0, 1.0 \text{ atm}$



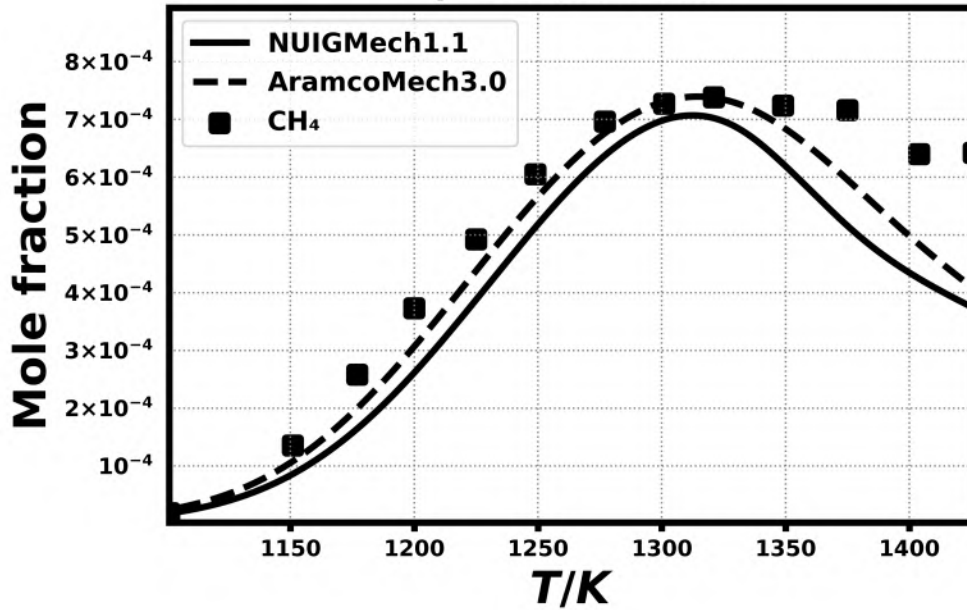
0.15% C₃H₆
0.338% O₂, 89.513% N₂
 $\phi = 2.0, 1.0 \text{ atm}$



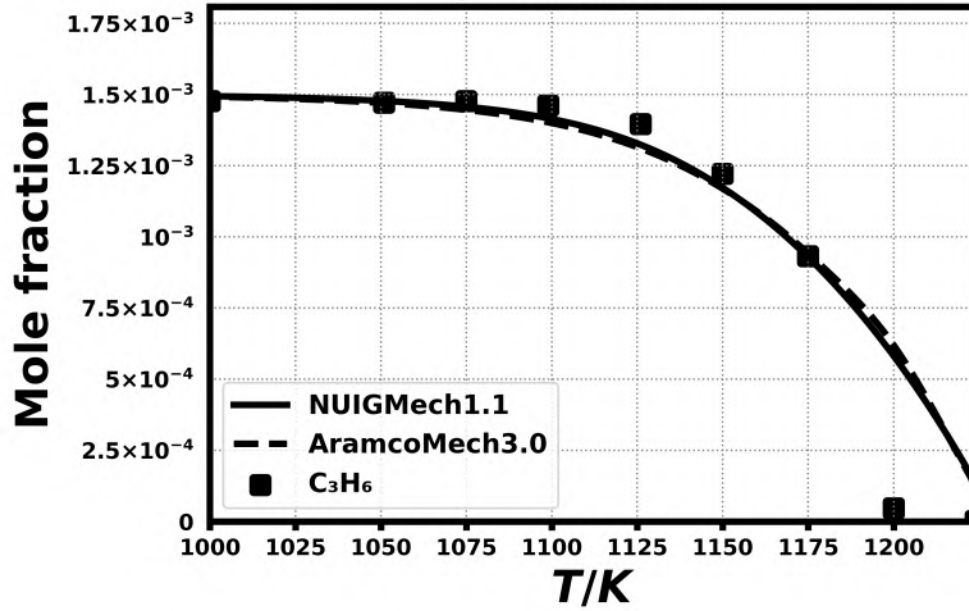
0.15% C₃H₆
0.338% O₂, 89.513% N₂
 $\phi = 2.0, 1.0 \text{ atm}$



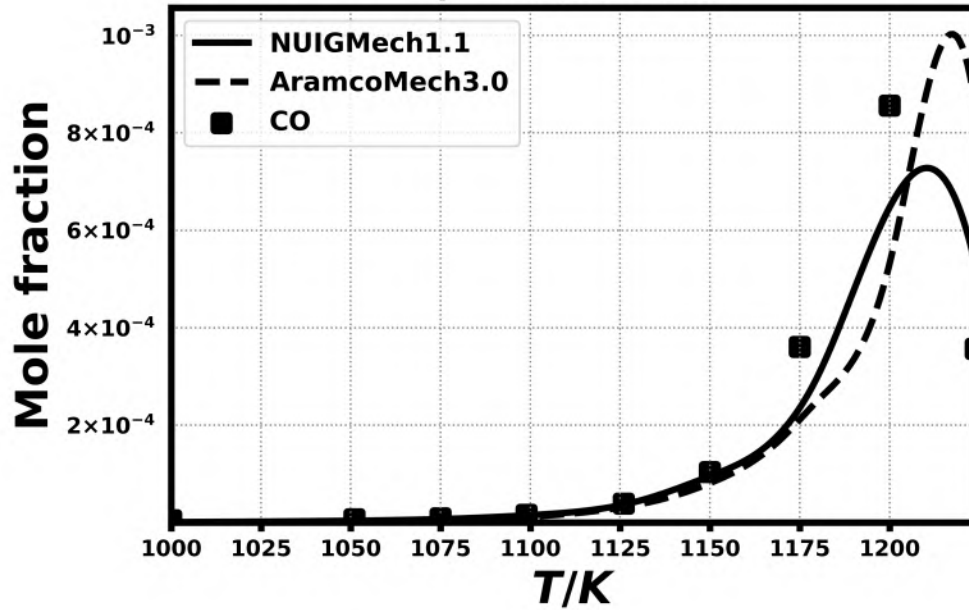
0.15% C₃H₆
0.338% O₂, 89.513% N₂
 $\phi = 2.0, 1.0 \text{ atm}$



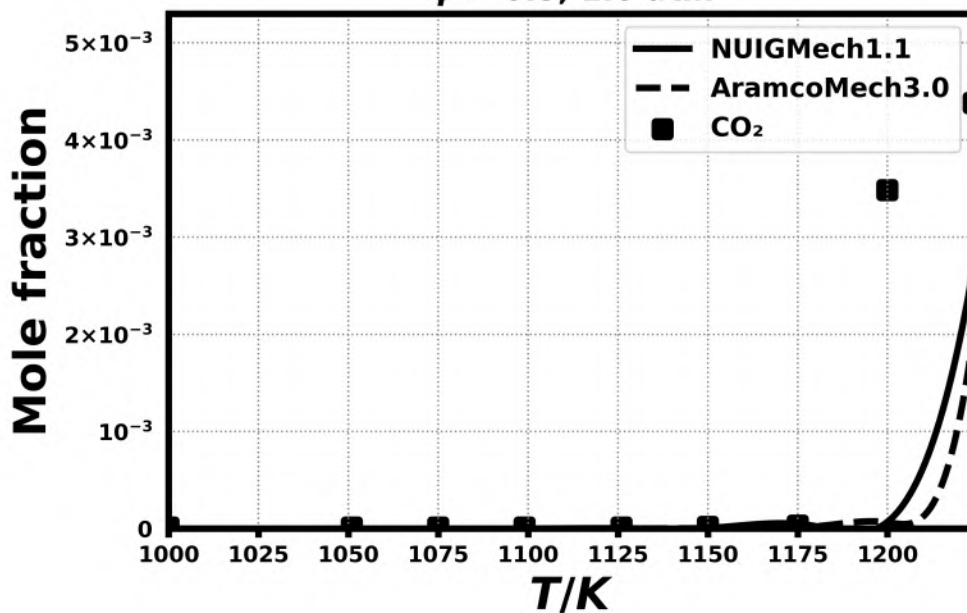
0.15% C₃H₆
1.35% O₂, 98.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



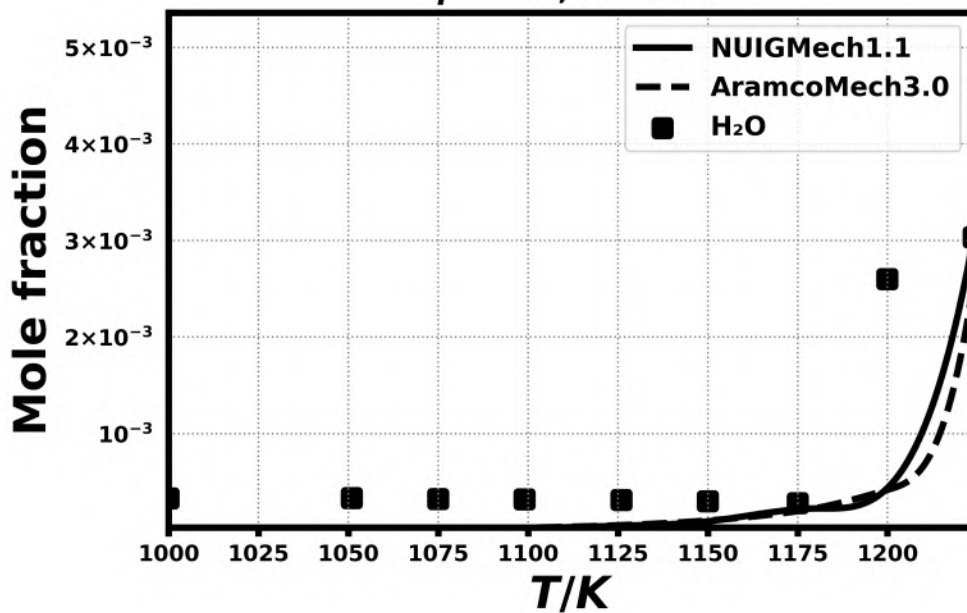
0.15% C₃H₆
1.35% O₂, 98.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



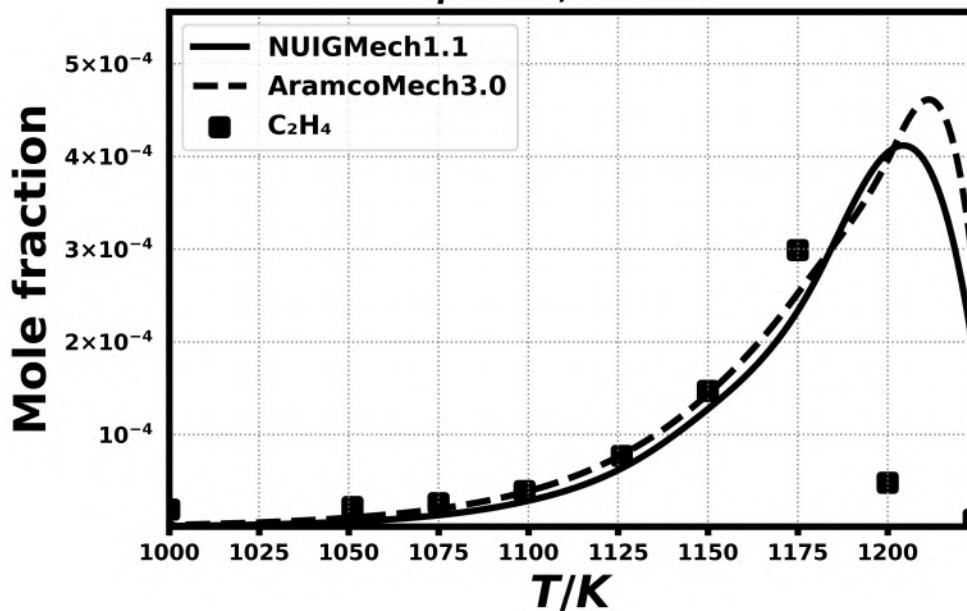
0.15% C₃H₆
1.35% O₂, 98.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



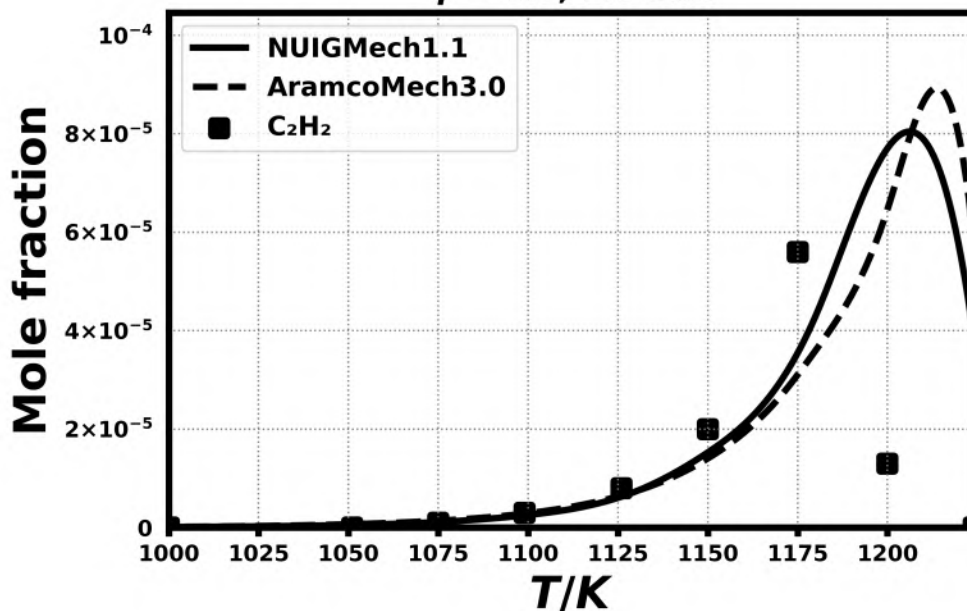
0.15% C₃H₆
1.35% O₂, 98.5% N₂
 $\phi = 0.5, 1.0 \text{ atm}$

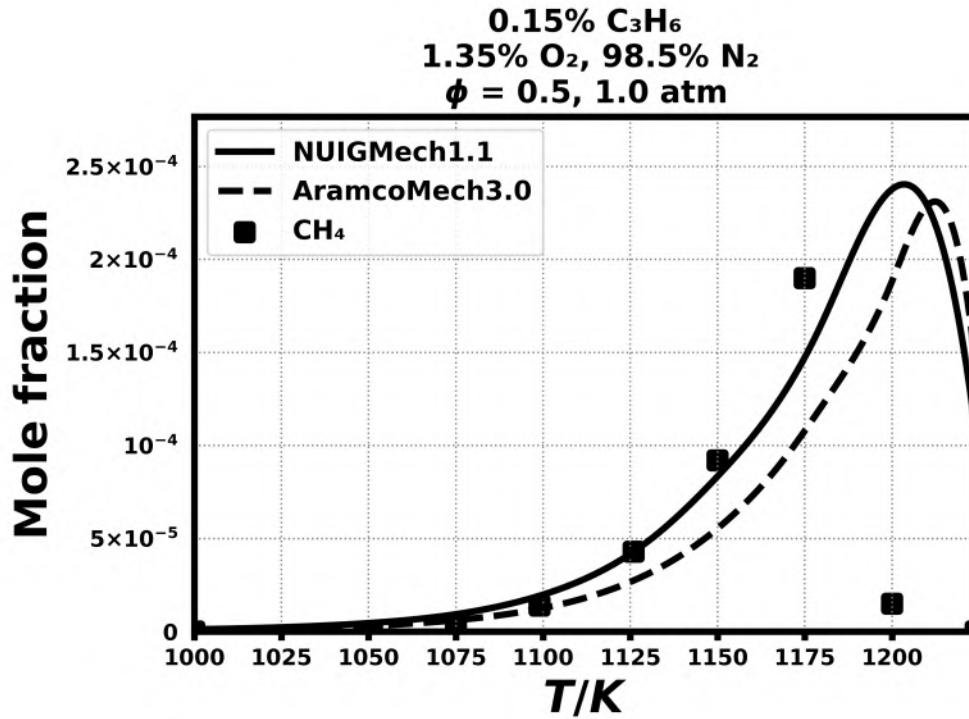


0.15% C₃H₆
1.35% O₂, 98.5% N₂
 $\phi = 0.5, 1.0$ atm

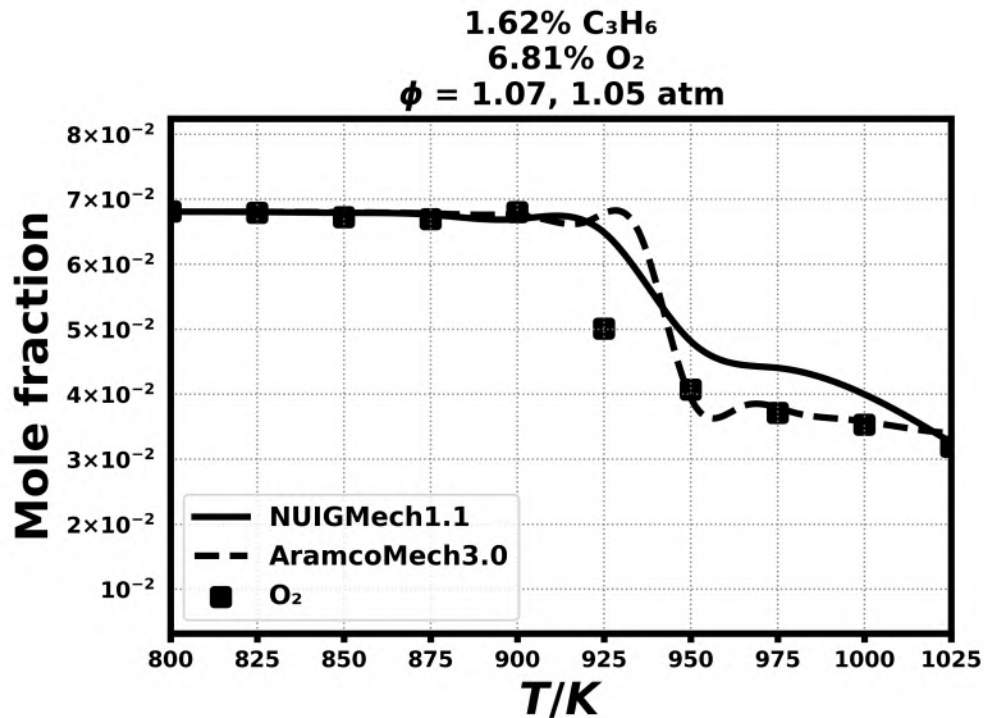


0.15% C₃H₆
1.35% O₂, 98.5% N₂
 $\phi = 0.5, 1.0$ atm

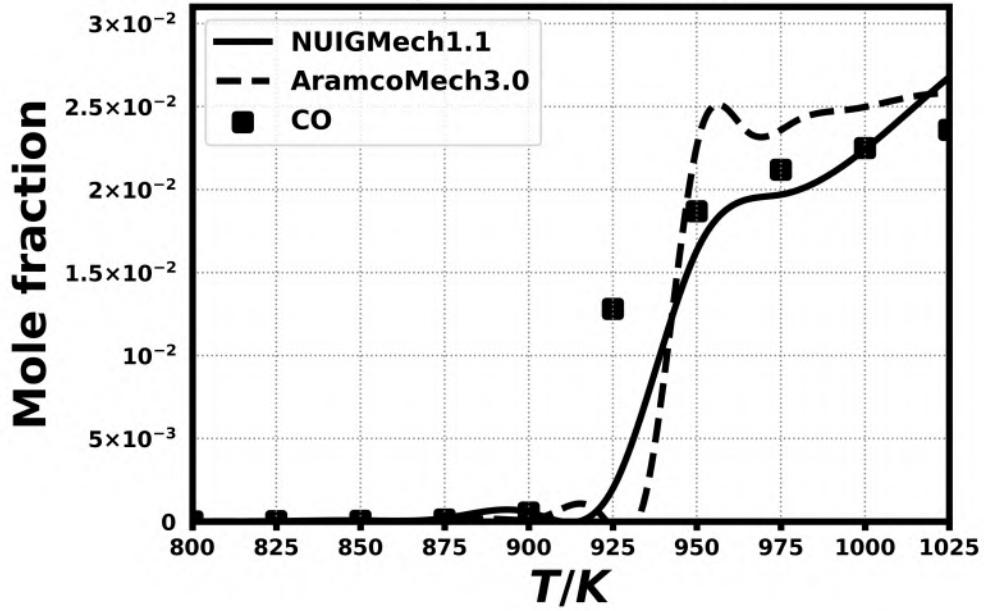




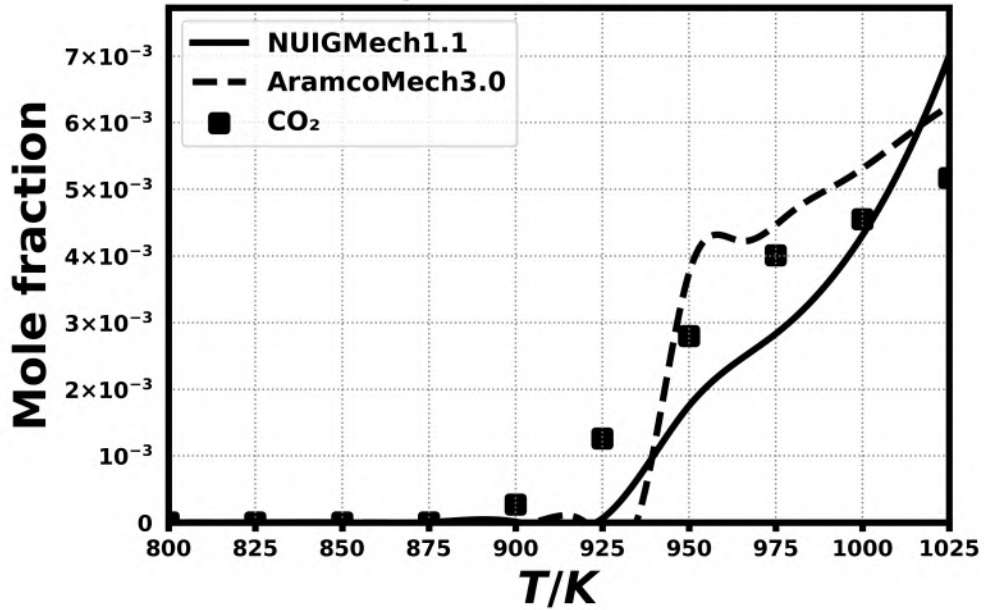
16.5) Burke, S. M., Burke, U., Mc Donagh, R., Mathieu, O., Osorio, I., Keesee, C., ... & Oehlschlaeger, M. A., *Combustion and Flame*, 162(2) (2015) 296-314.



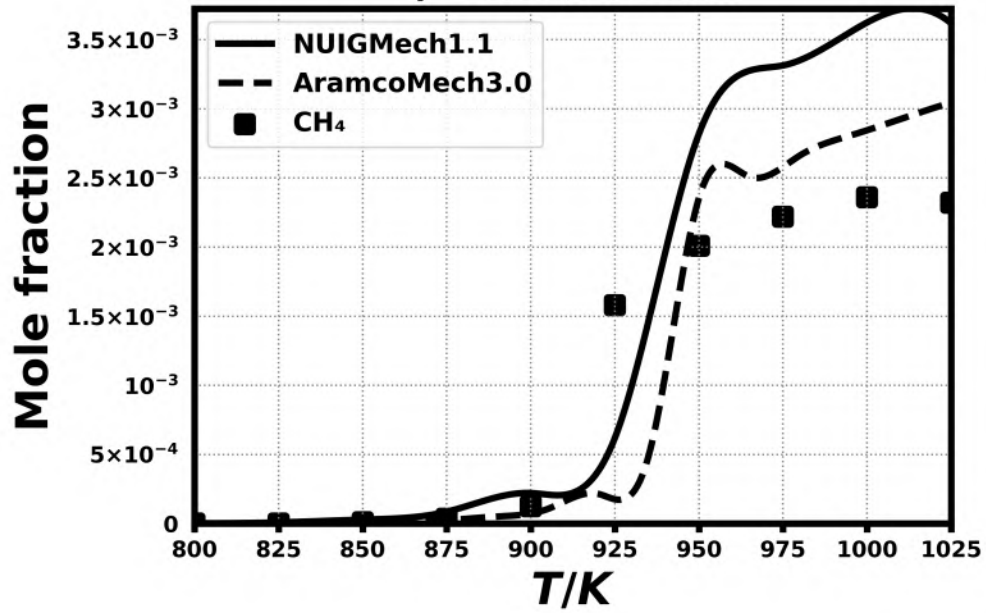
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



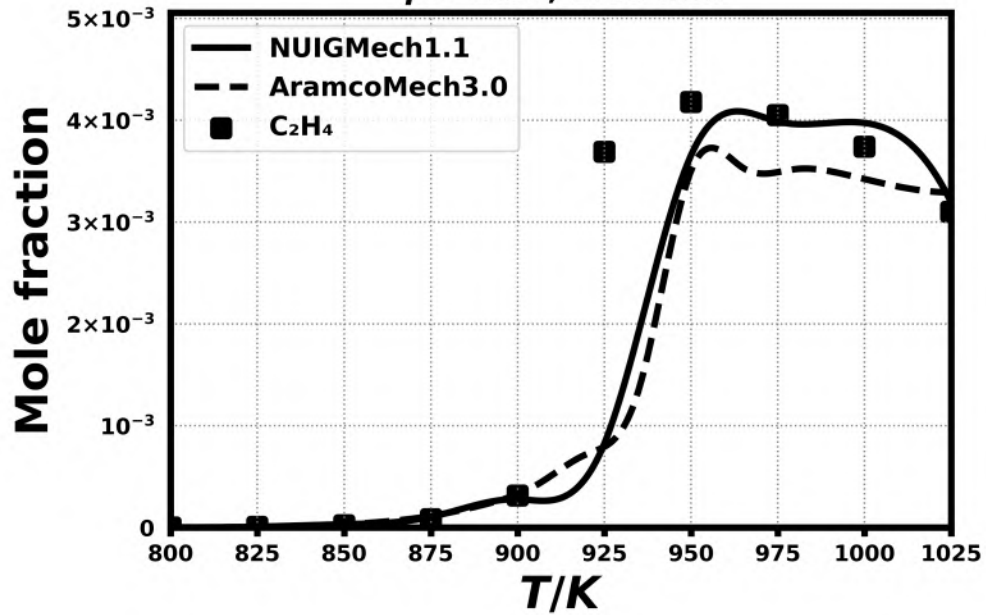
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



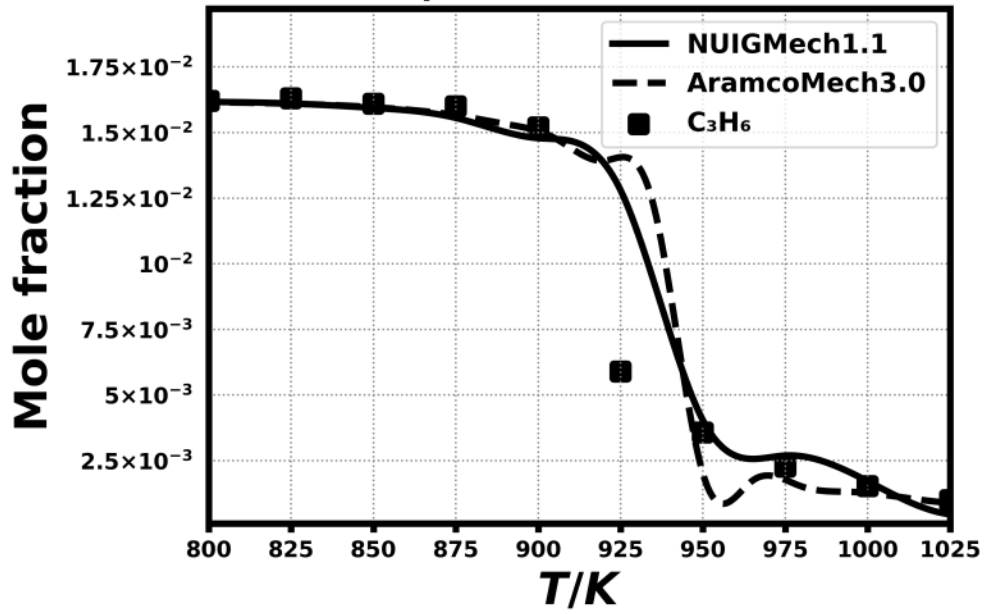
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05 \text{ atm}$



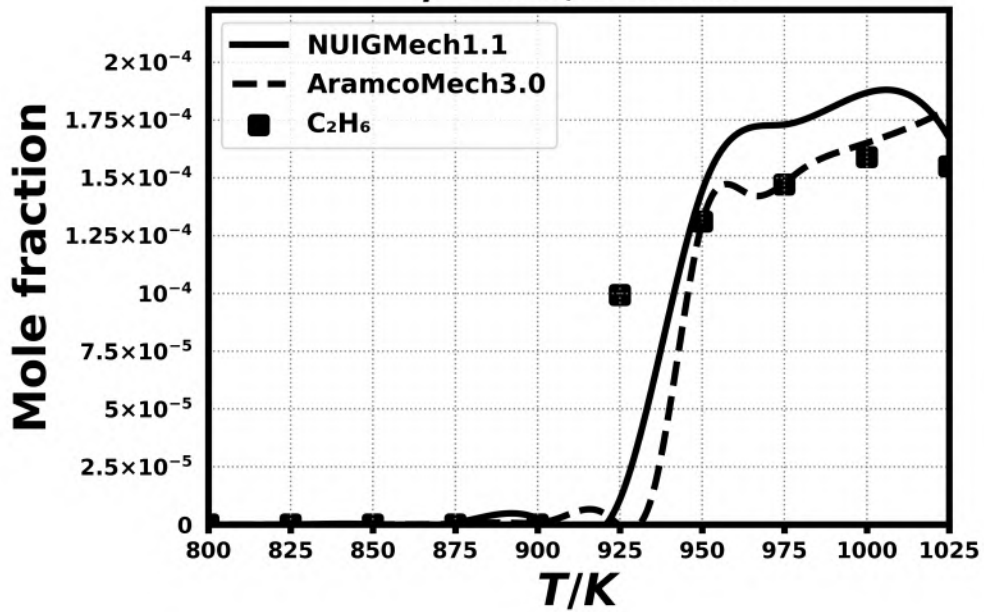
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05 \text{ atm}$

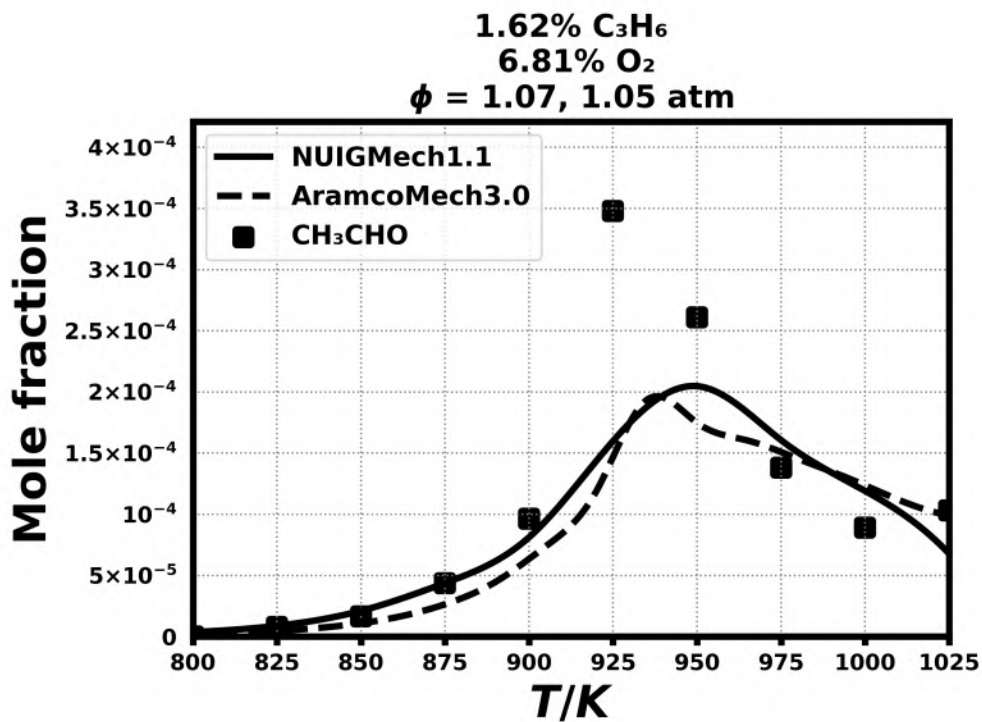
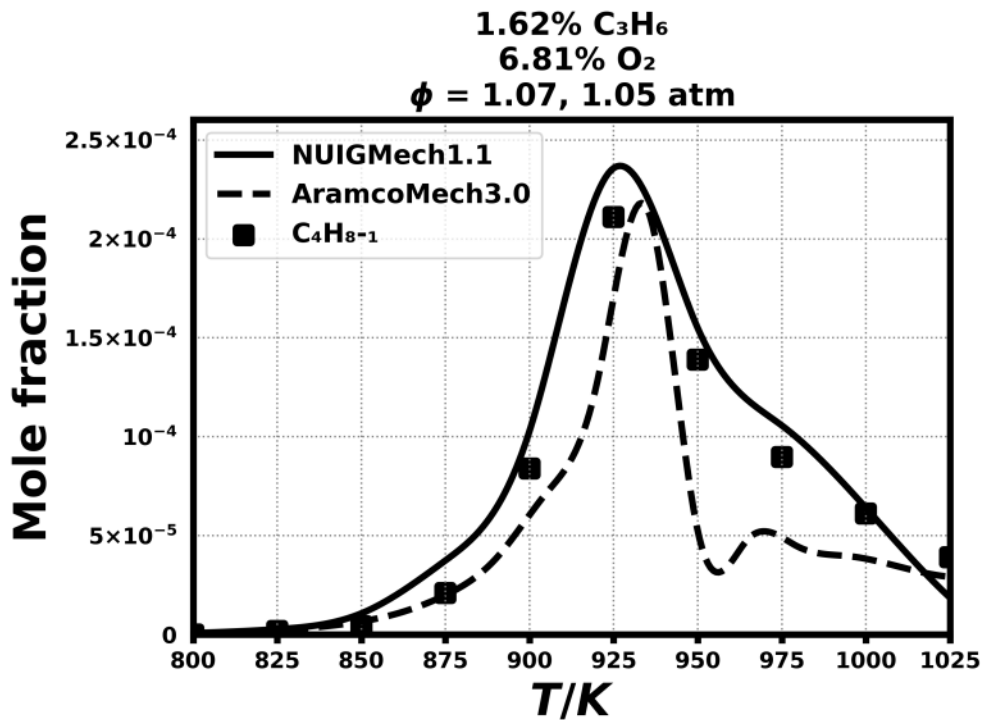


1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05 \text{ atm}$

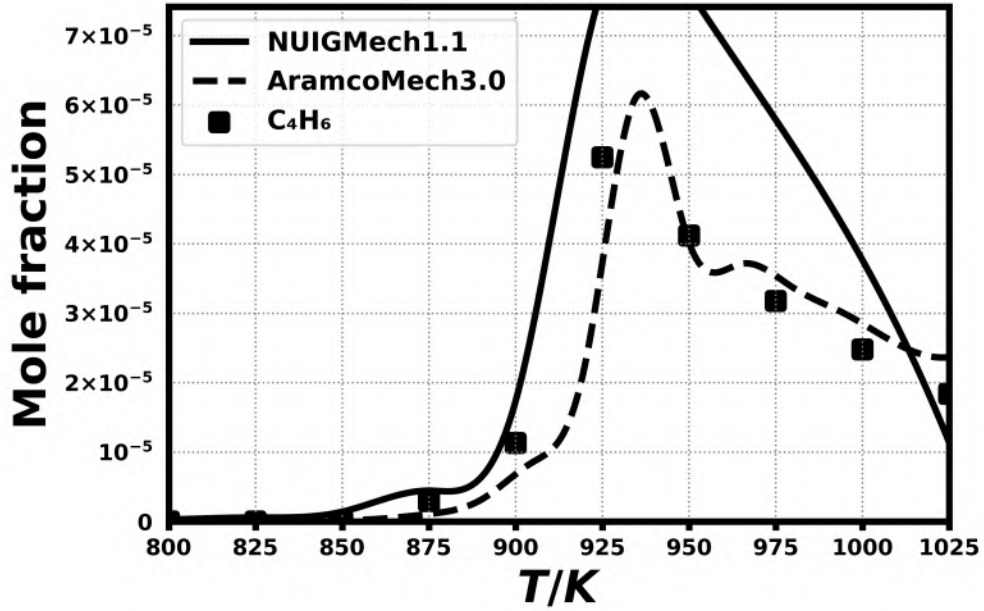


1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05 \text{ atm}$

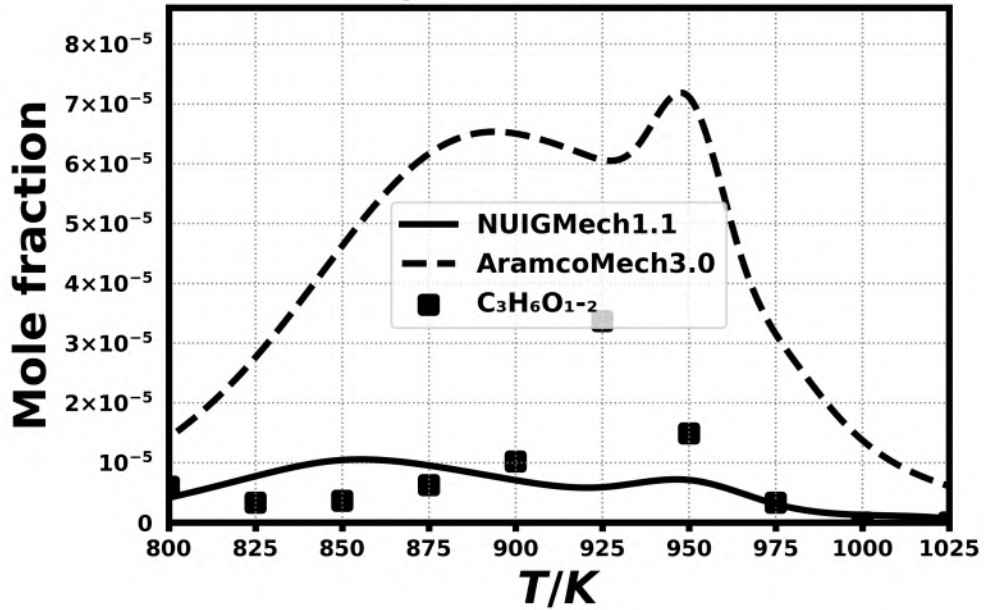




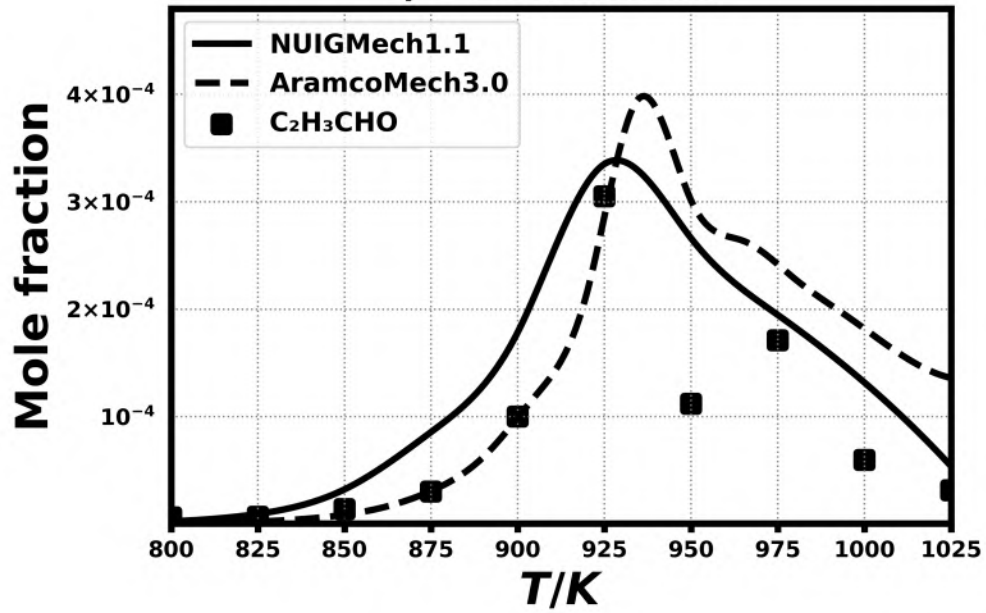
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



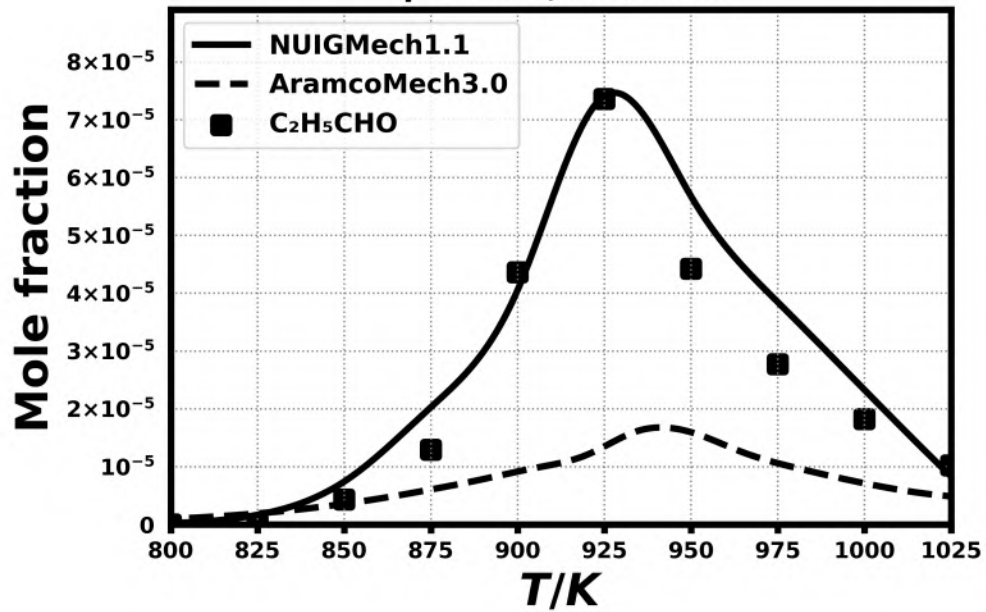
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



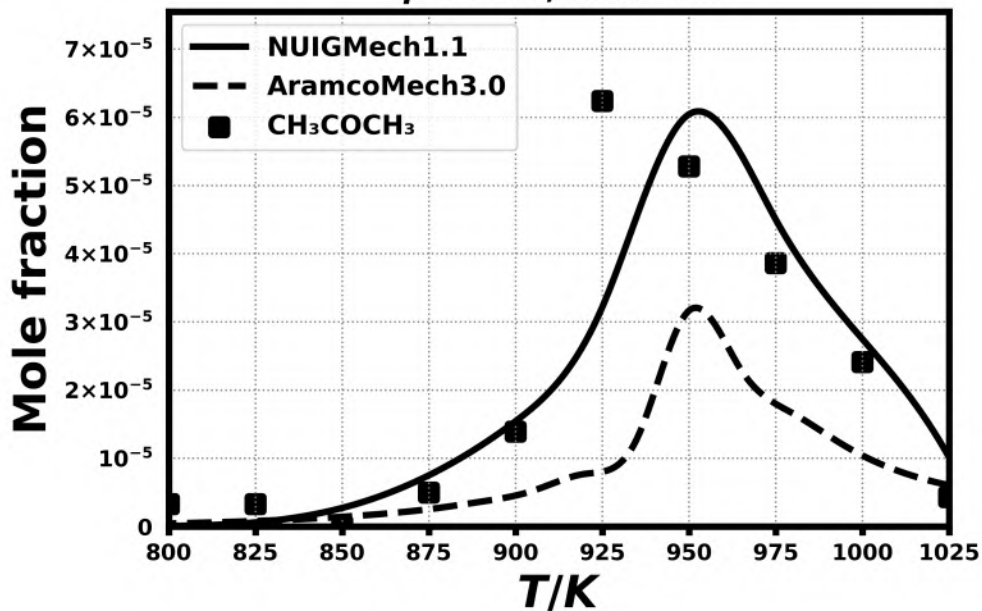
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



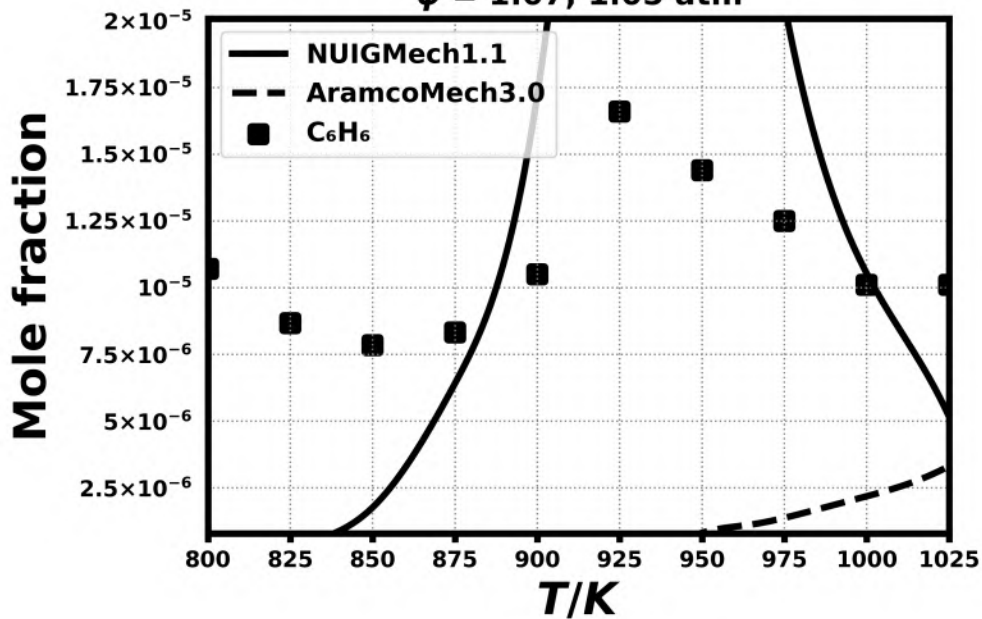
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



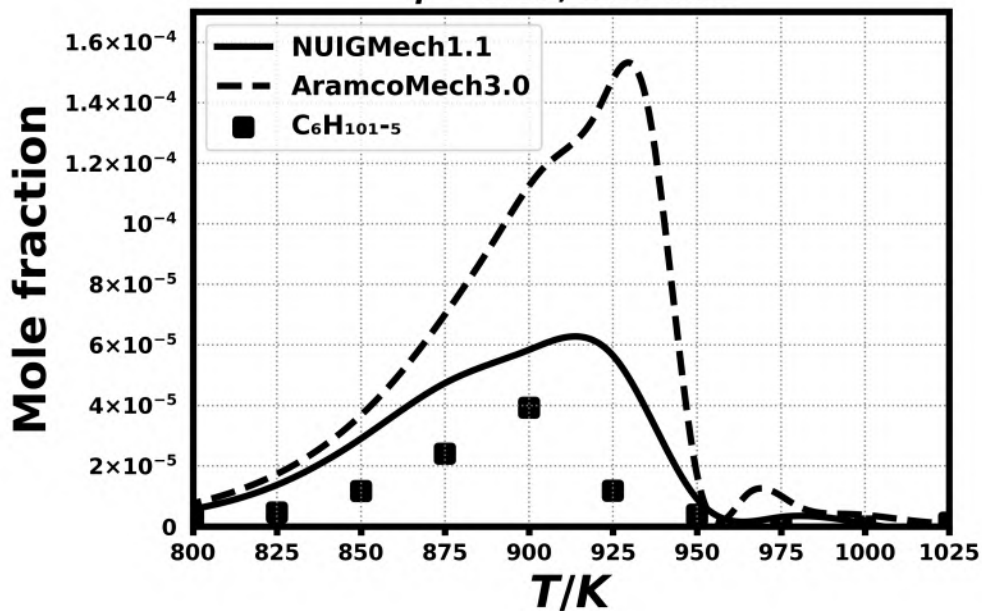
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



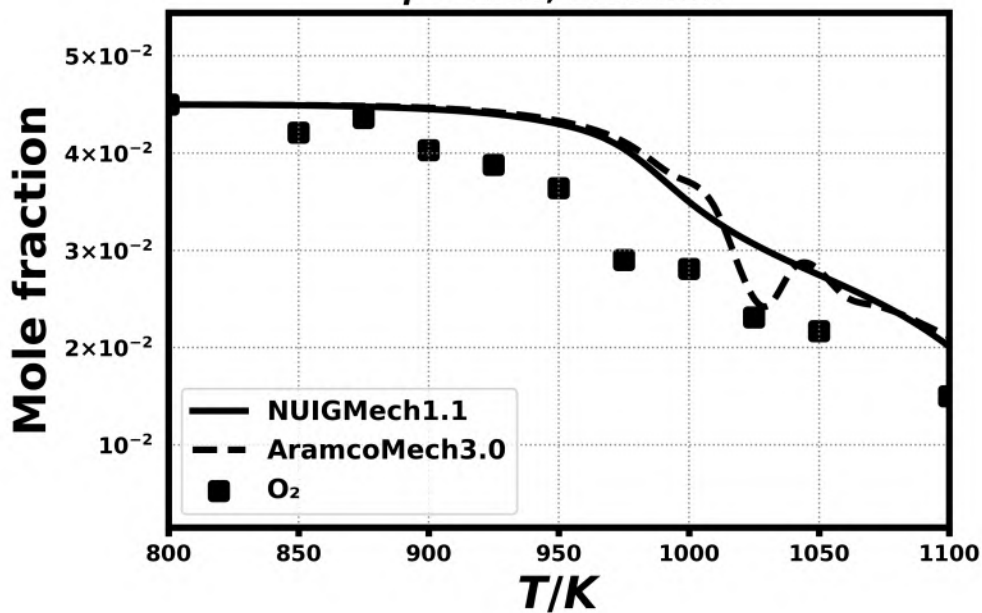
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05$ atm



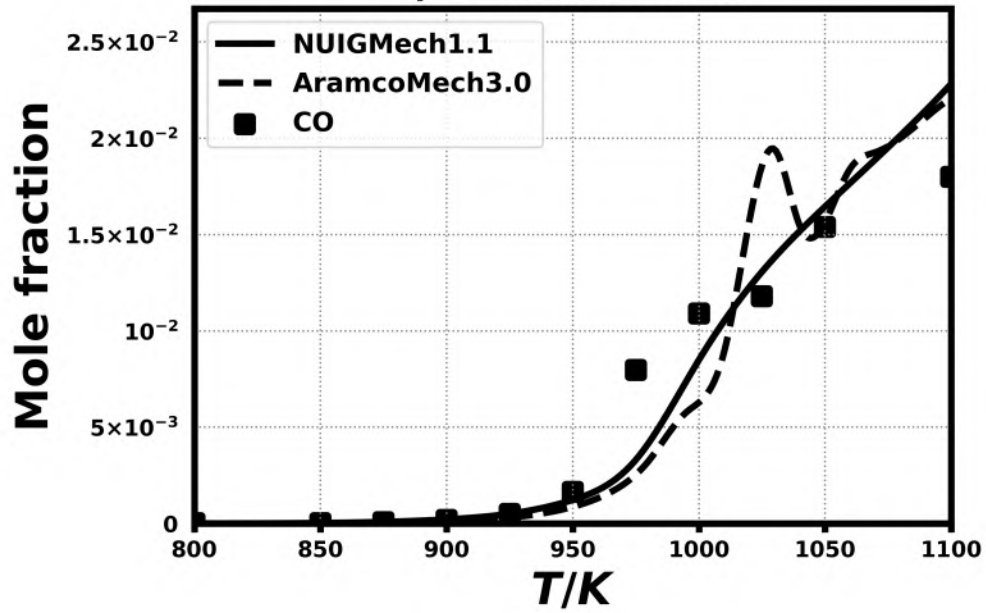
1.62% C₃H₆
6.81% O₂
 $\phi = 1.07, 1.05 \text{ atm}$



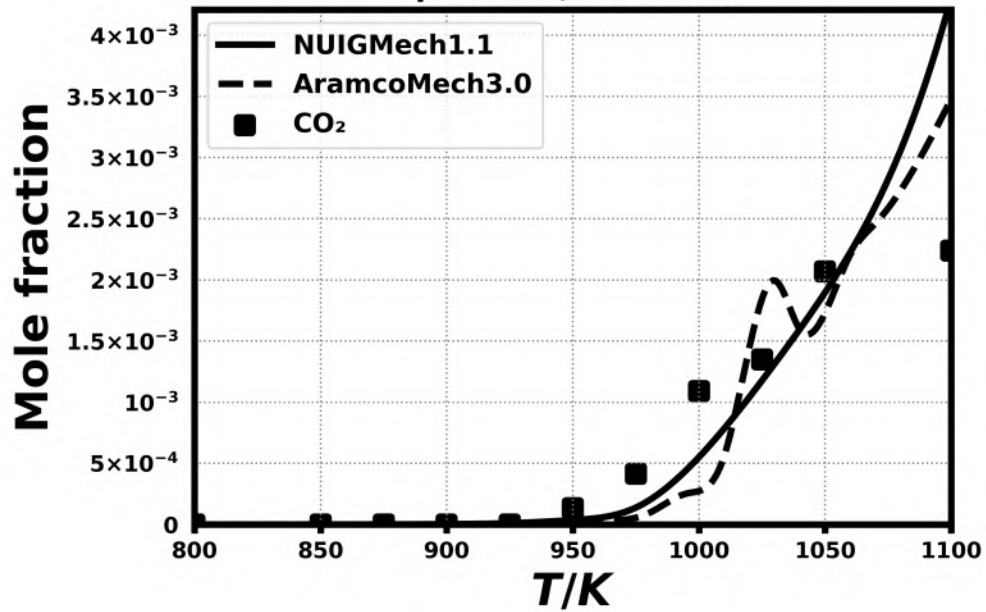
1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$



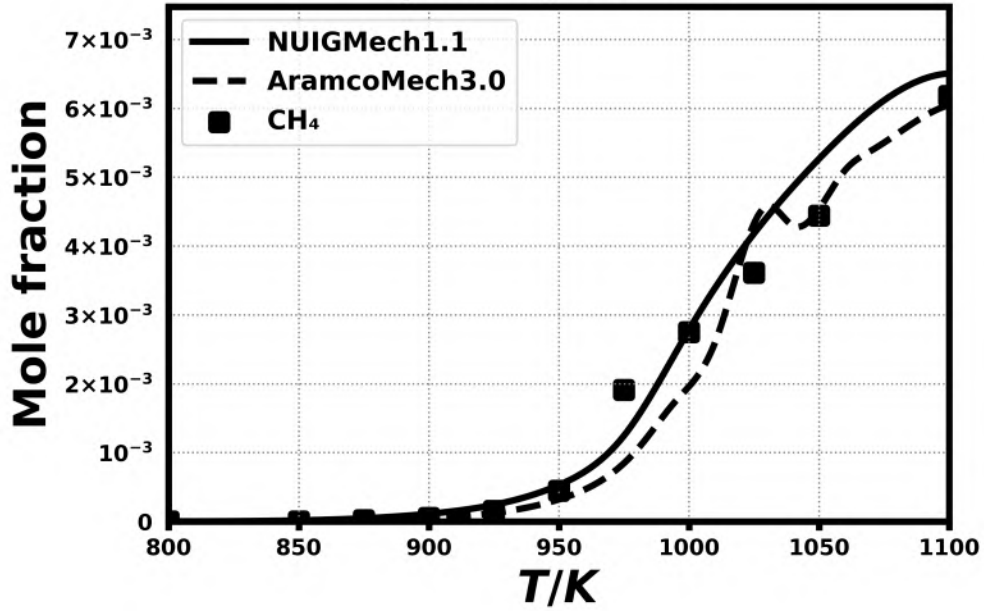
1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$



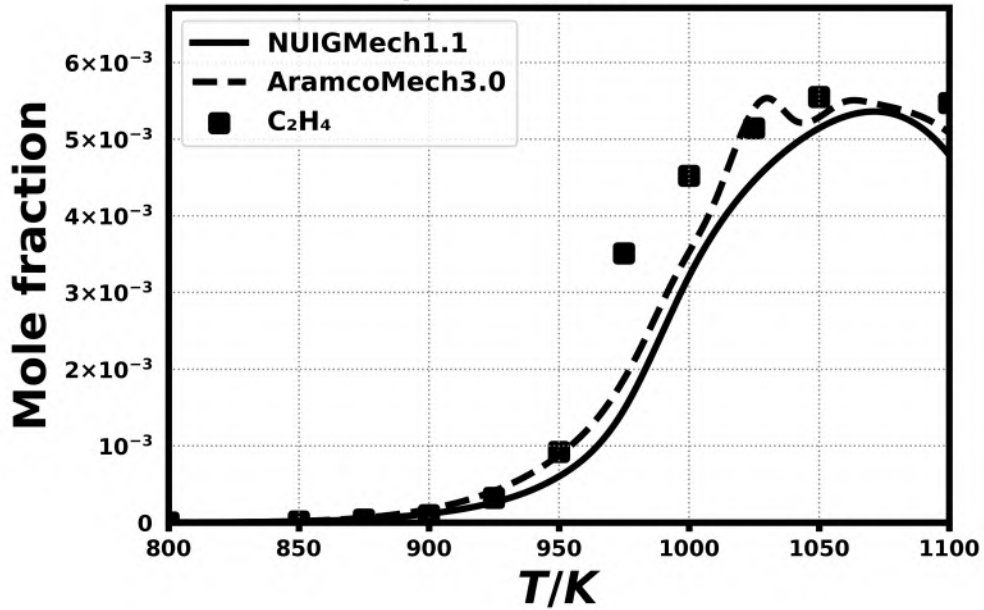
1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

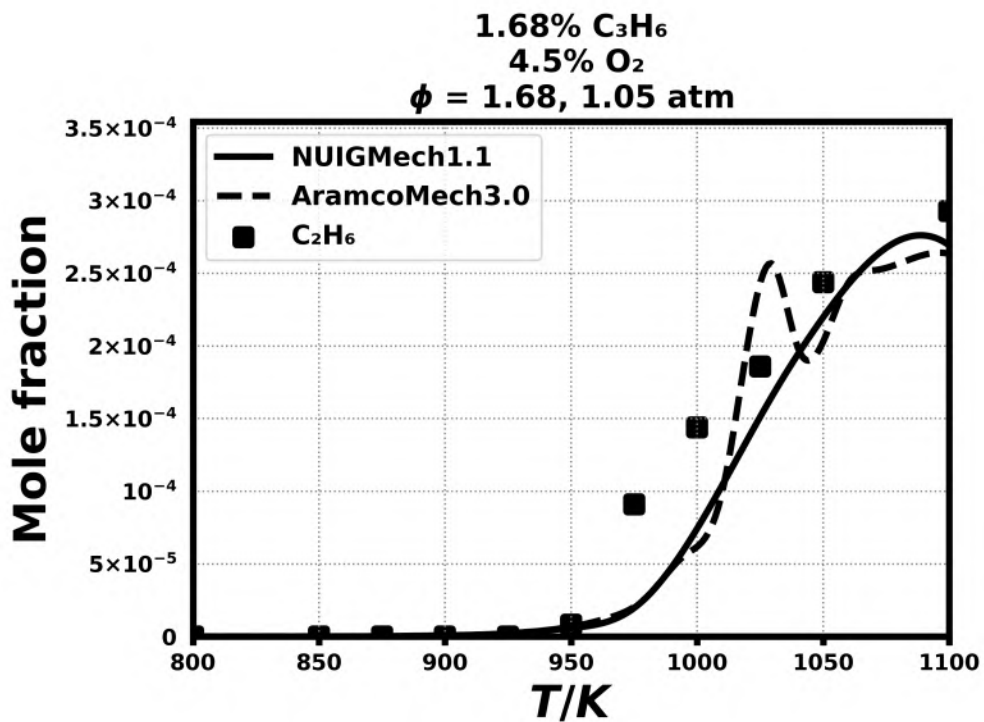
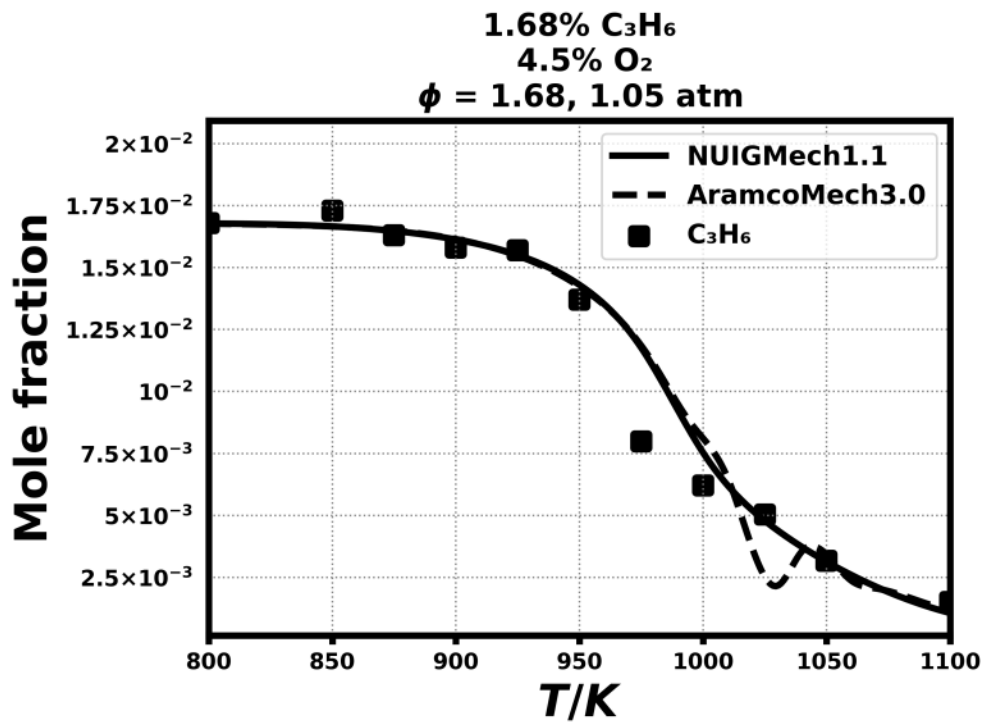


1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

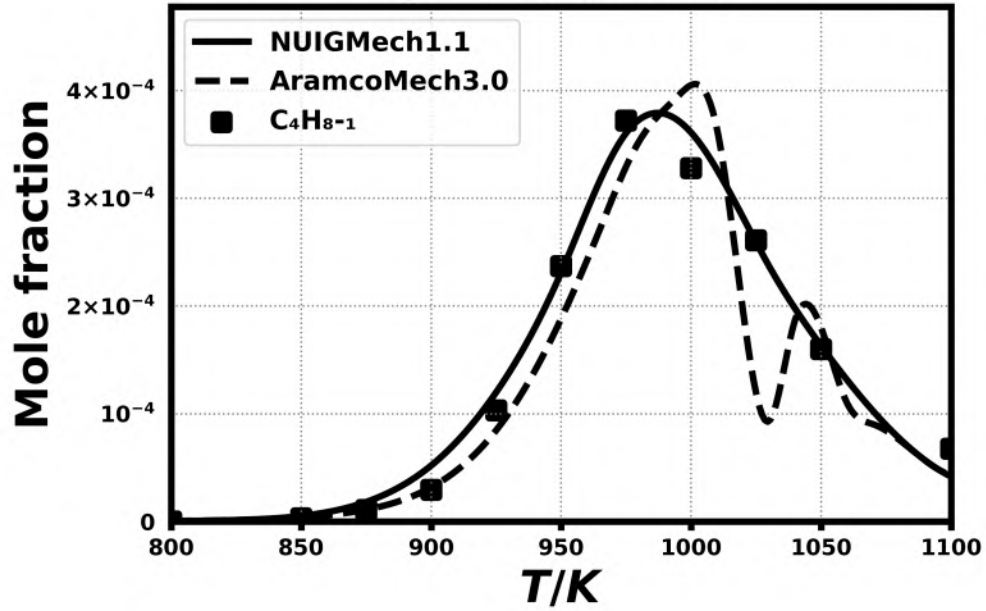


1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

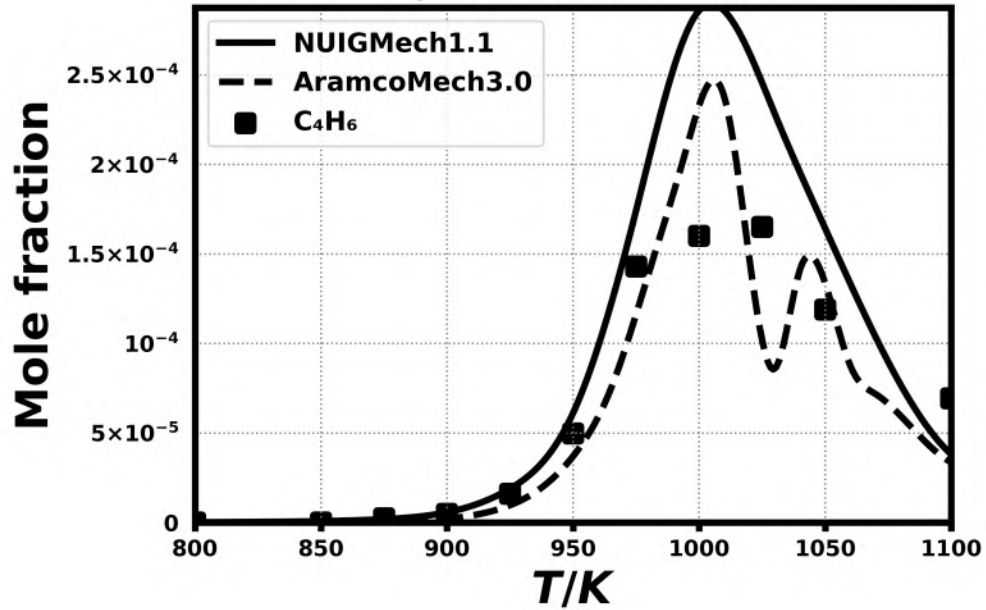


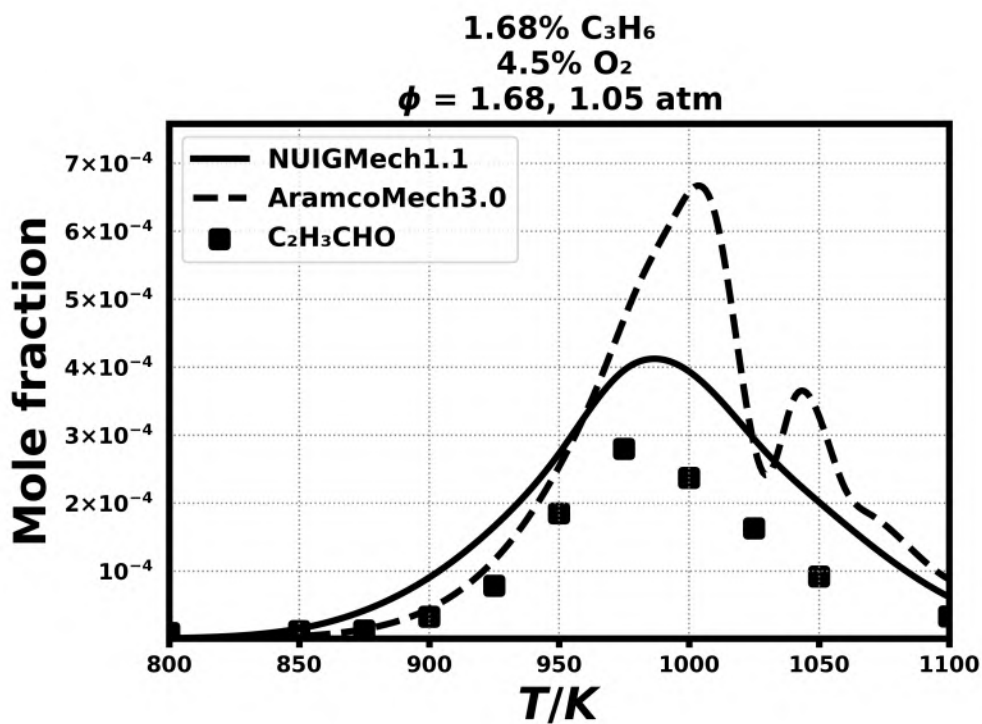
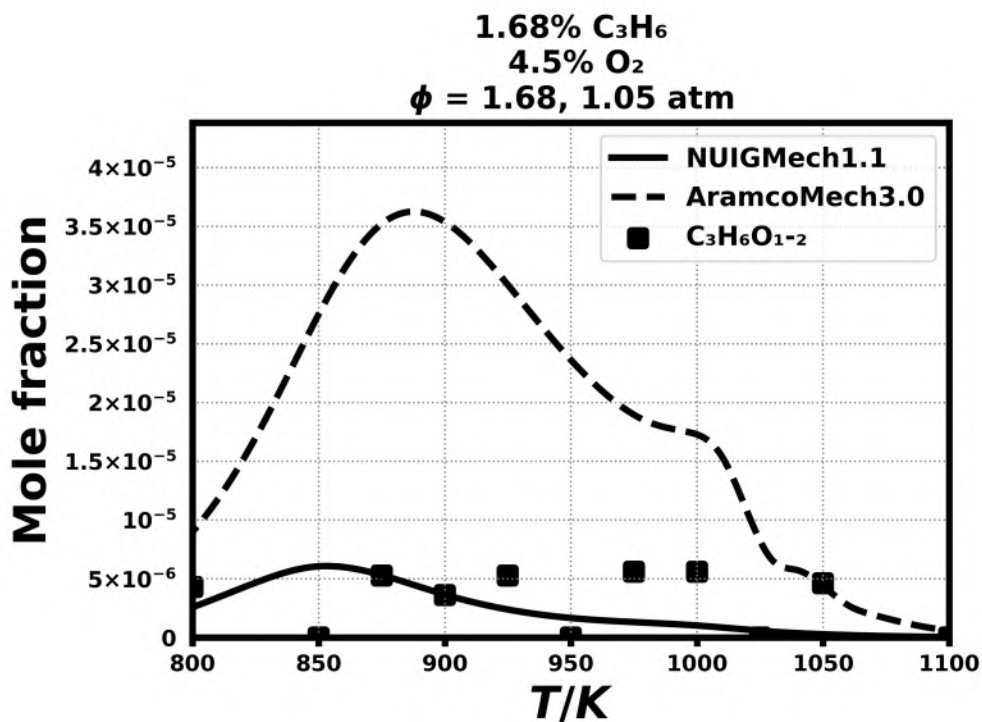


1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

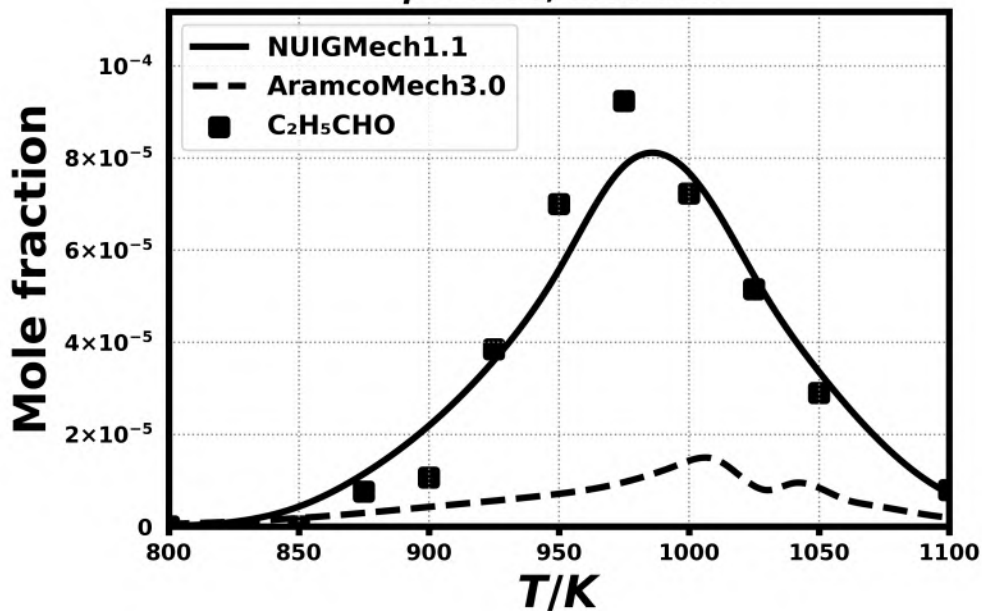


1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

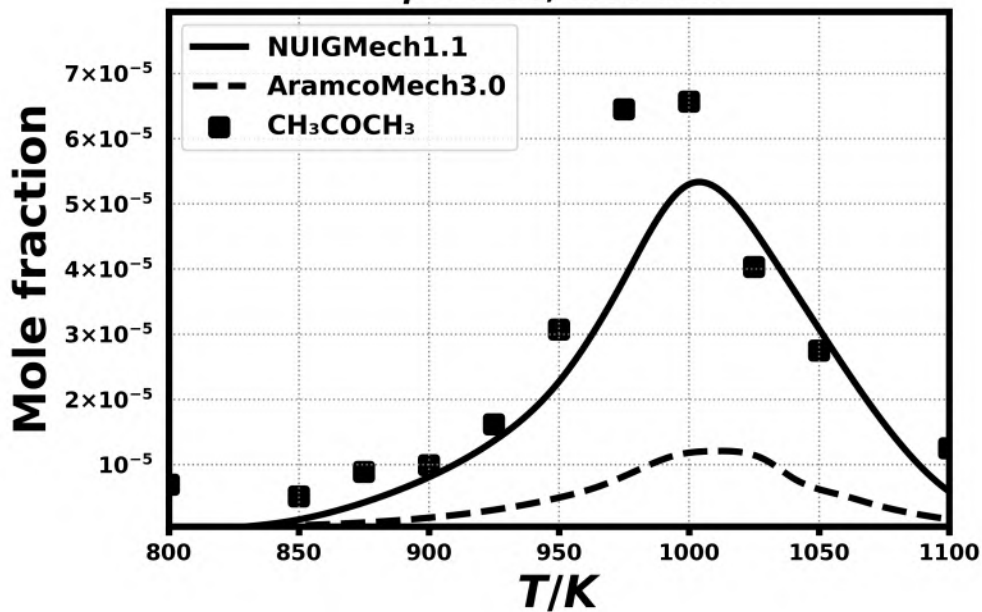




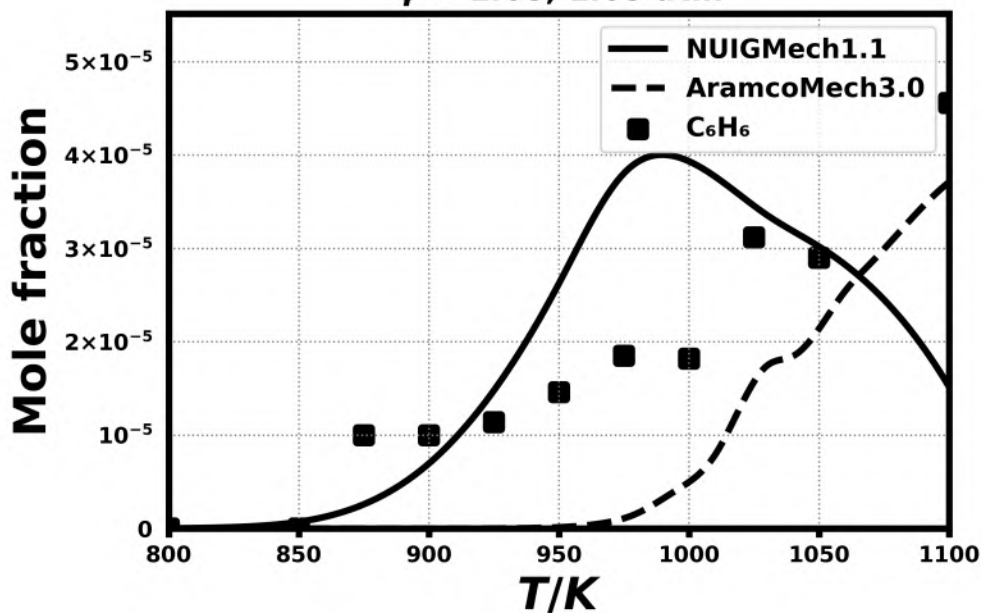
1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$



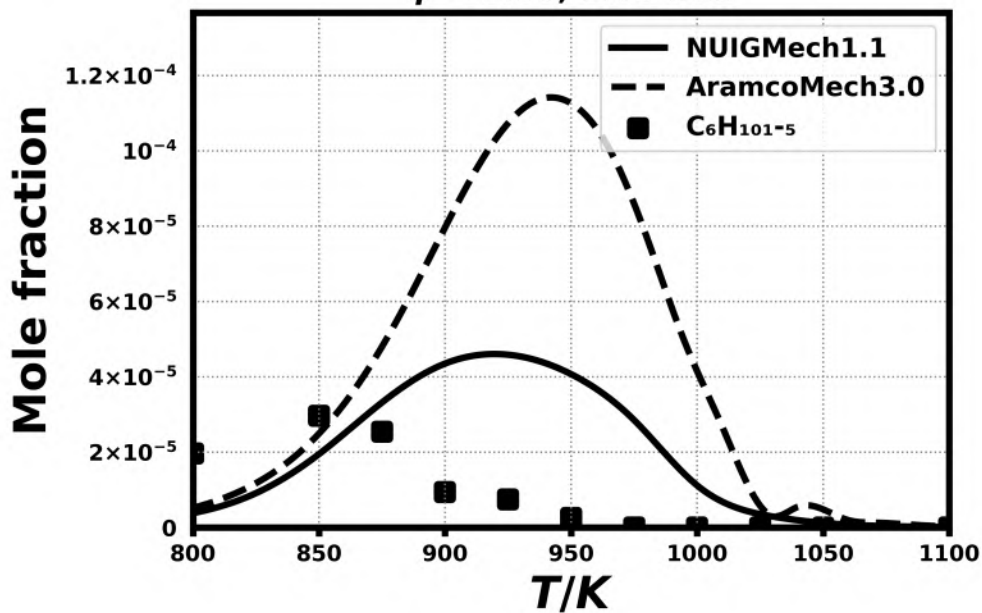
1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

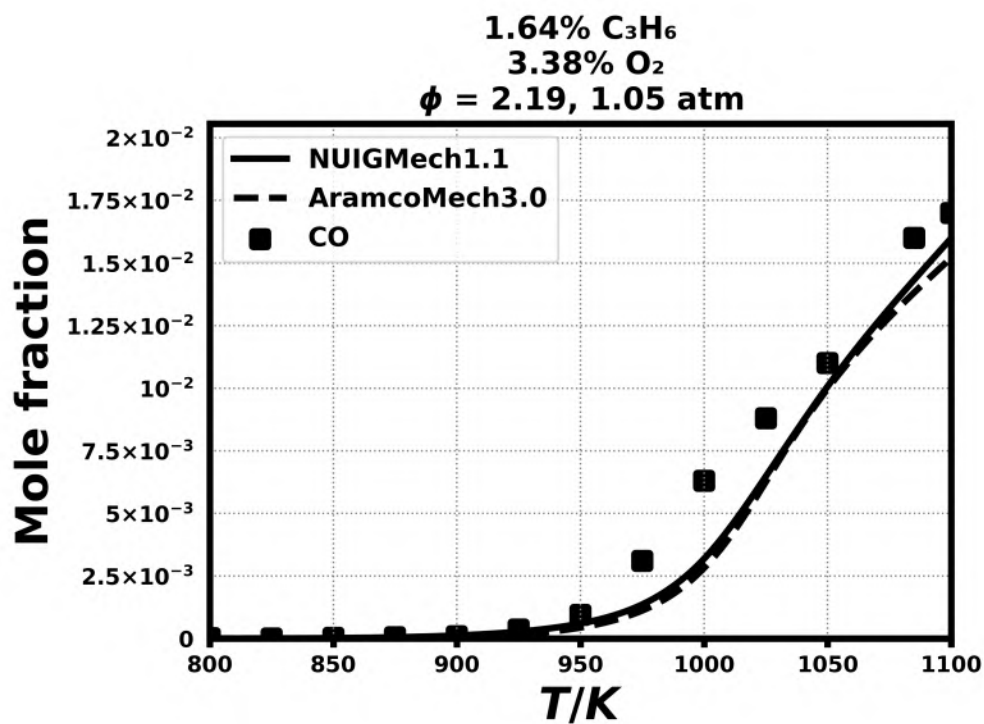
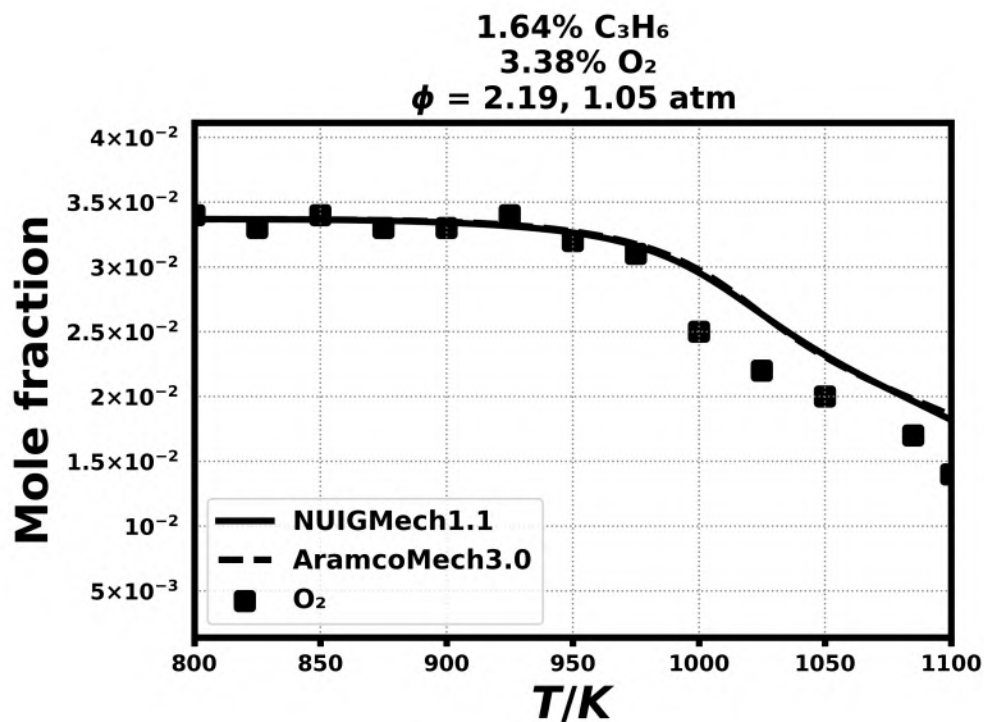


1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

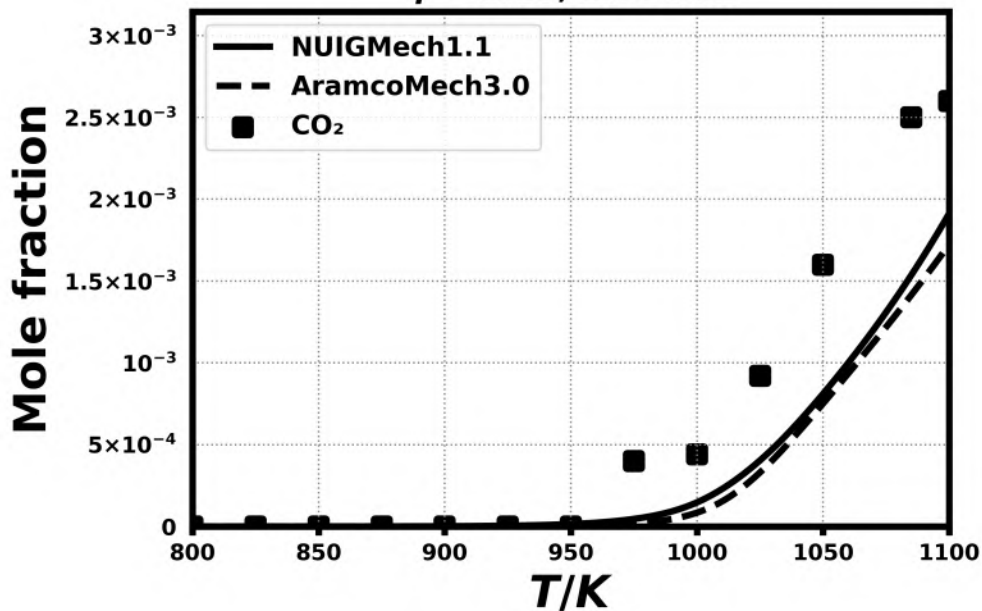


1.68% C₃H₆
4.5% O₂
 $\phi = 1.68, 1.05 \text{ atm}$

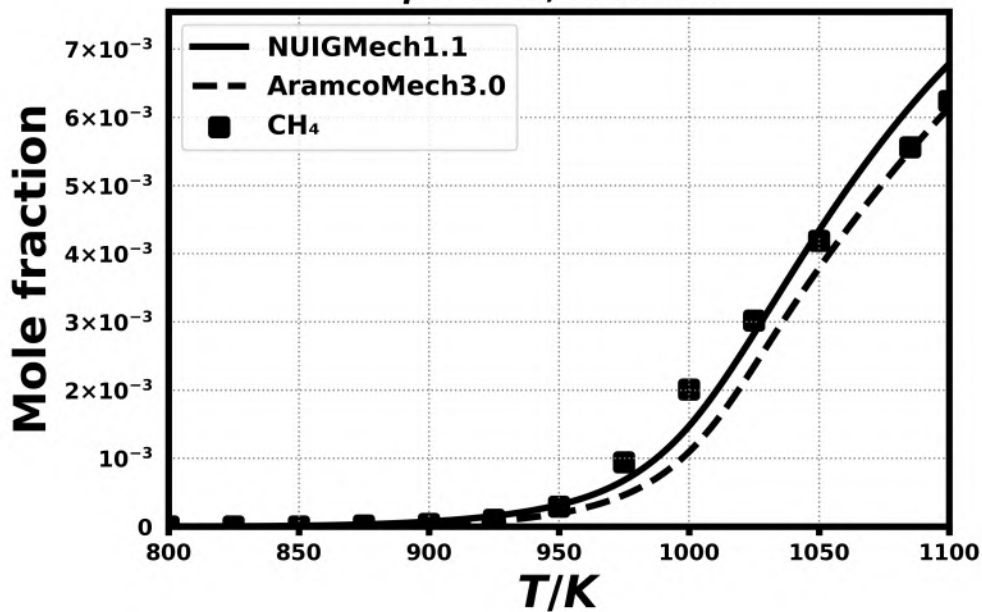




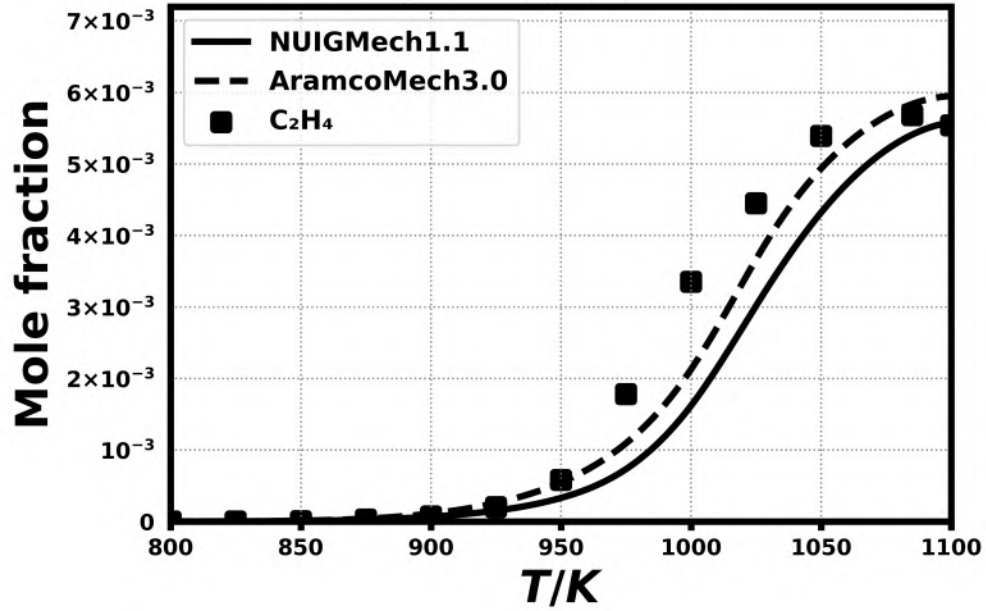
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



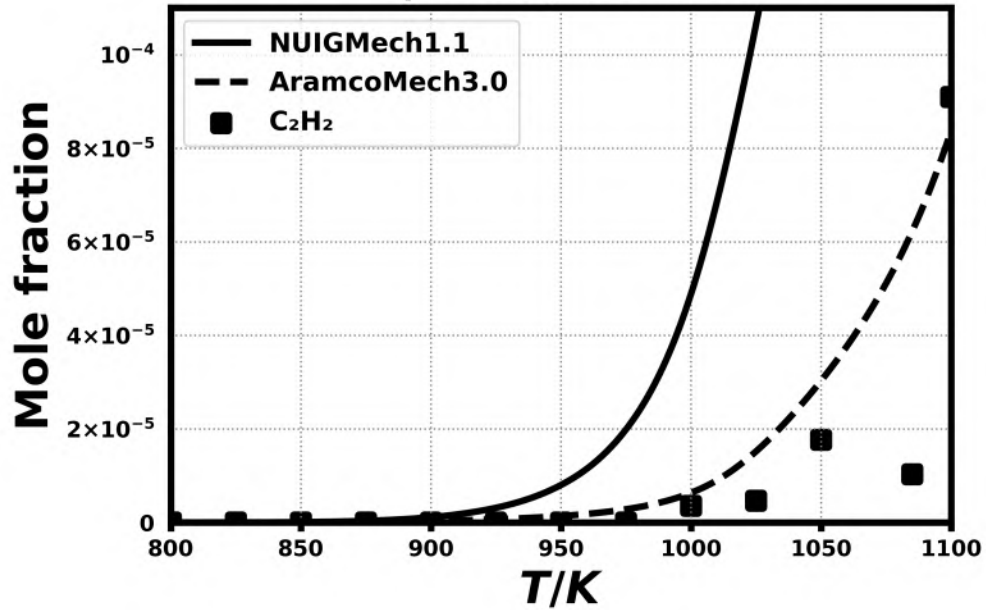
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



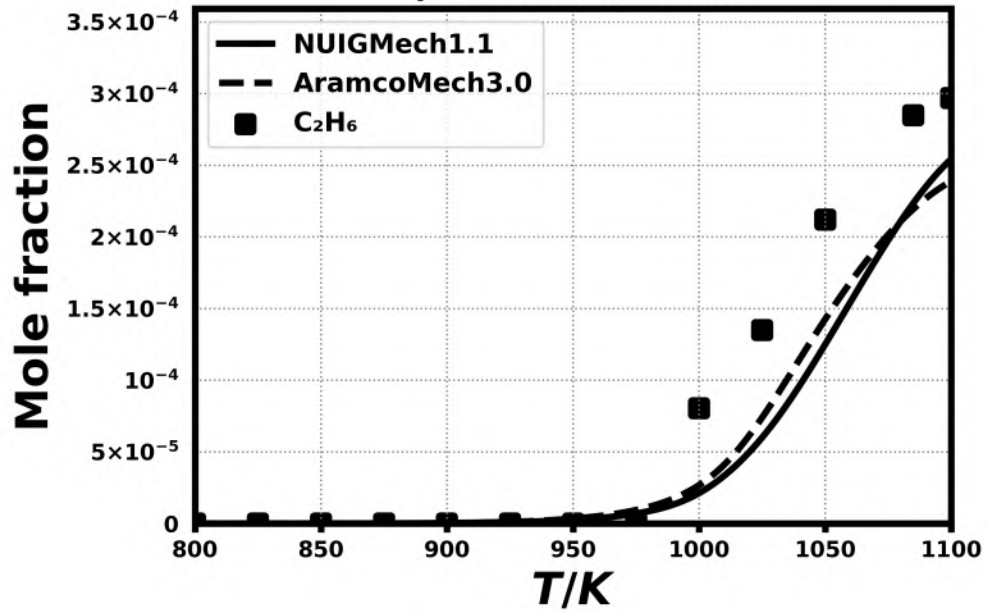
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



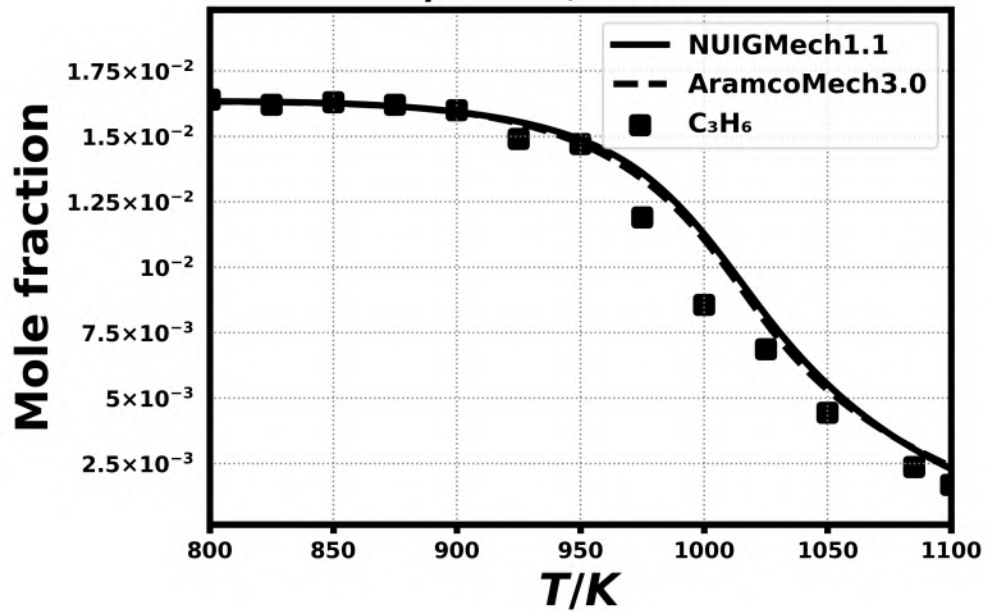
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$

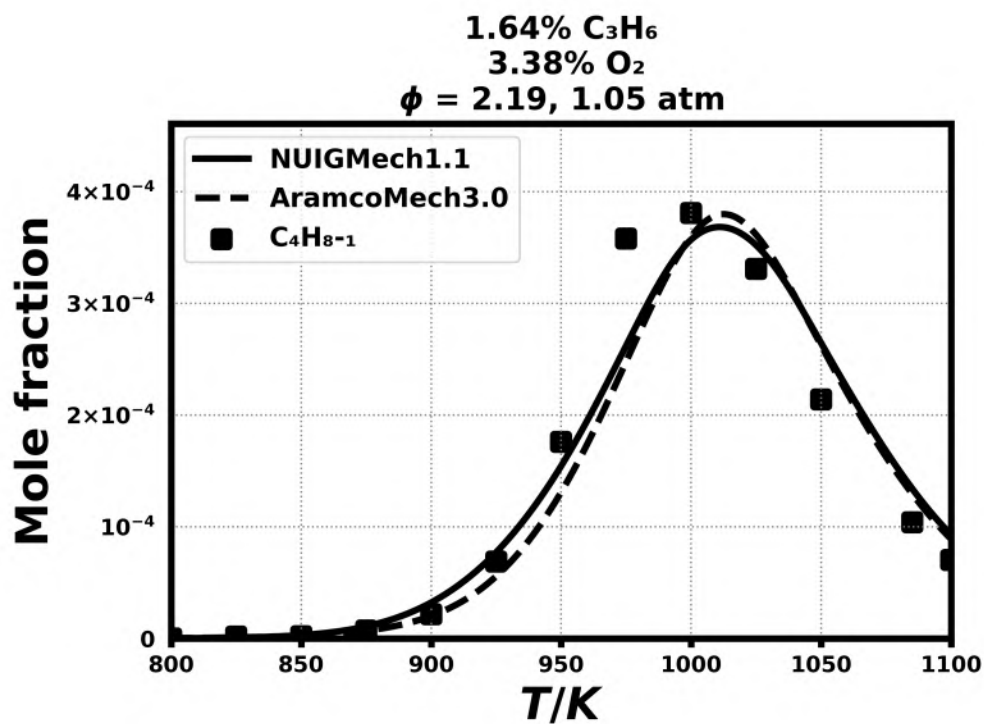
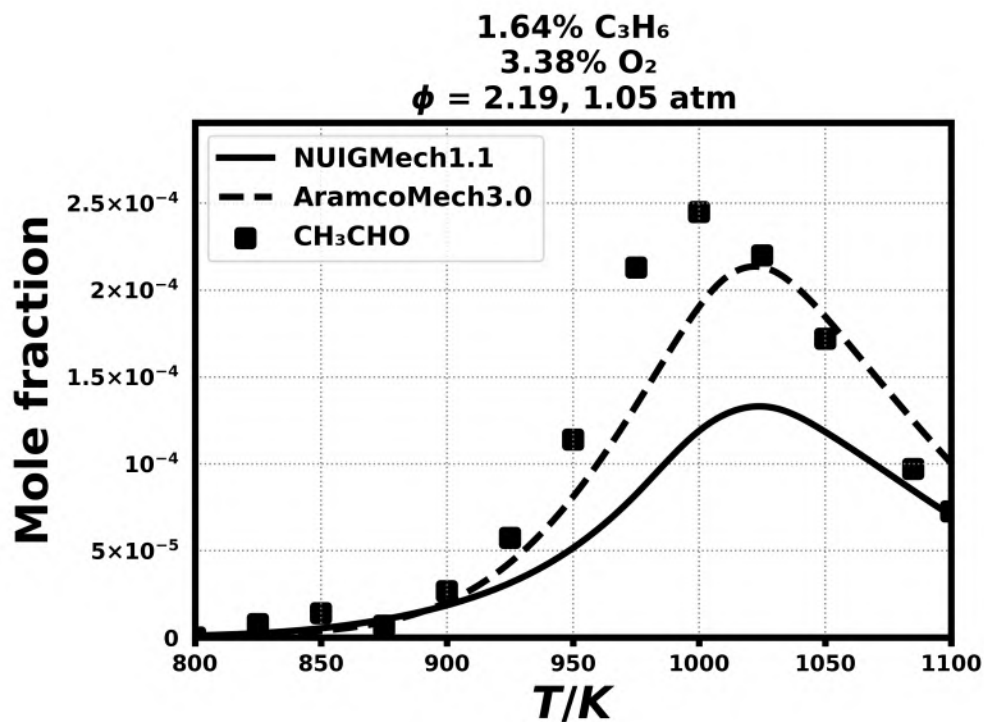


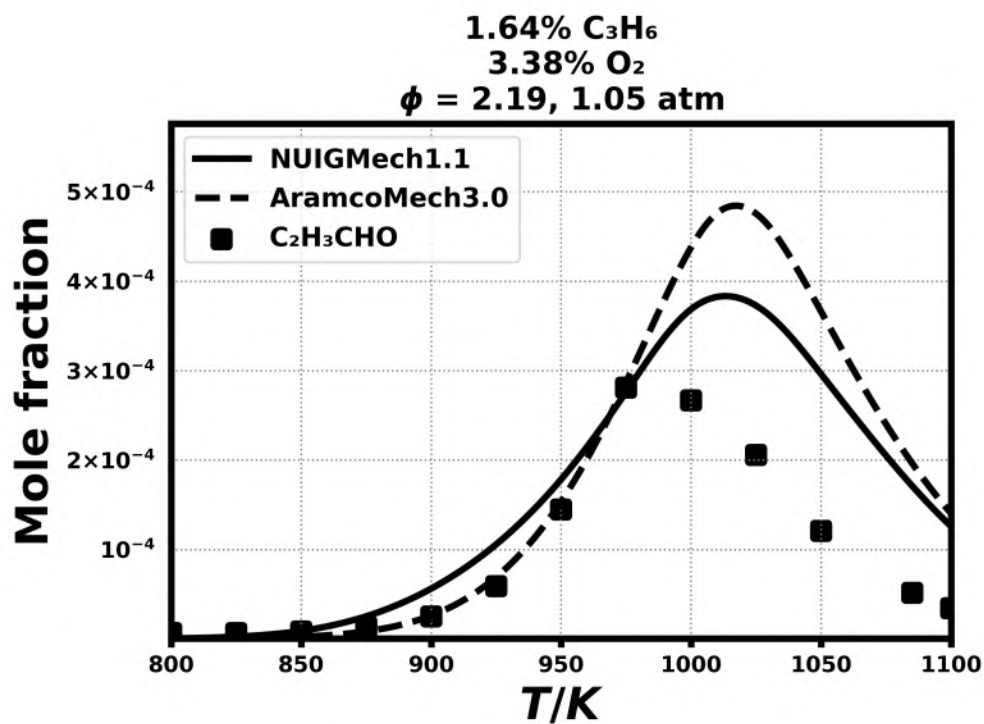
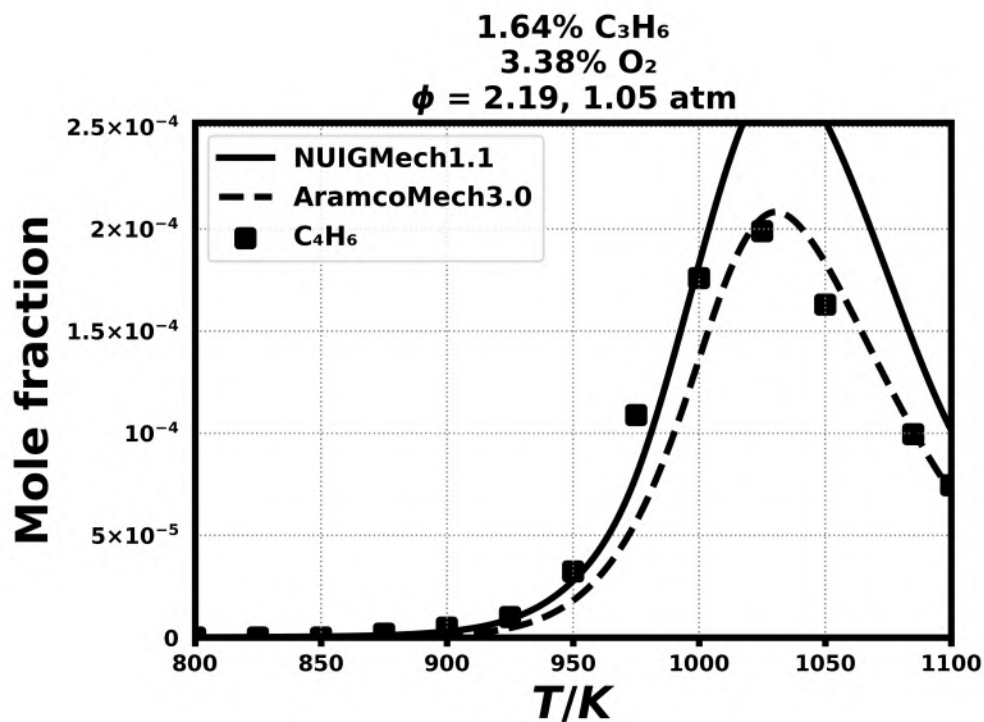
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



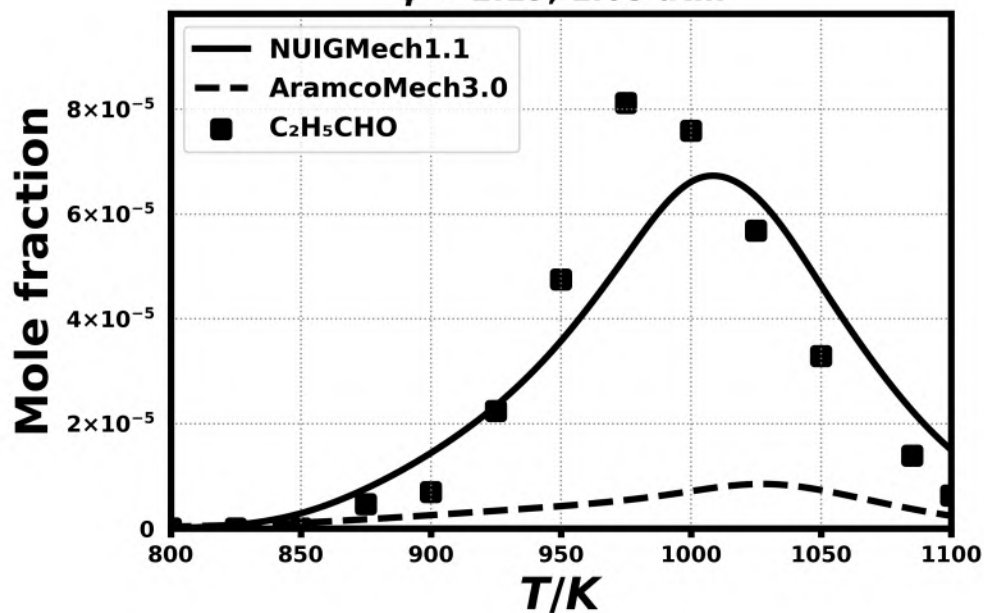
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



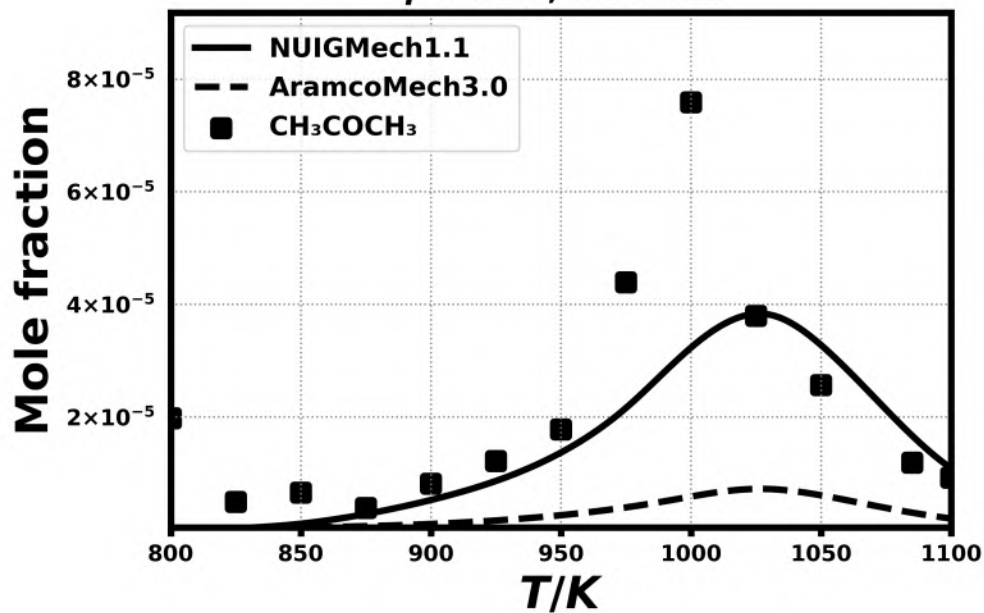




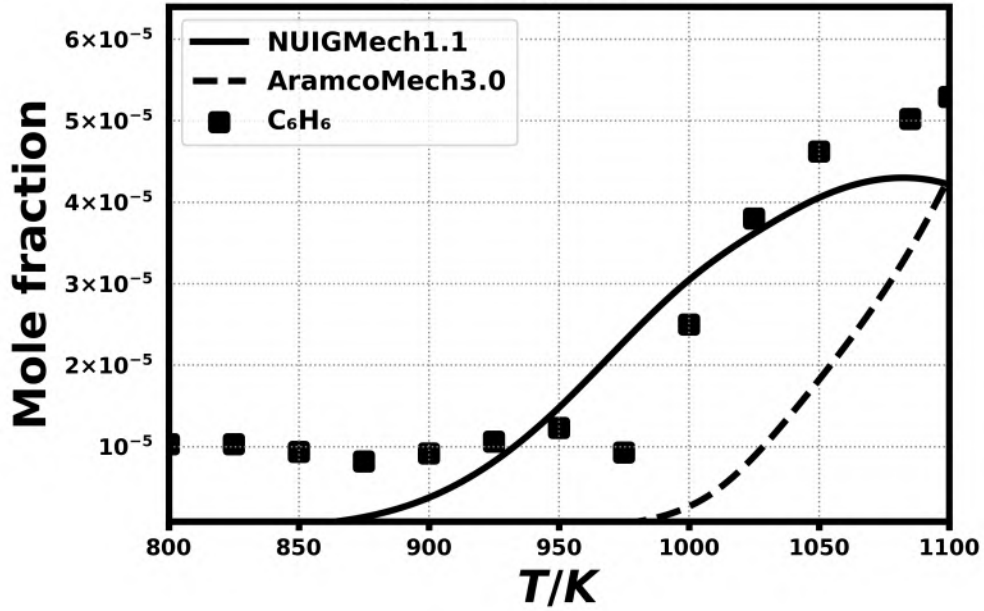
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



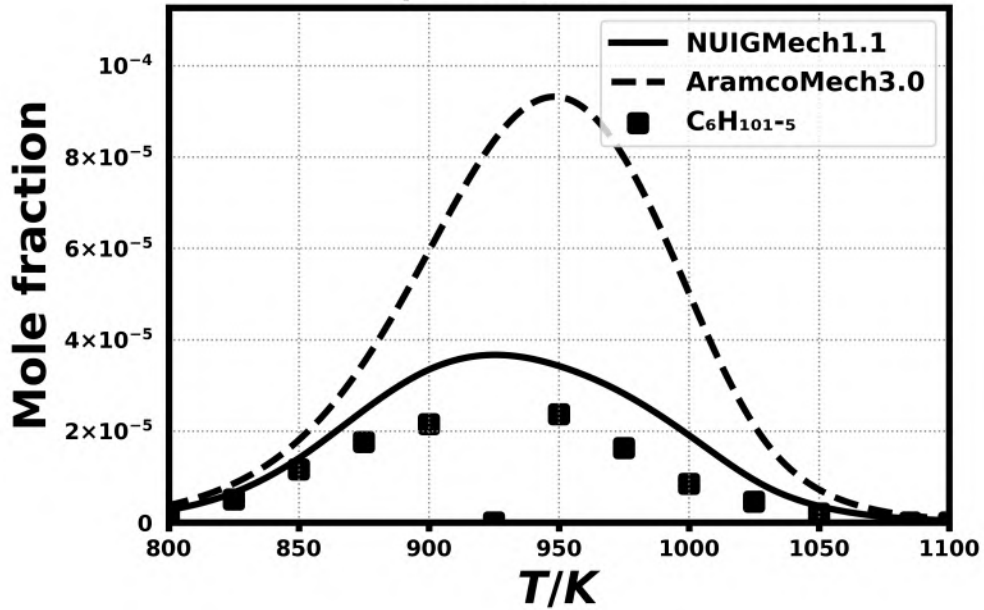
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$

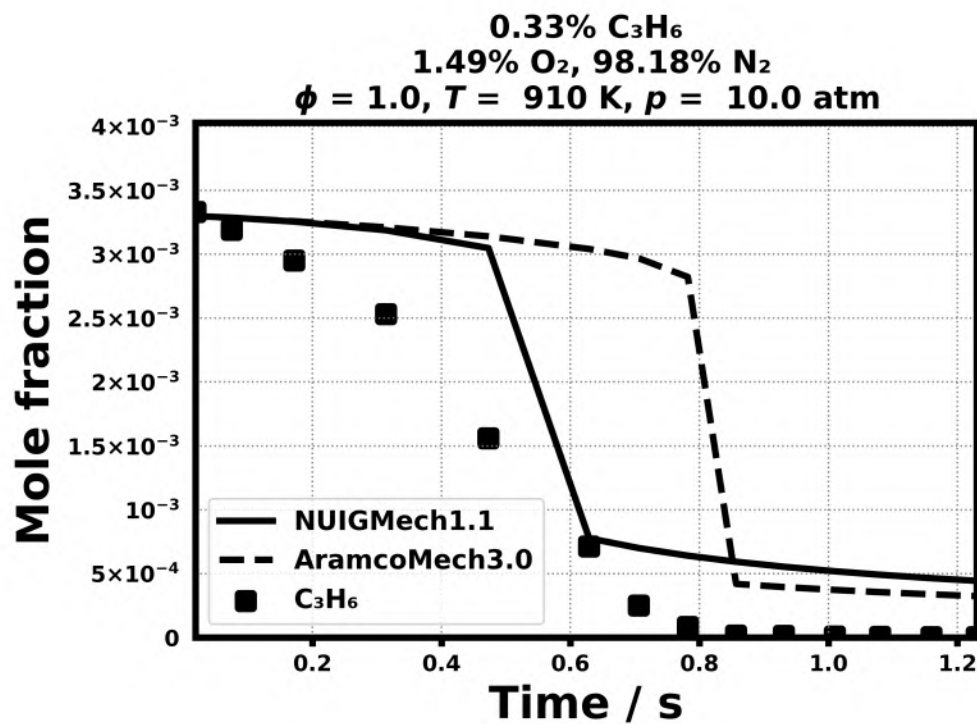
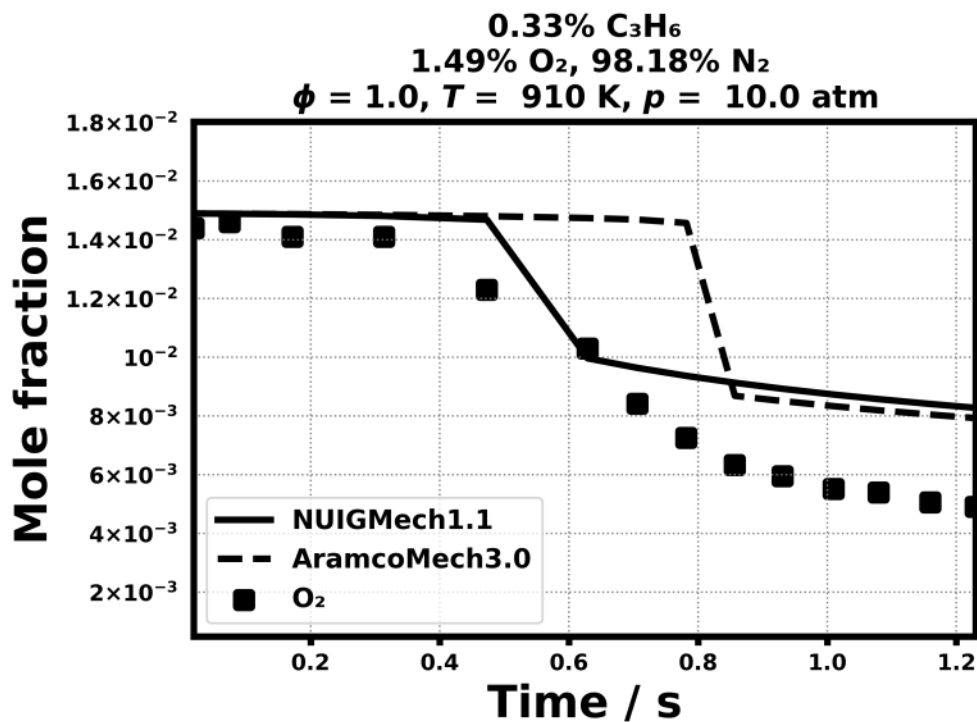


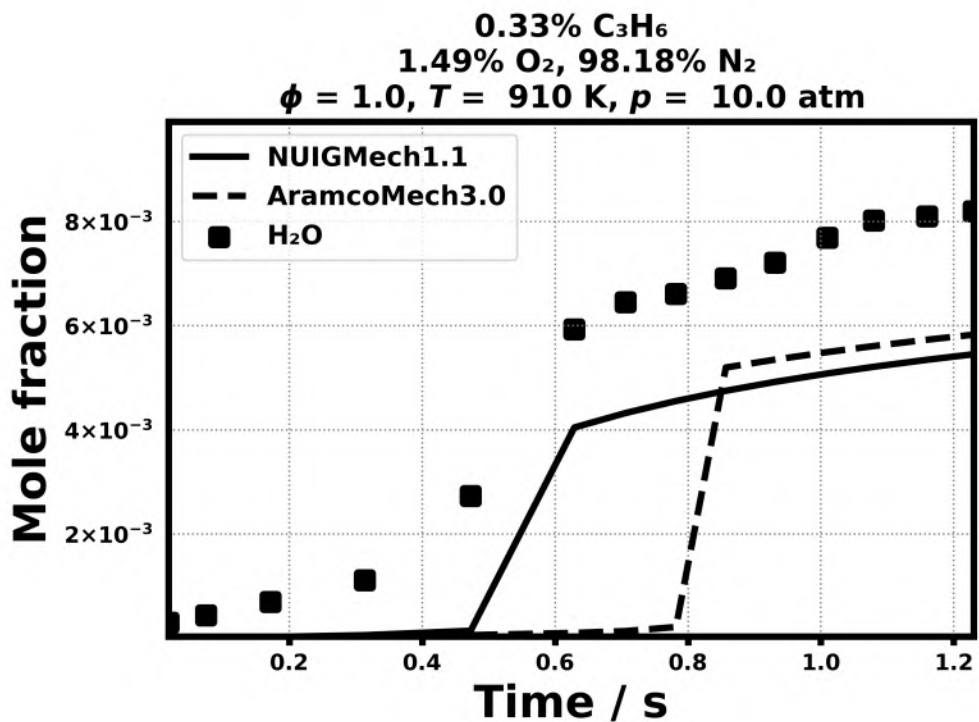
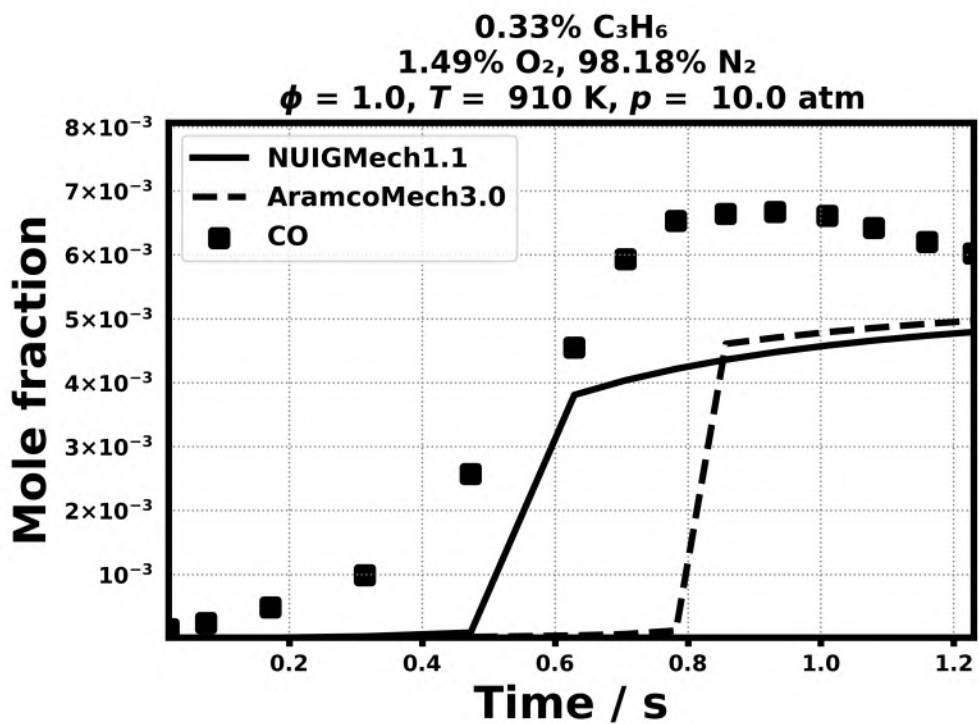
1.64% C₃H₆
3.38% O₂
 $\phi = 2.19, 1.05 \text{ atm}$



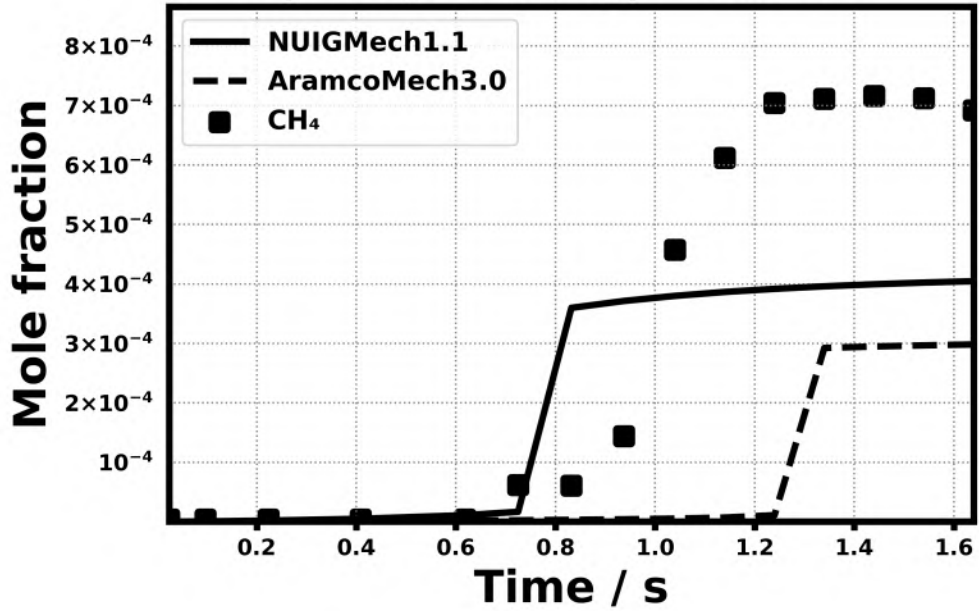
Speciation in Flow reactor

16.6) Burke, S. M., Burke, U., Mc Donagh, R., Mathieu, O., Osorio, I., Keesee, C., ... & Oehlschlaeger, M. A., Combustion and Flame, 162(2) (2015) 296-314.

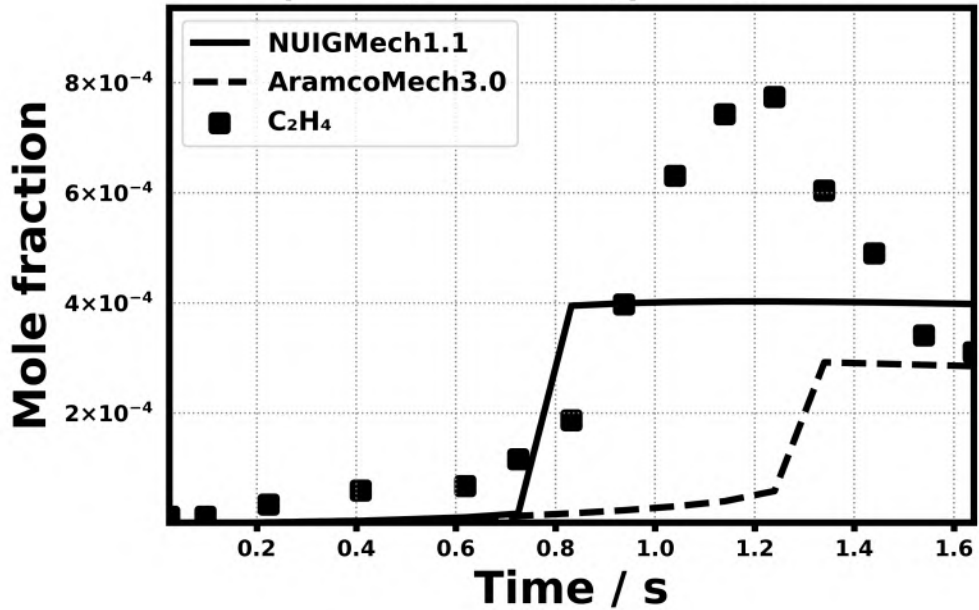




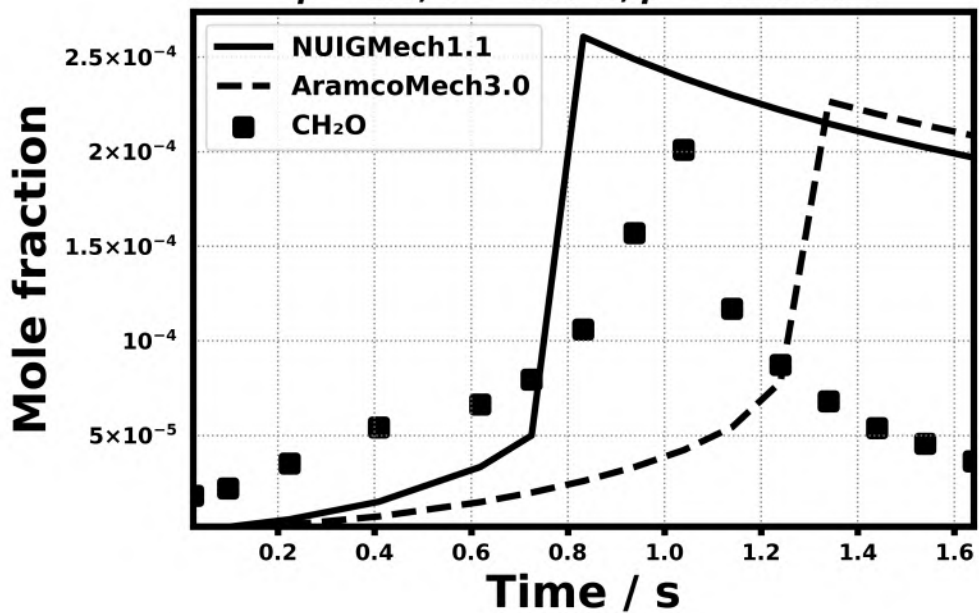
0.33% C₃H₆
1.15% O₂, 98.52% N₂
 $\phi = 1.0, T = 877 \text{ K}, p = 12.5 \text{ atm}$



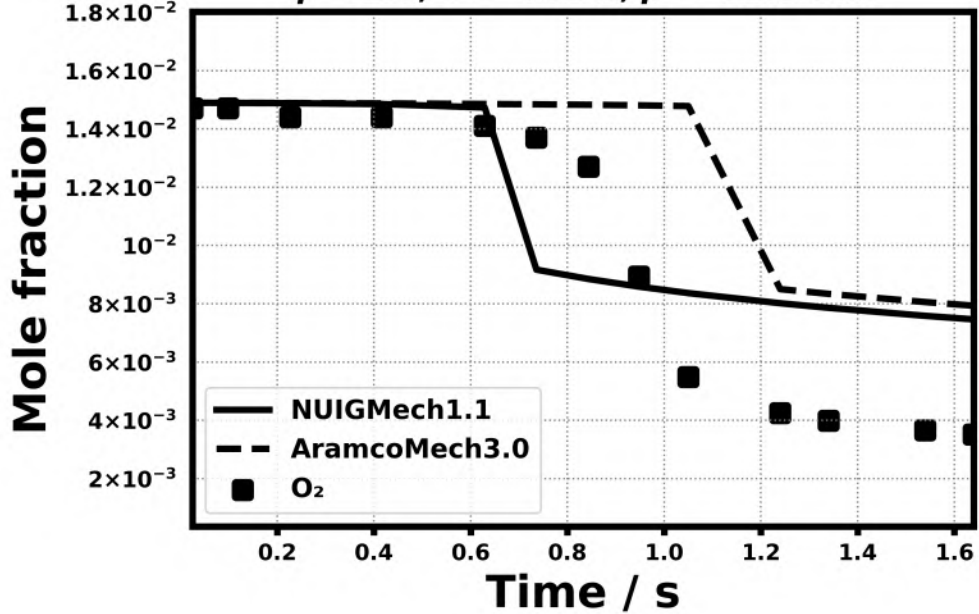
0.33% C₃H₆
1.15% O₂, 98.52% N₂
 $\phi = 1.0, T = 877 \text{ K}, p = 12.5 \text{ atm}$



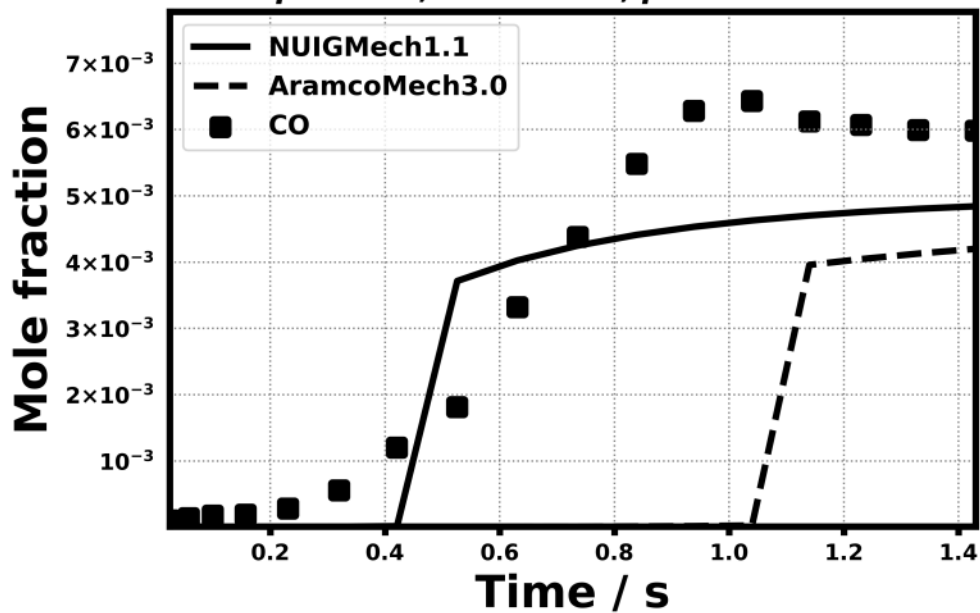
0.33% C₃H₆
1.15% O₂, 98.52% N₂
 $\phi = 1.0, T = 877 \text{ K}, p = 12.5 \text{ atm}$



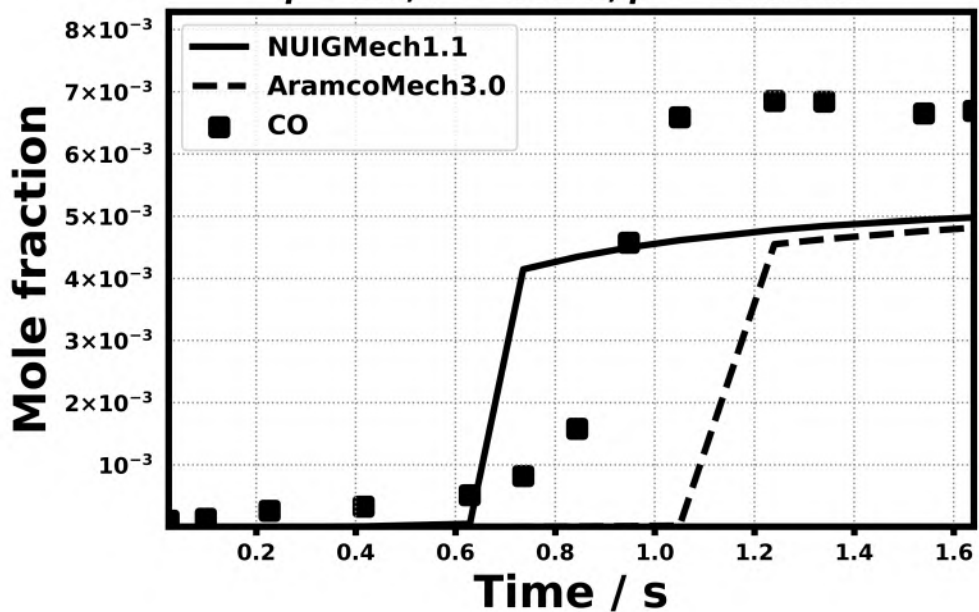
0.34% C₃H₆
1.49% O₂, 98.18% N₂
 $\phi = 1.0, T = 861 \text{ K}, p = 12.5 \text{ atm}$



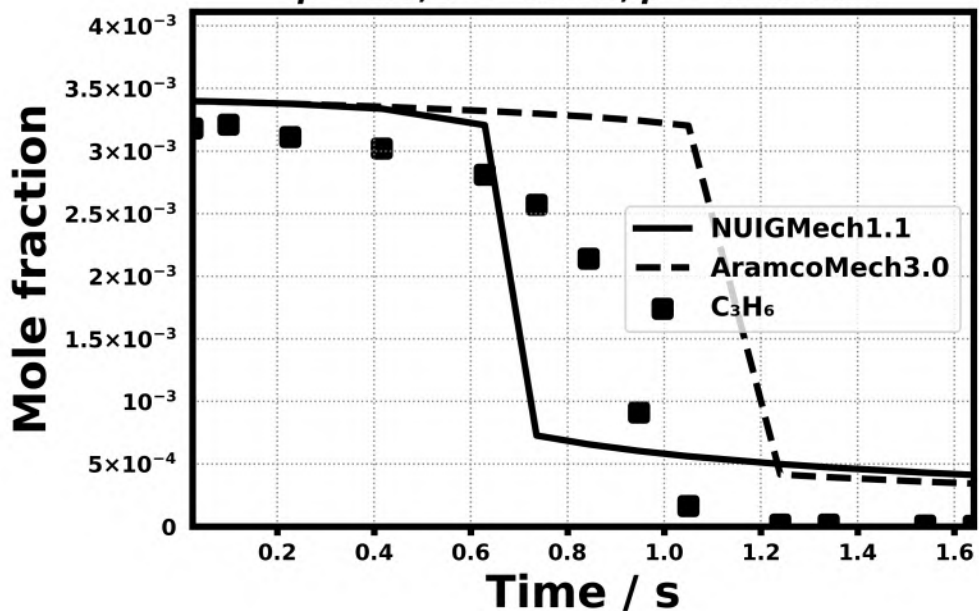
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 1.37, T = 843 \text{ K}, p = 12.5 \text{ atm}$



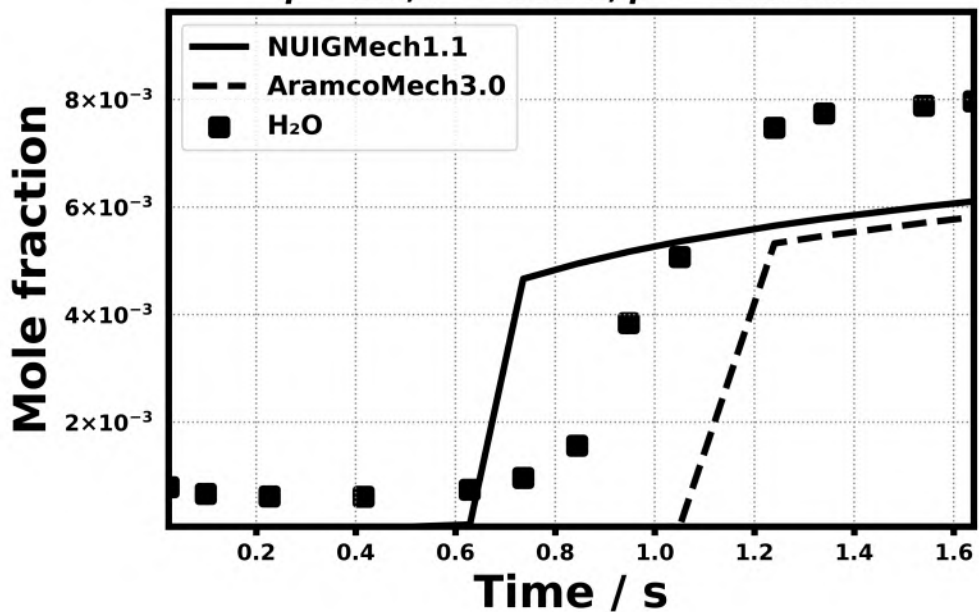
0.34% C₃H₆
1.49% O₂, 98.18% N₂
 $\phi = 1.0, T = 861 \text{ K}, p = 12.5 \text{ atm}$



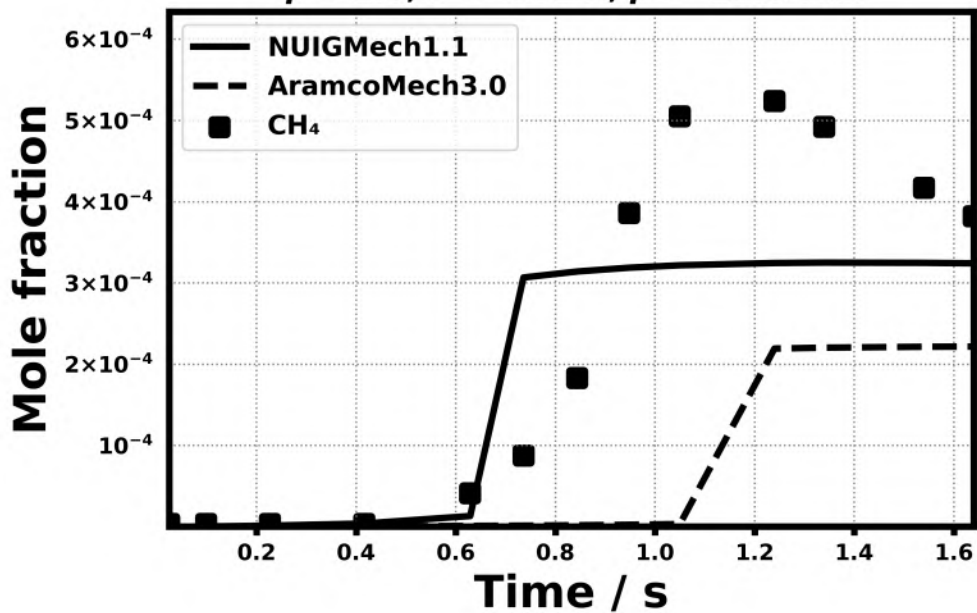
0.34% C₃H₆
1.49% O₂, 98.18% N₂
 $\phi = 1.0, T = 861 \text{ K}, p = 12.5 \text{ atm}$



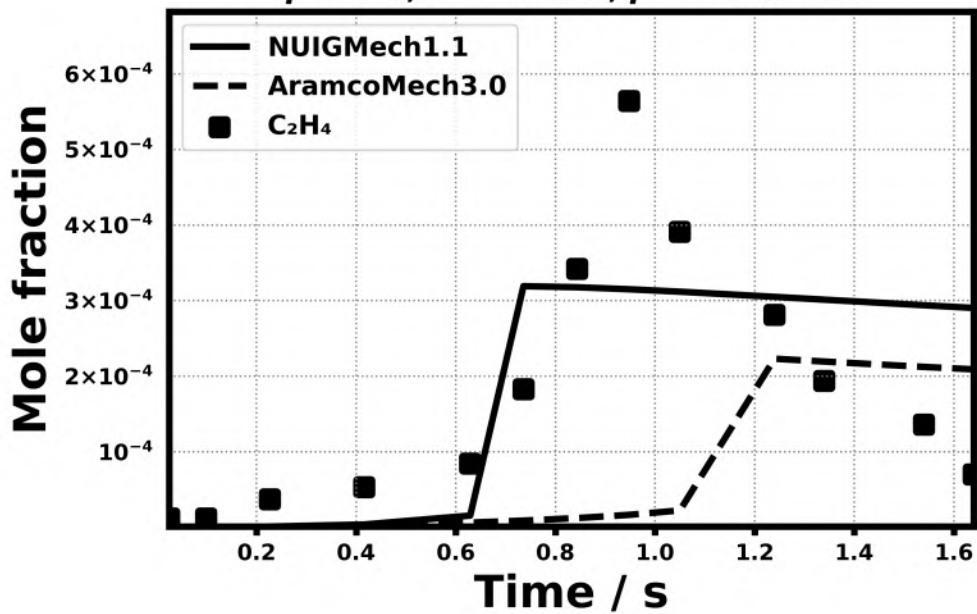
0.34% C₃H₆
1.49% O₂, 98.18% N₂
 $\phi = 1.0, T = 861 \text{ K}, p = 12.5 \text{ atm}$



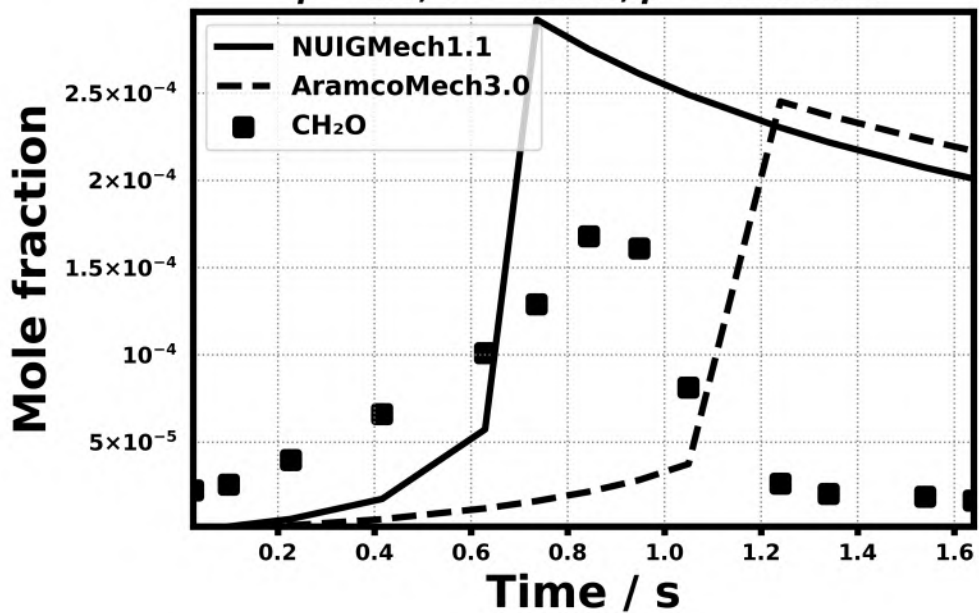
0.34% C₃H₆
1.49% O₂, 98.18% N₂
 $\phi = 1.0, T = 861 \text{ K}, p = 12.5 \text{ atm}$



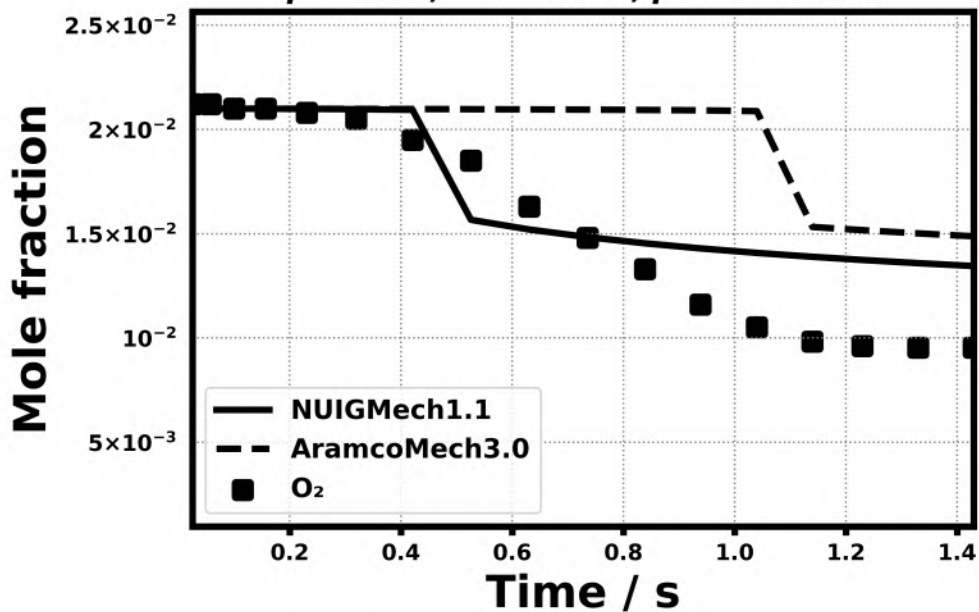
0.34% C₃H₆
1.49% O₂, 98.18% N₂
 $\phi = 1.0, T = 861 \text{ K}, p = 12.5 \text{ atm}$



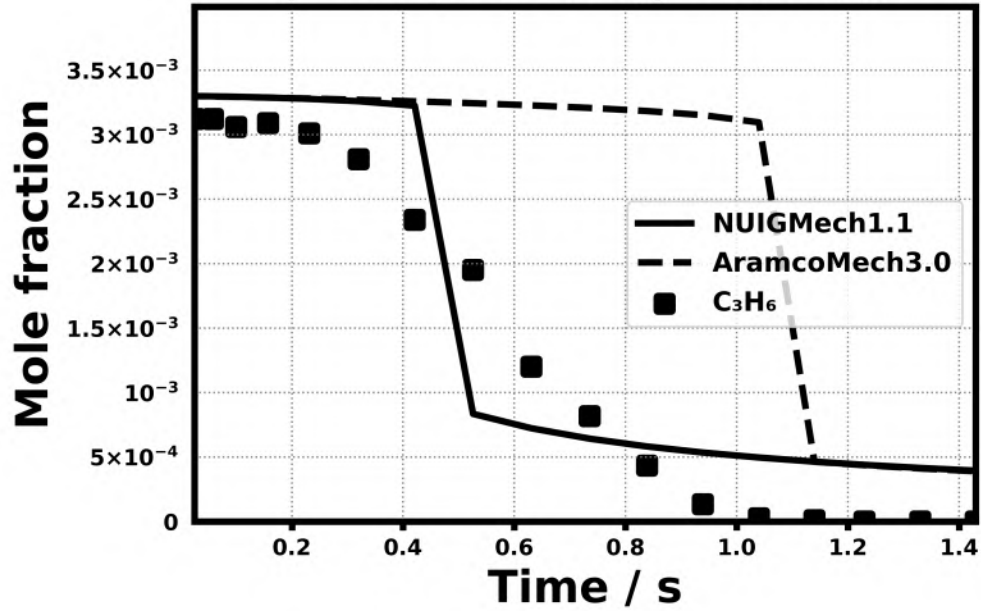
0.34% C₃H₆
1.49% O₂, 98.18% N₂
 $\phi = 1.0, T = 861 \text{ K}, p = 12.5 \text{ atm}$



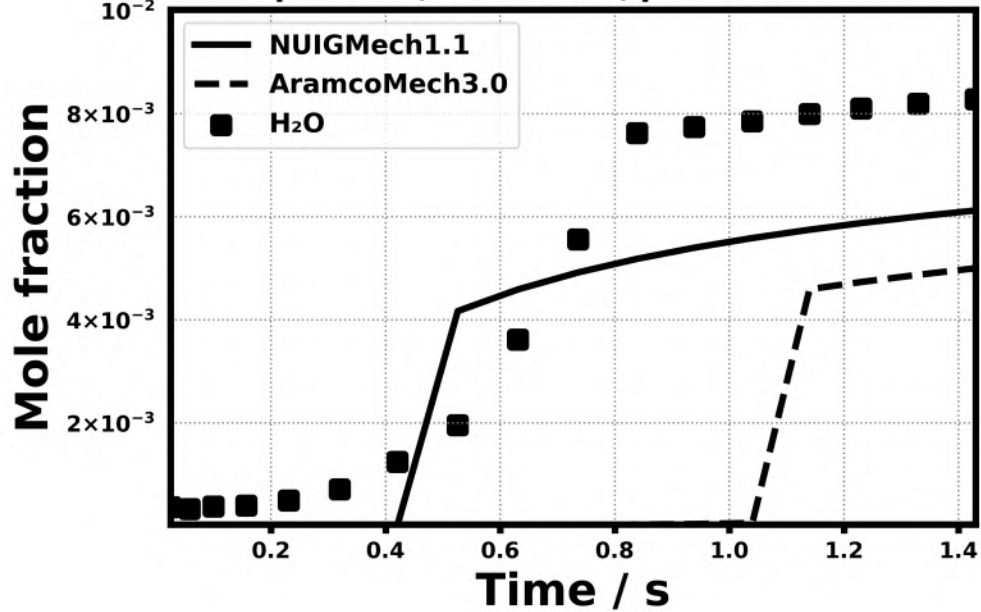
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 1.37, T = 843 \text{ K}, p = 12.5 \text{ atm}$



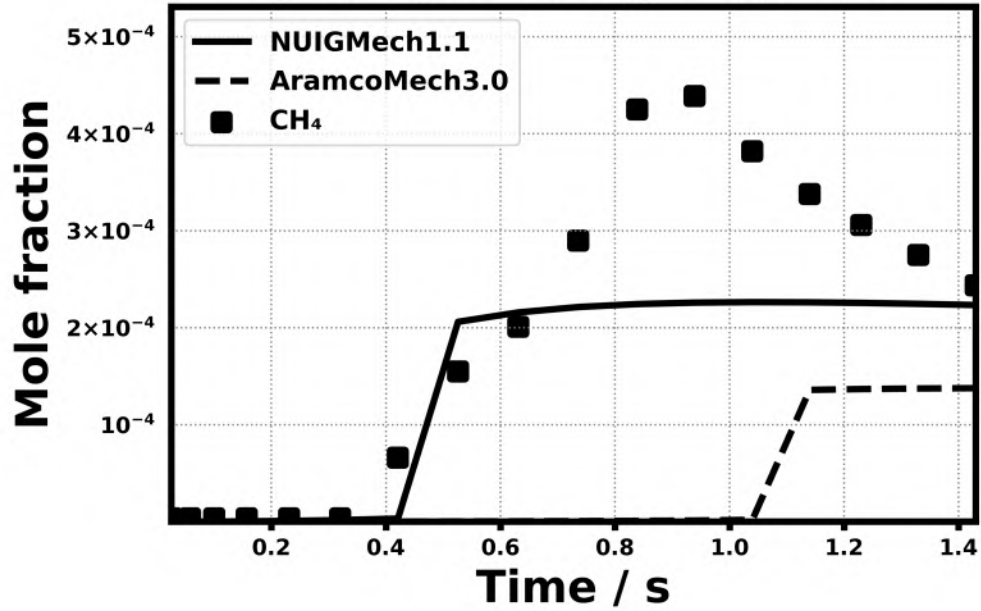
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 1.37, T = 843 \text{ K}, p = 12.5 \text{ atm}$



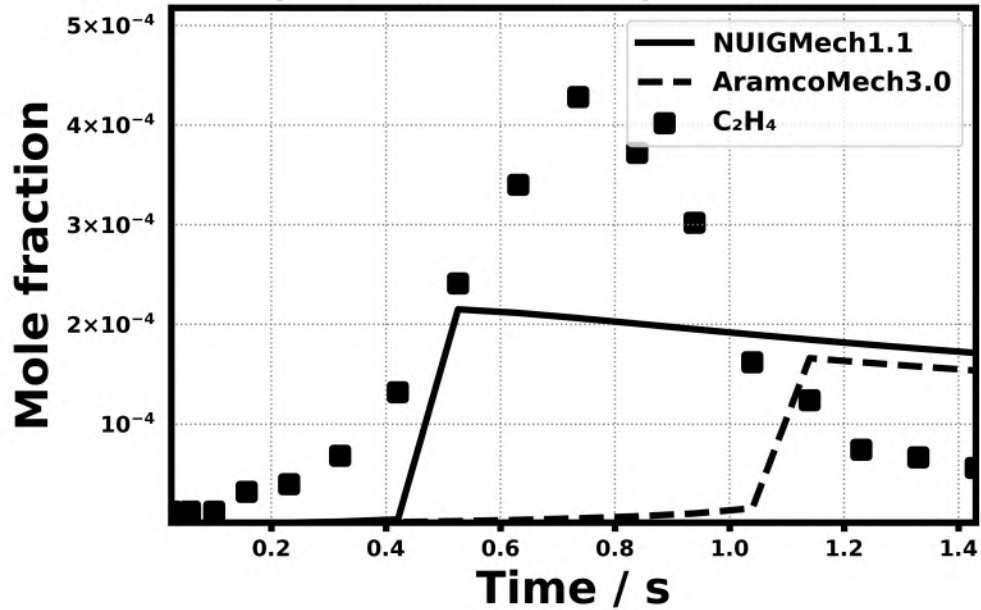
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 1.37, T = 843 \text{ K}, p = 12.5 \text{ atm}$

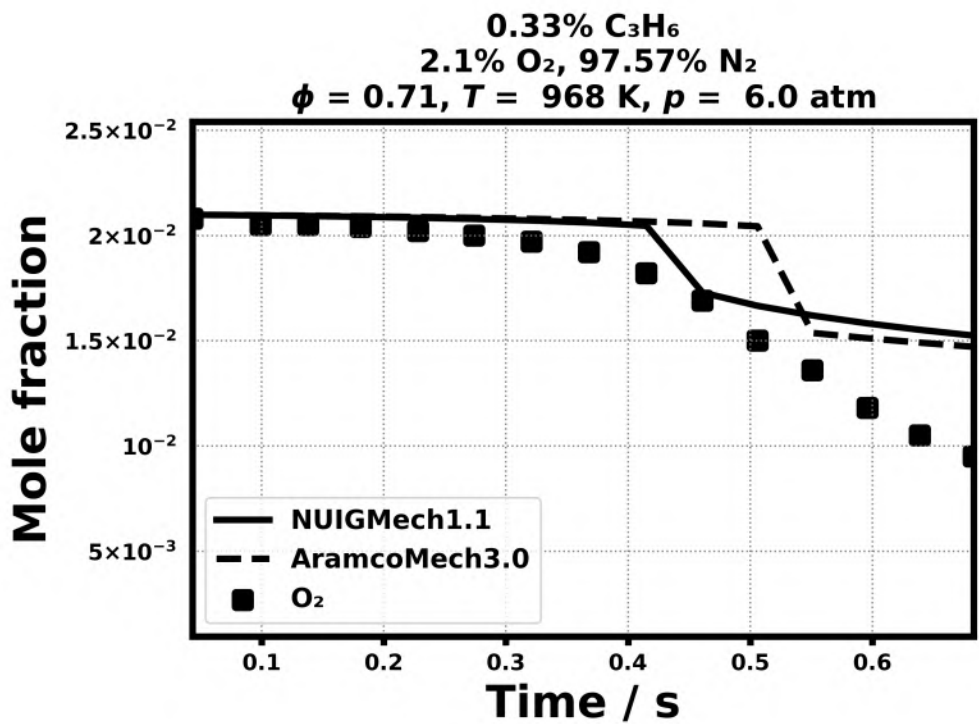
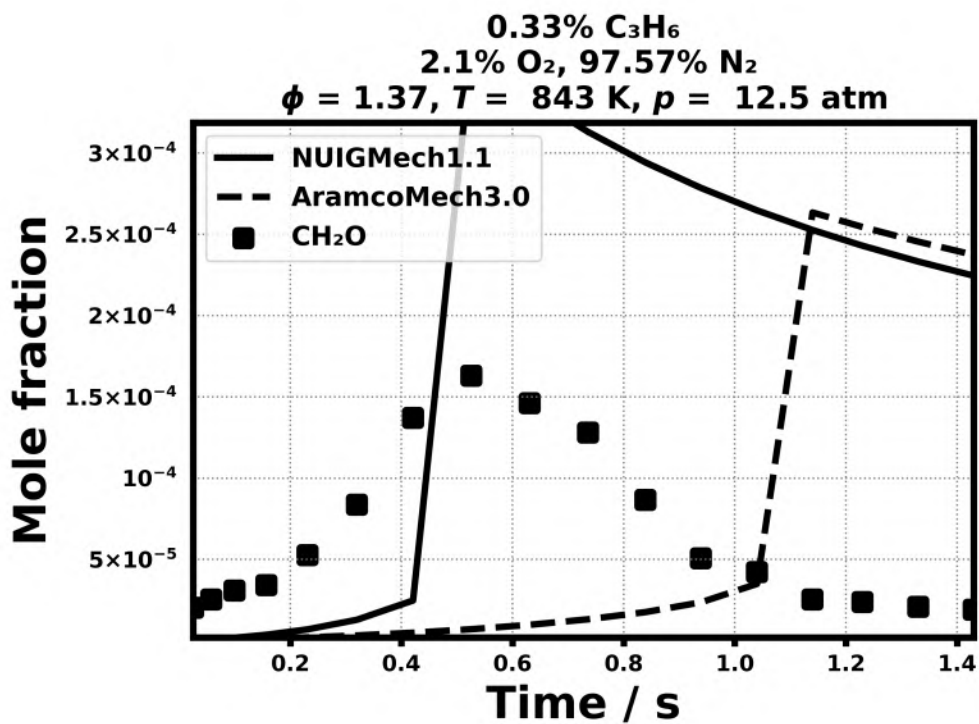


0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 1.37, T = 843 \text{ K}, p = 12.5 \text{ atm}$

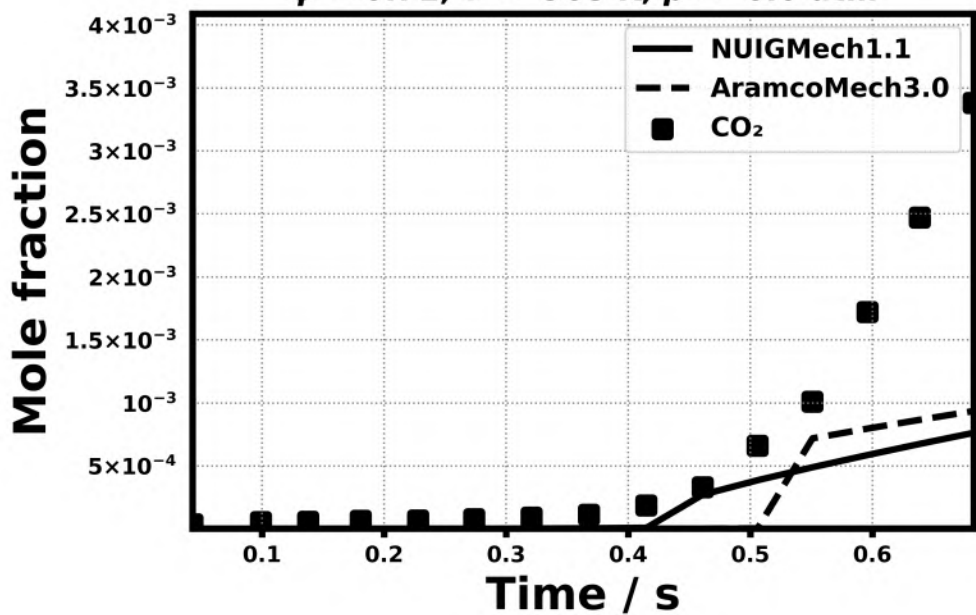


0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 1.37, T = 843 \text{ K}, p = 12.5 \text{ atm}$

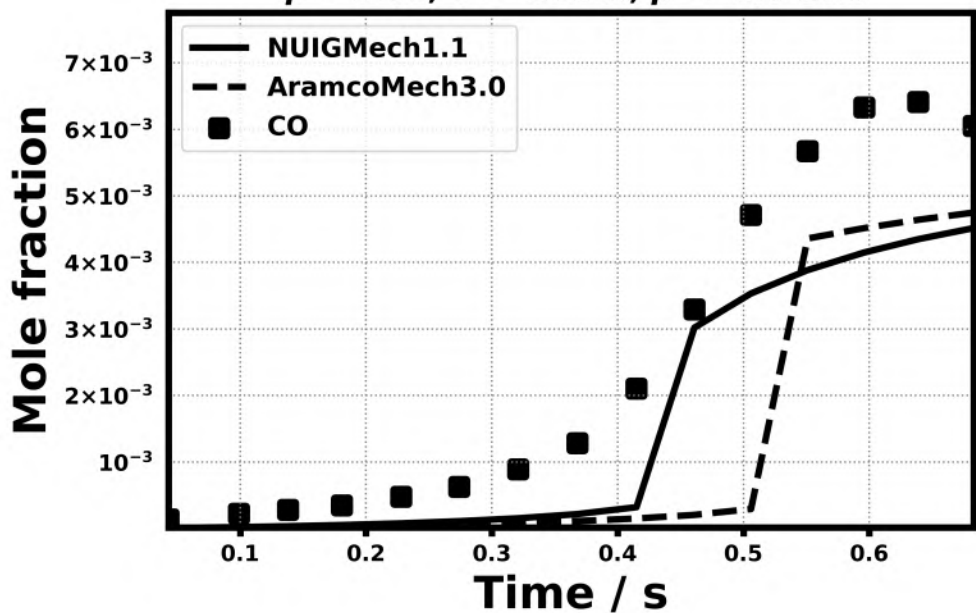




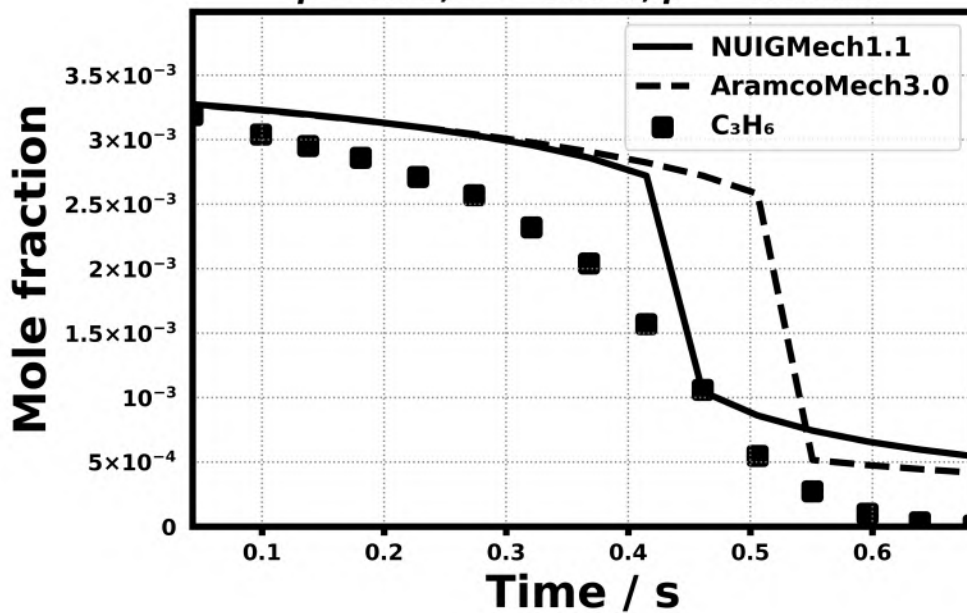
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 0.71, T = 968 \text{ K}, p = 6.0 \text{ atm}$



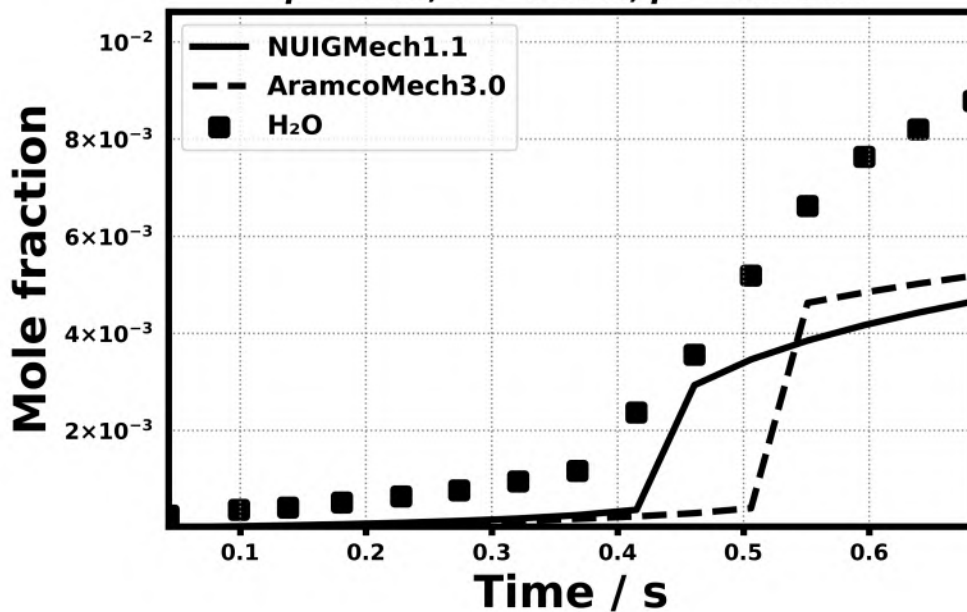
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 0.71, T = 968 \text{ K}, p = 6.0 \text{ atm}$



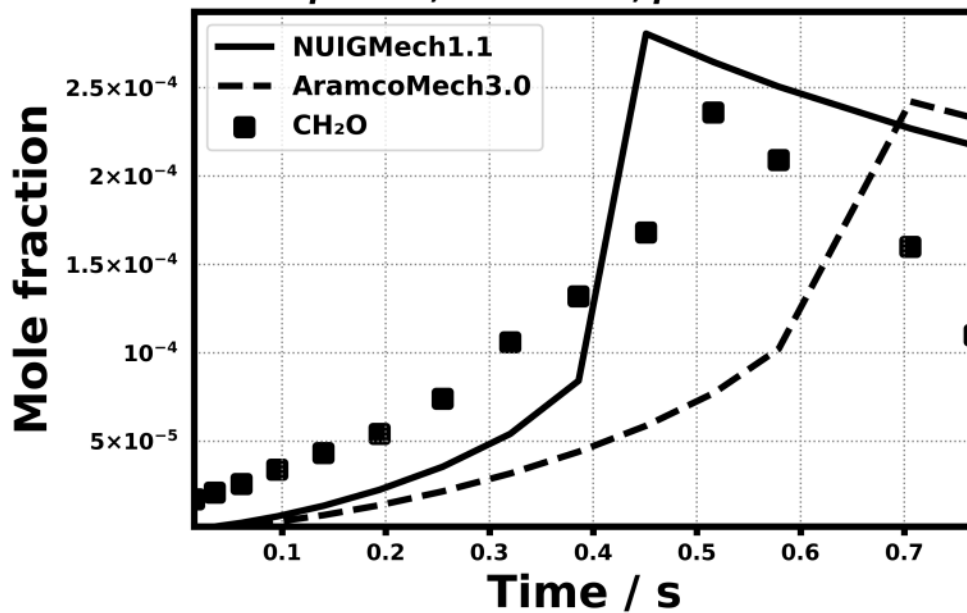
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 0.71, T = 968 \text{ K}, p = 6.0 \text{ atm}$



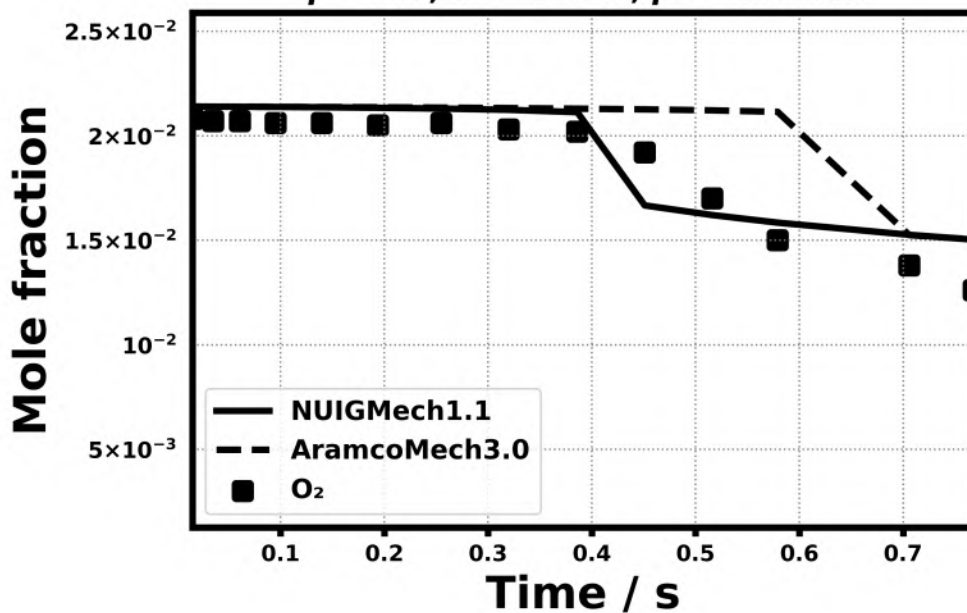
0.33% C₃H₆
2.1% O₂, 97.57% N₂
 $\phi = 0.71, T = 968 \text{ K}, p = 6.0 \text{ atm}$



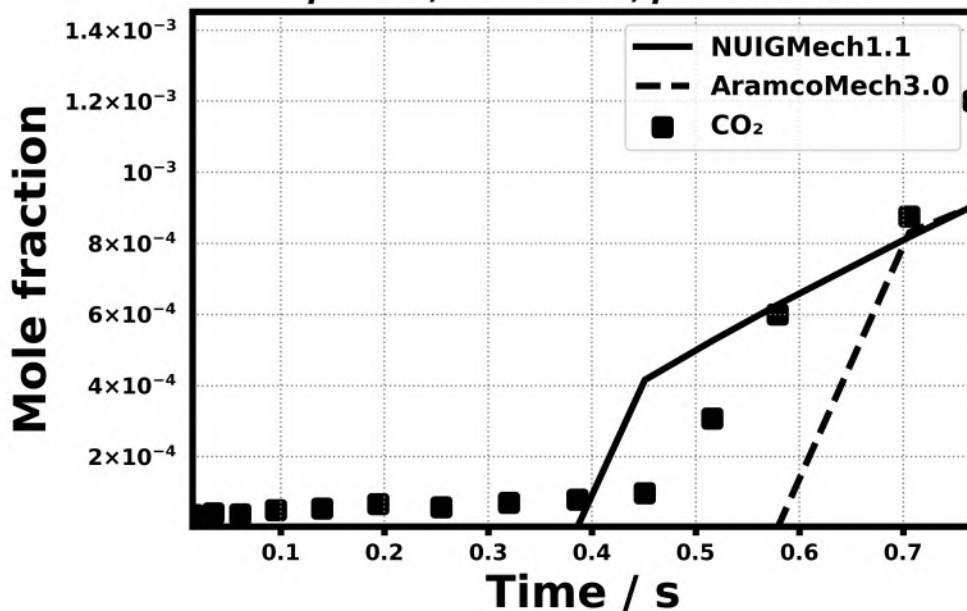
0.33% C₃H₆
2.14% O₂, 97.53% N₂
 $\phi = 0.7, T = 915 \text{ K}, p = 8.0 \text{ atm}$



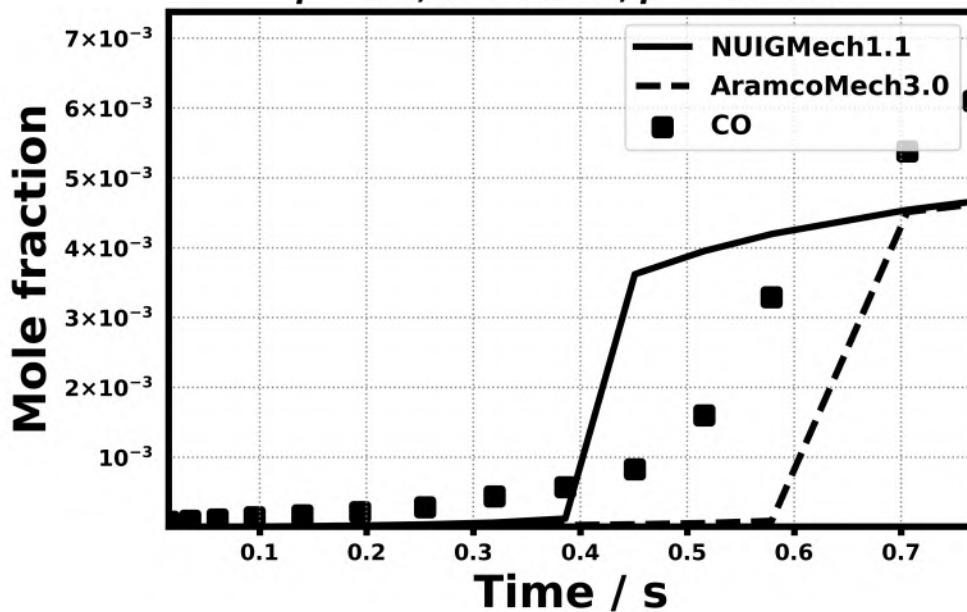
0.33% C₃H₆
2.14% O₂, 97.53% N₂
 $\phi = 0.7, T = 915 \text{ K}, p = 8.0 \text{ atm}$

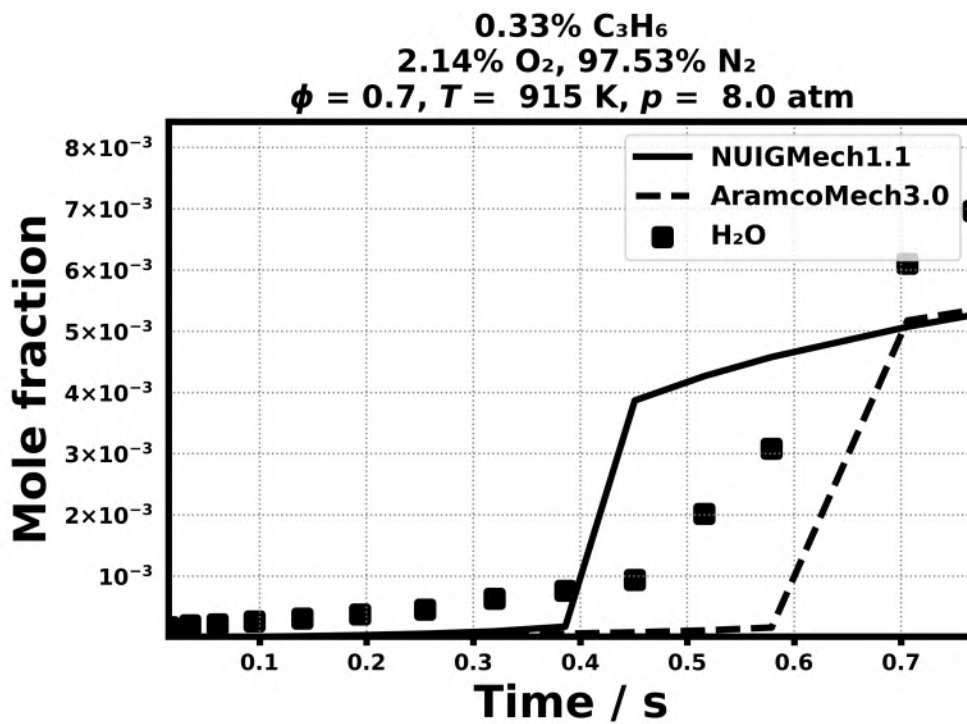
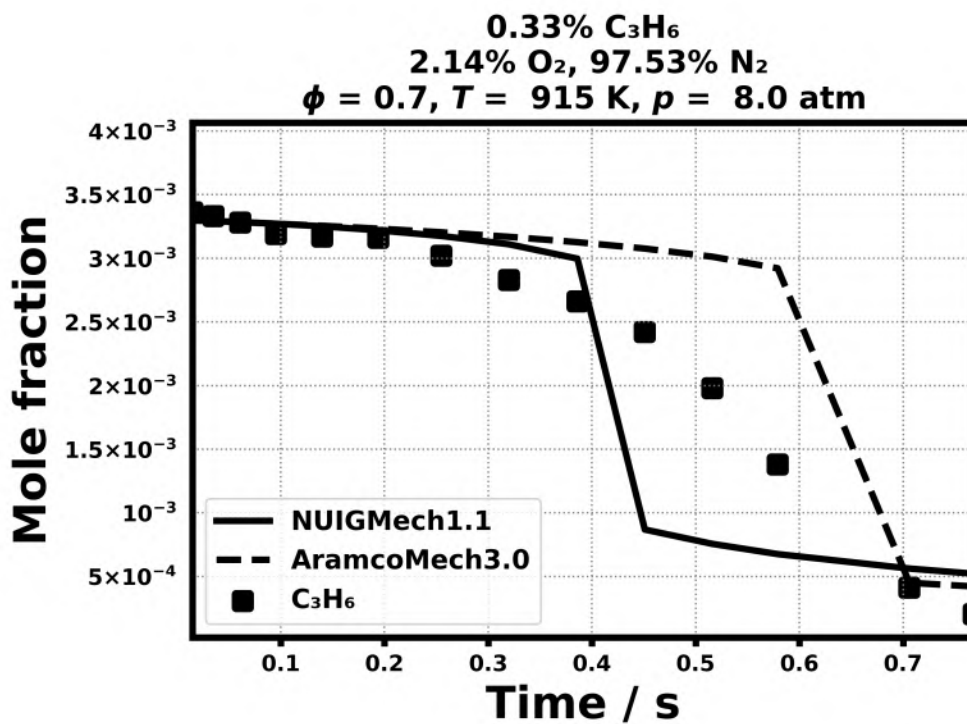


0.33% C₃H₆
2.14% O₂, 97.53% N₂
 $\phi = 0.7, T = 915 \text{ K}, p = 8.0 \text{ atm}$

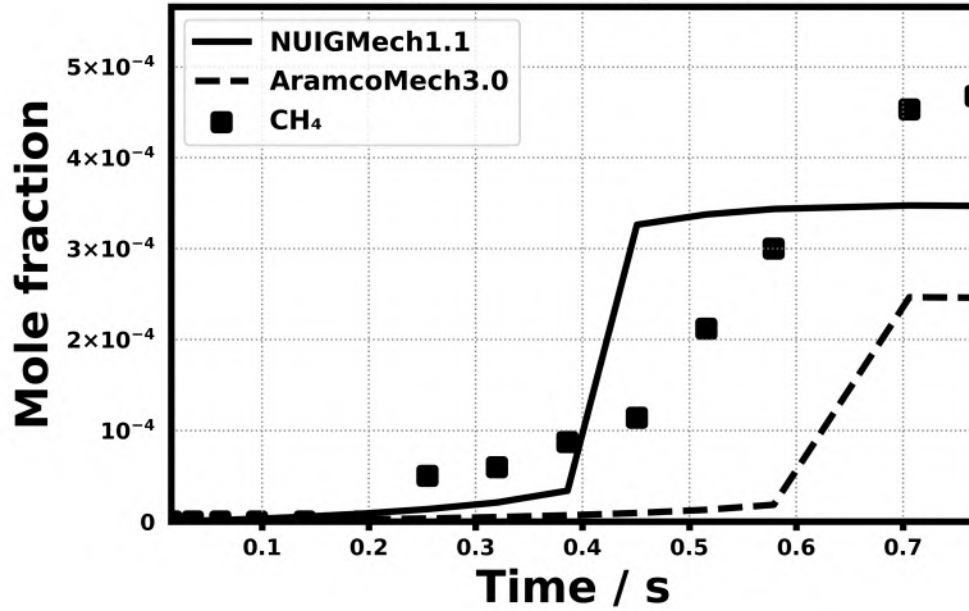


0.33% C₃H₆
2.14% O₂, 97.53% N₂
 $\phi = 0.7, T = 915 \text{ K}, p = 8.0 \text{ atm}$

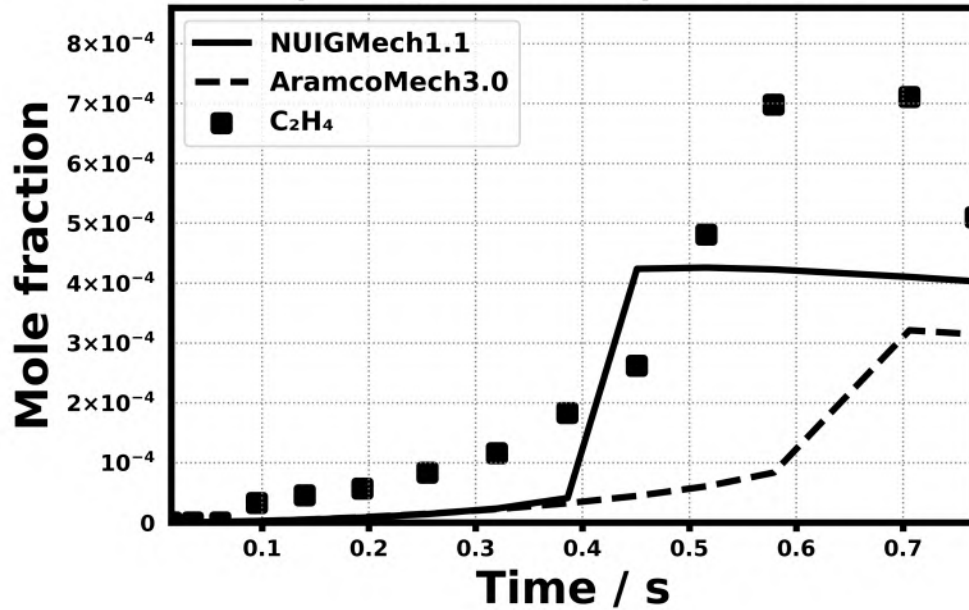


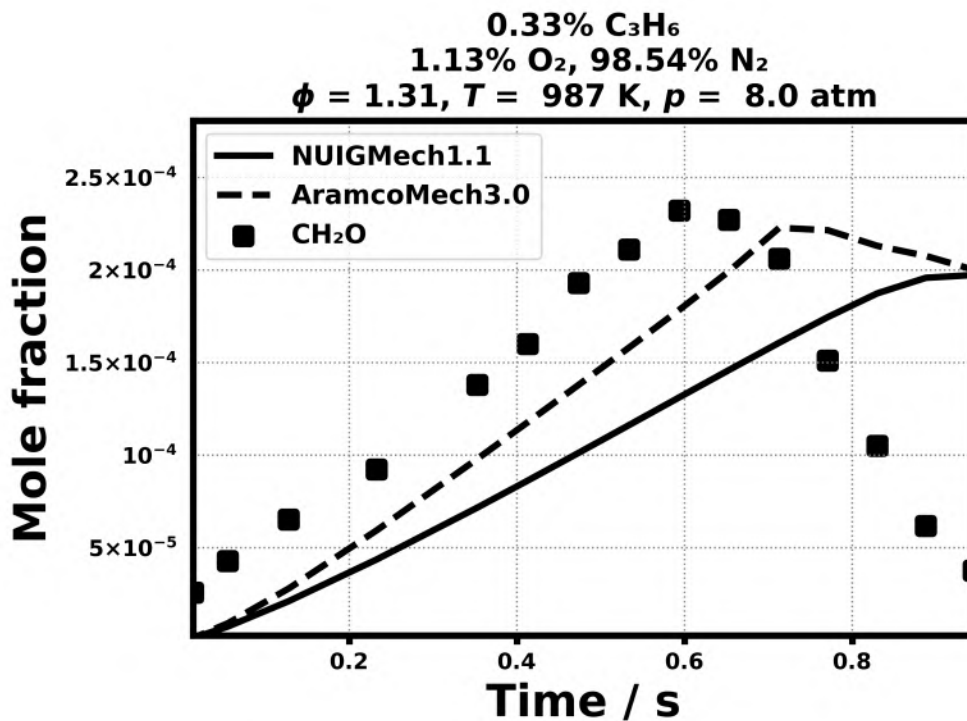


0.33% C₃H₆
2.14% O₂, 97.53% N₂
 $\phi = 0.7, T = 915 \text{ K}, p = 8.0 \text{ atm}$

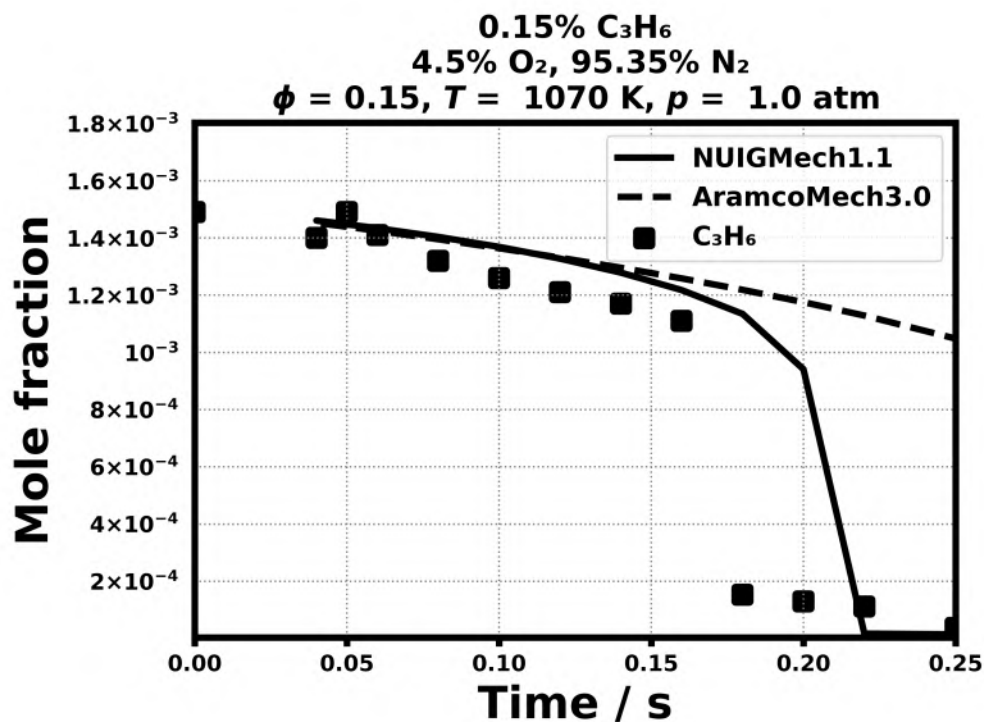


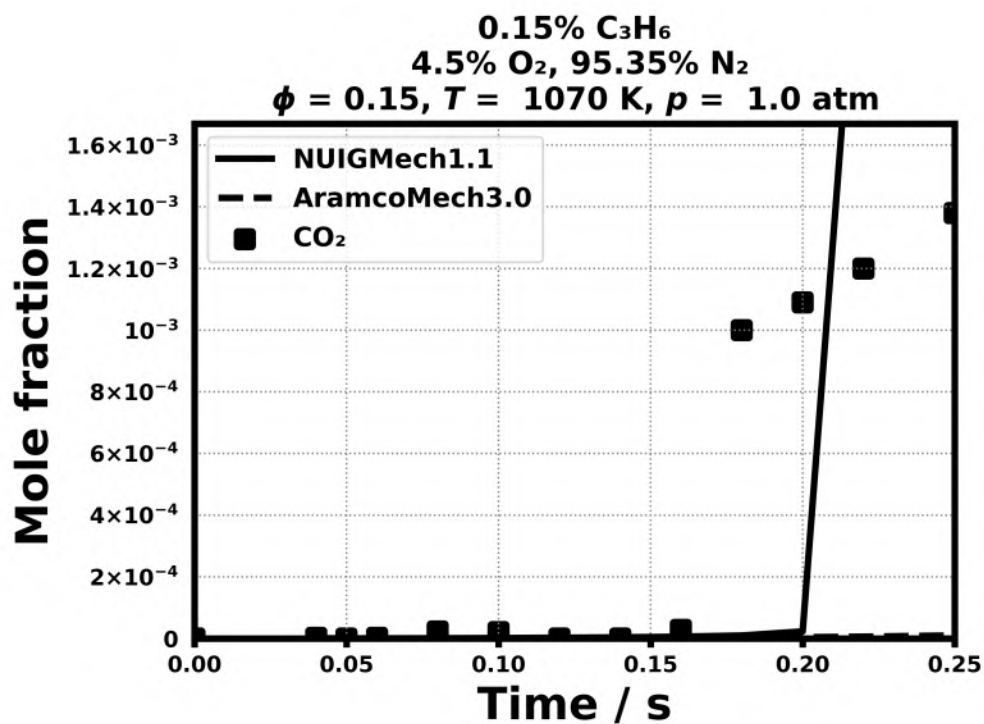
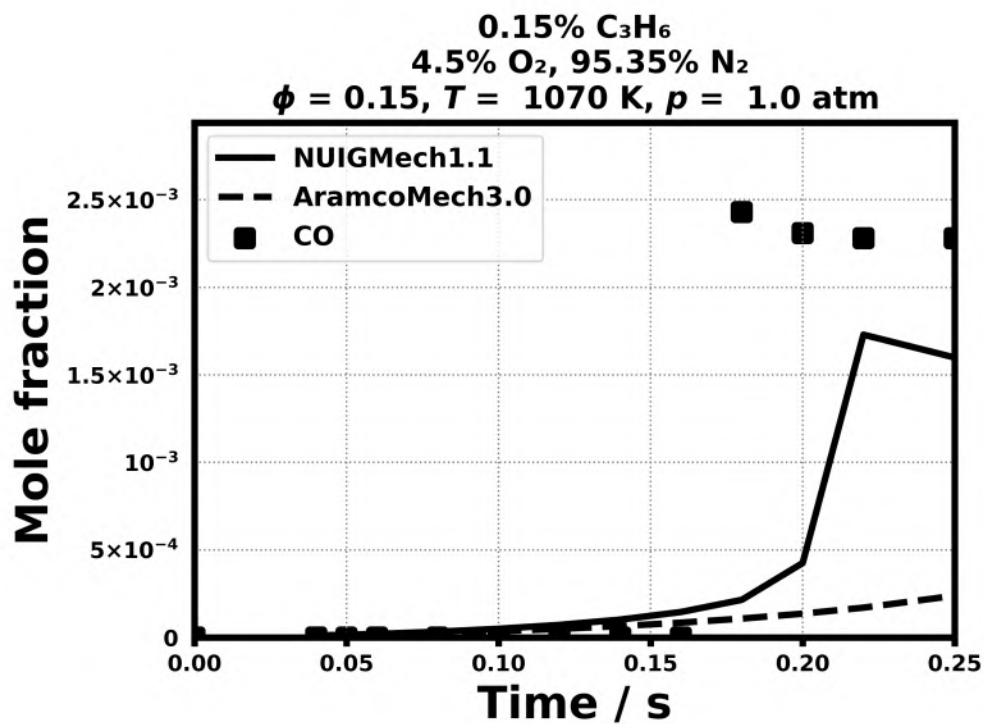
0.33% C₃H₆
2.14% O₂, 97.53% N₂
 $\phi = 0.7, T = 915 \text{ K}, p = 8.0 \text{ atm}$



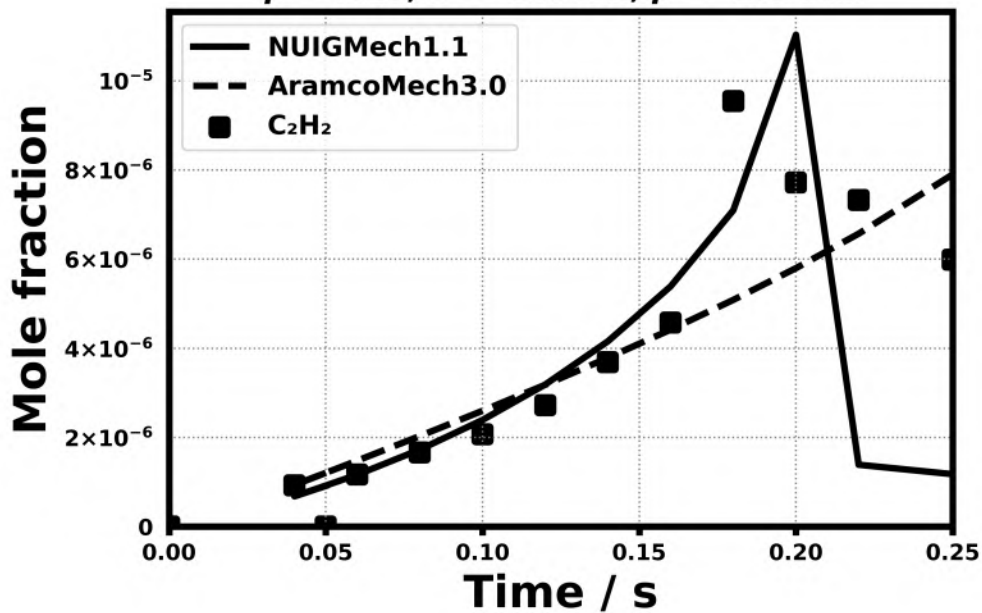


16.7) P. Dagaut, The Journal of Physical Chemistry 92, 3 (1988) 661-671

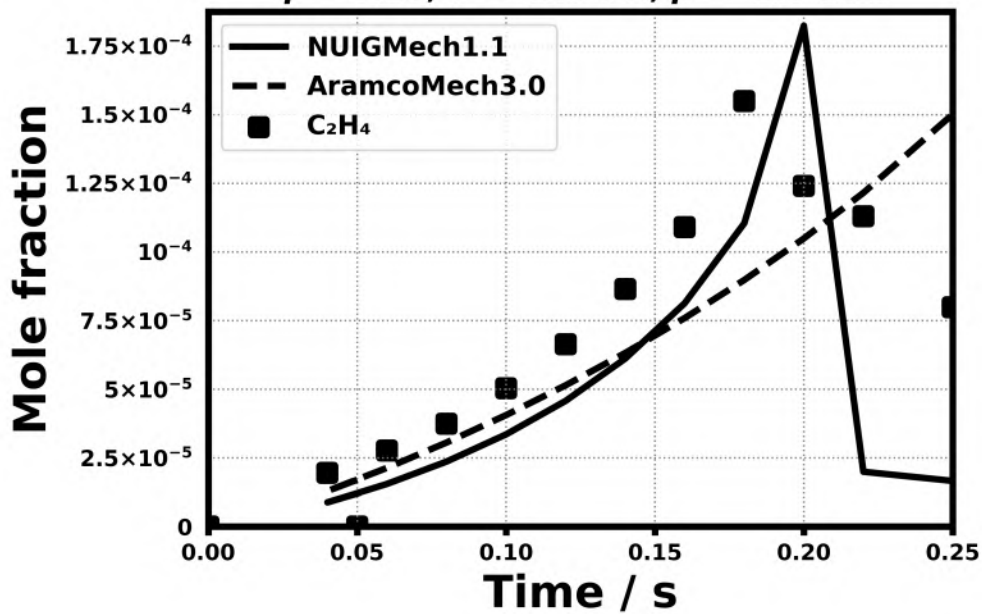


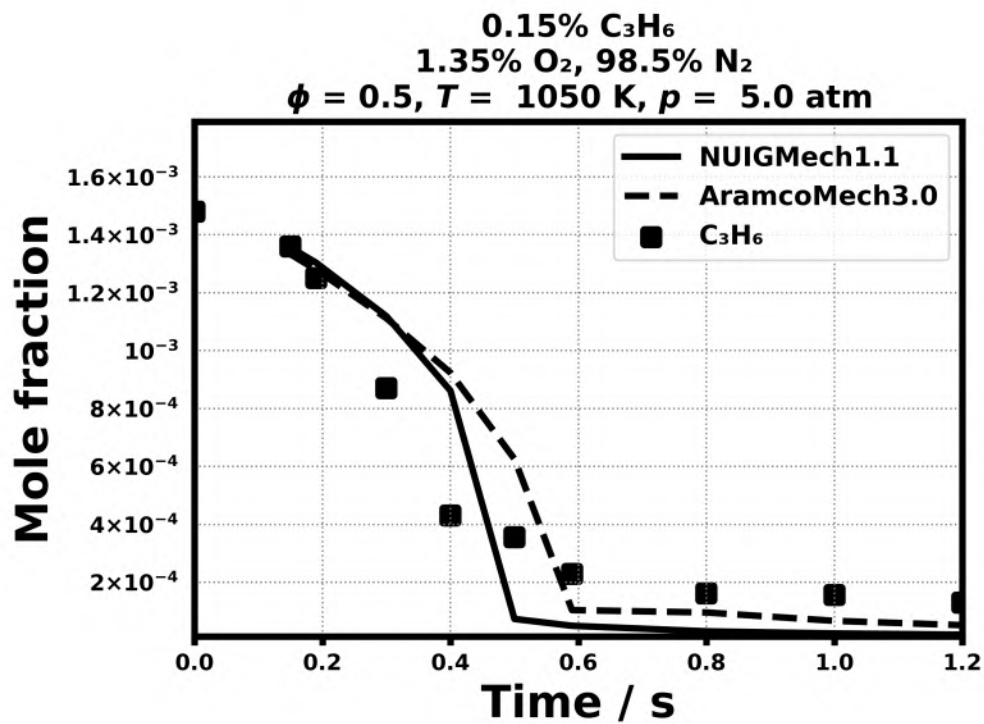
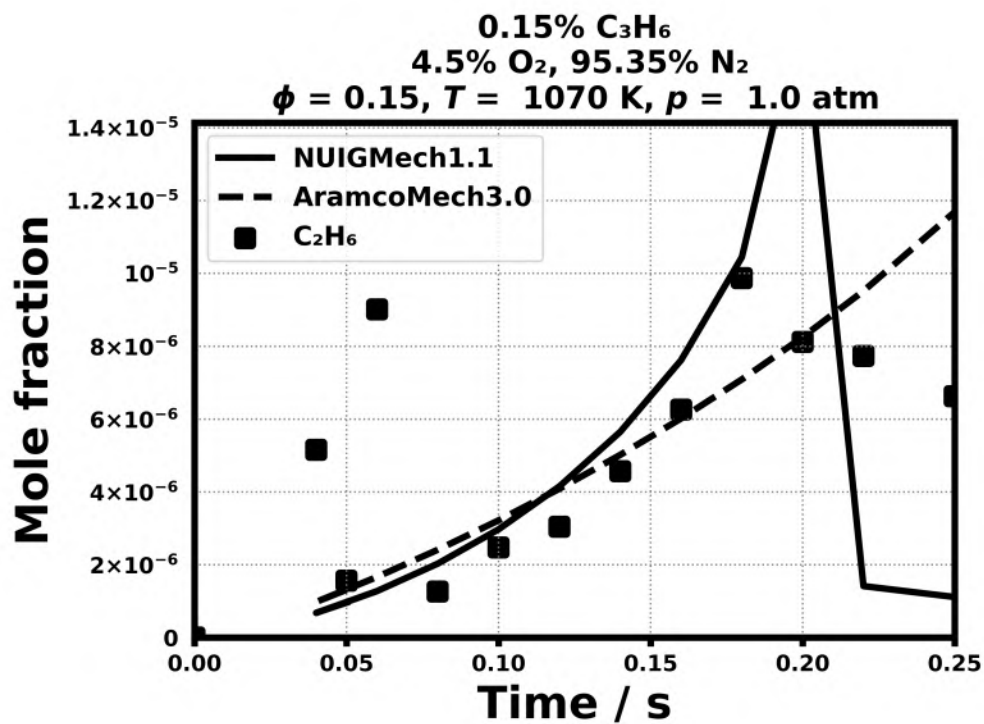


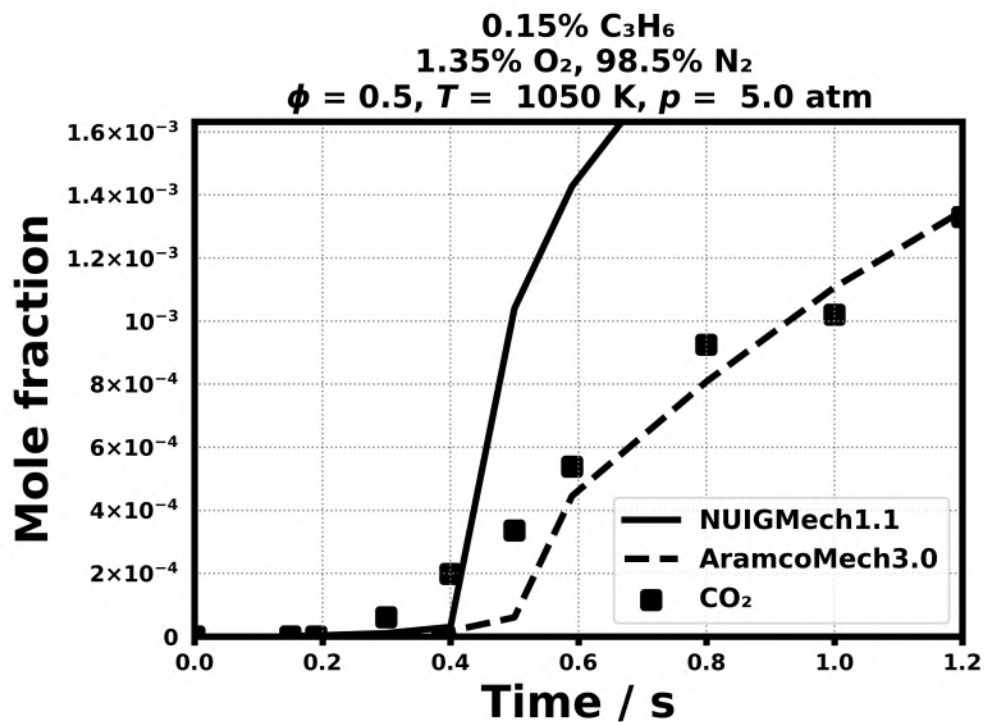
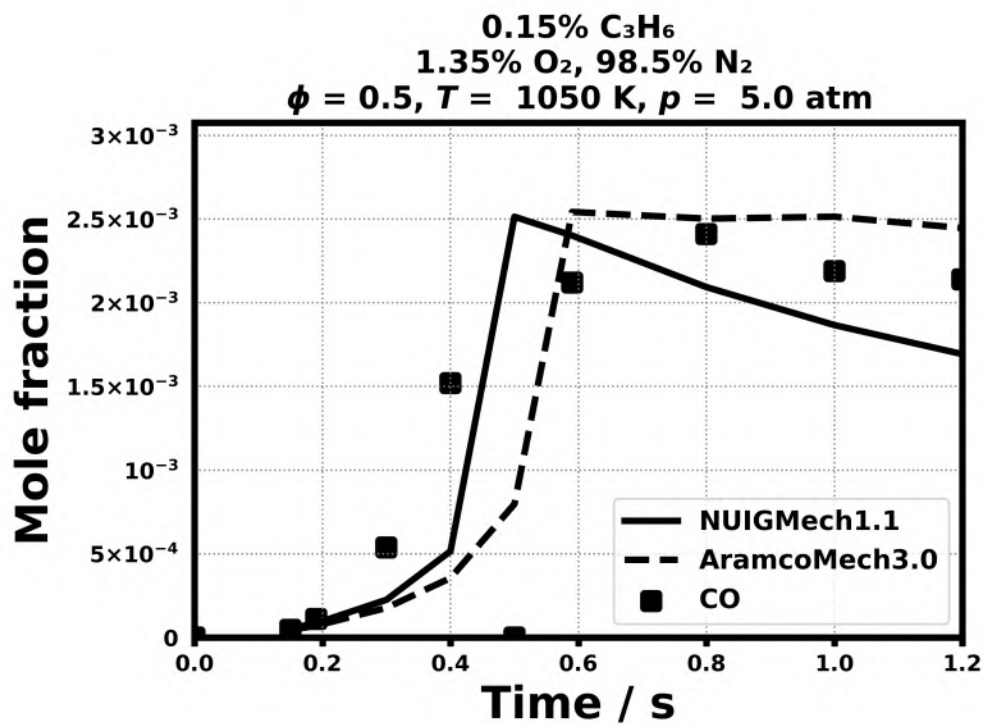
0.15% C₃H₆
4.5% O₂, 95.35% N₂
 $\phi = 0.15, T = 1070 \text{ K}, p = 1.0 \text{ atm}$

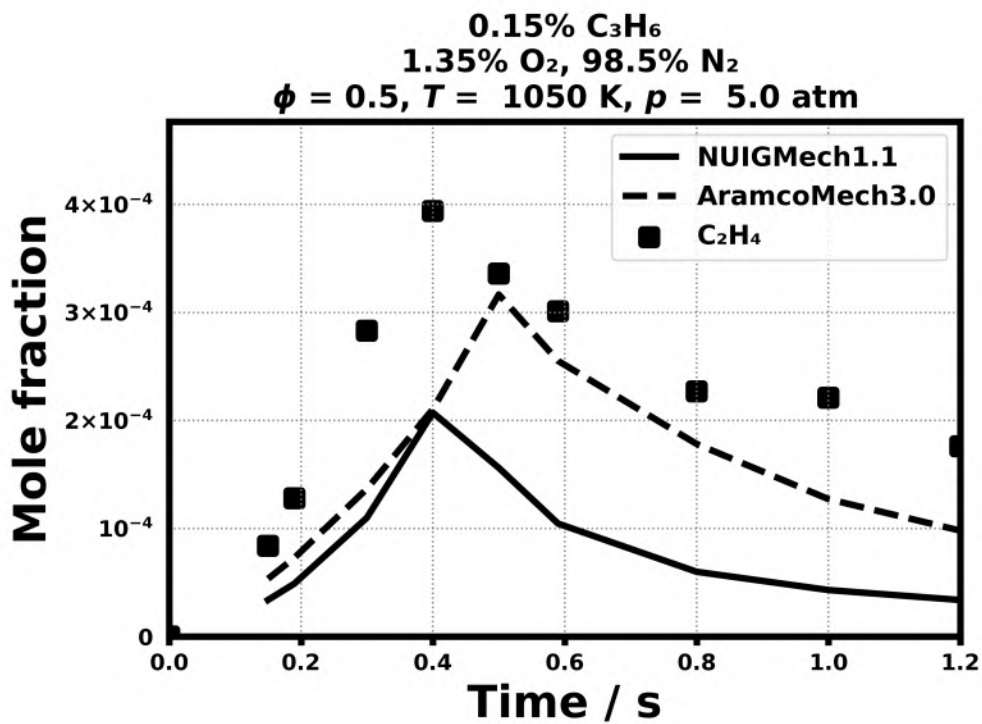
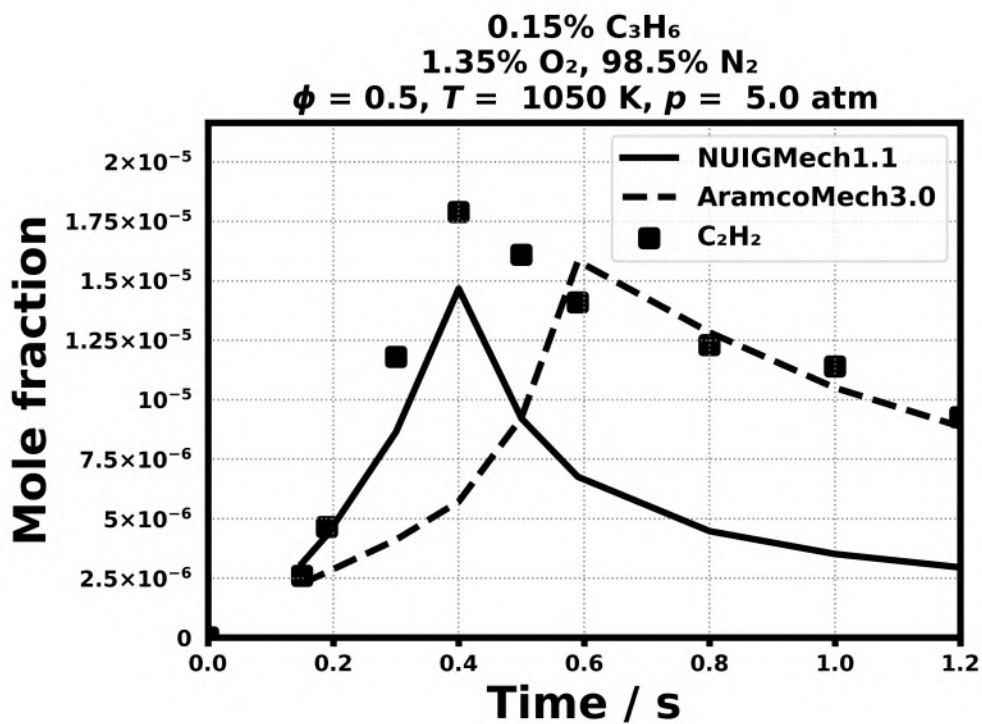


0.15% C₃H₆
4.5% O₂, 95.35% N₂
 $\phi = 0.15, T = 1070 \text{ K}, p = 1.0 \text{ atm}$

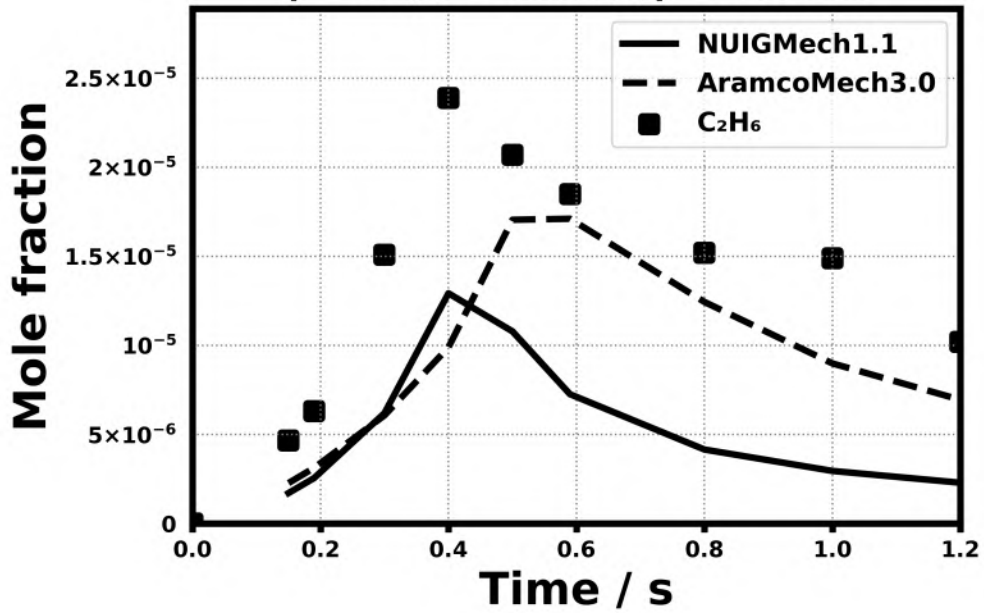




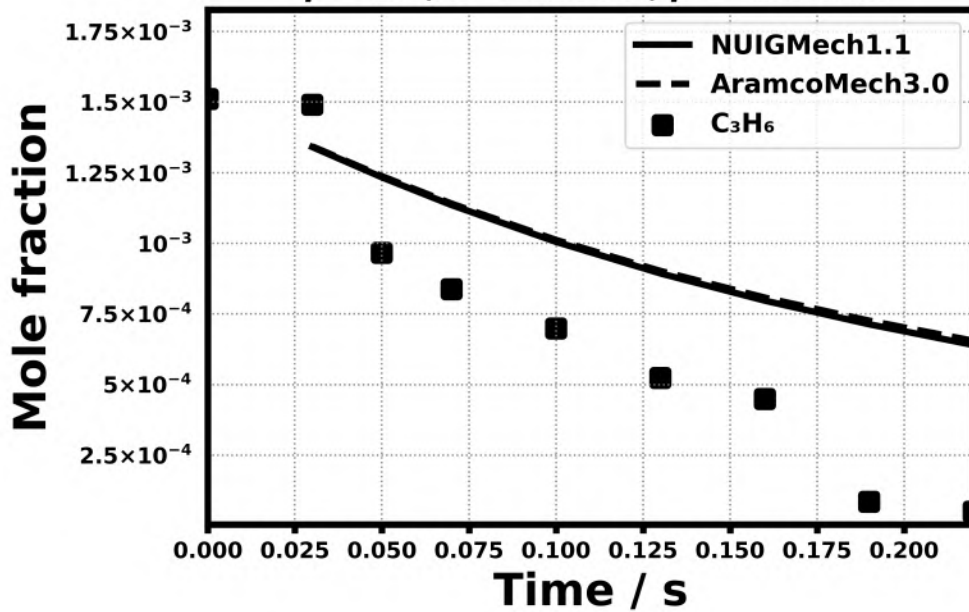


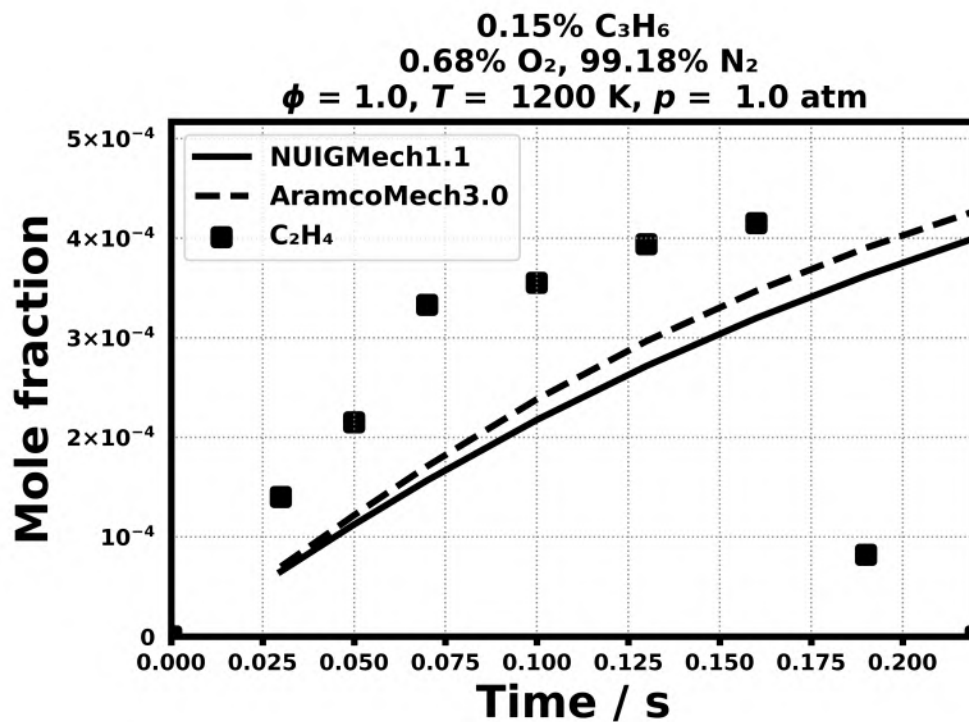
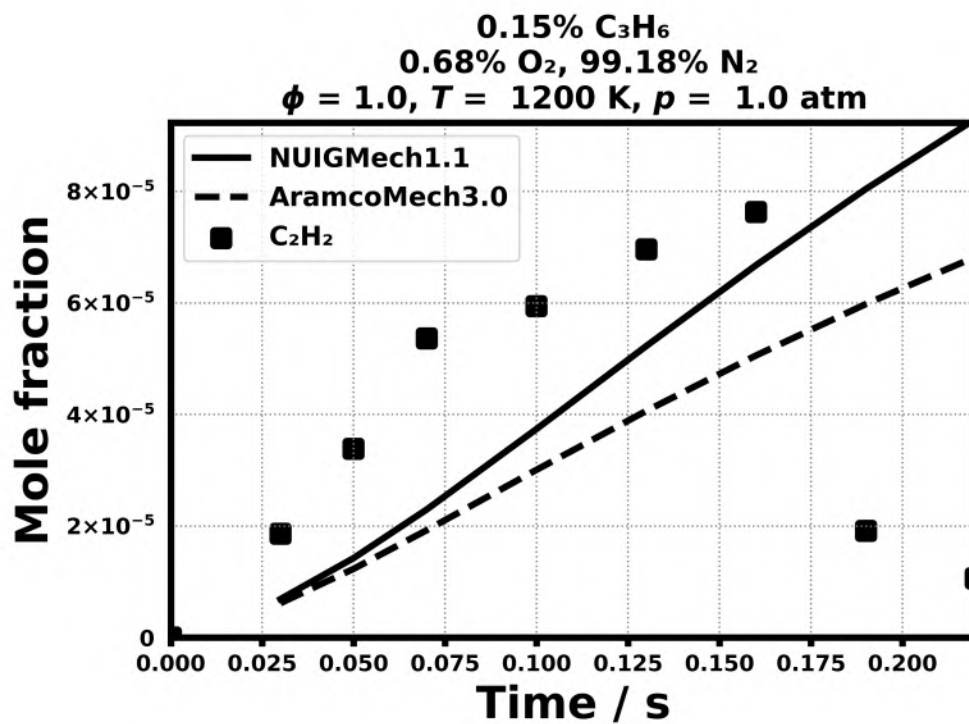


0.15% C₃H₆
1.35% O₂, 98.5% N₂
 $\phi = 0.5, T = 1050 \text{ K}, p = 5.0 \text{ atm}$

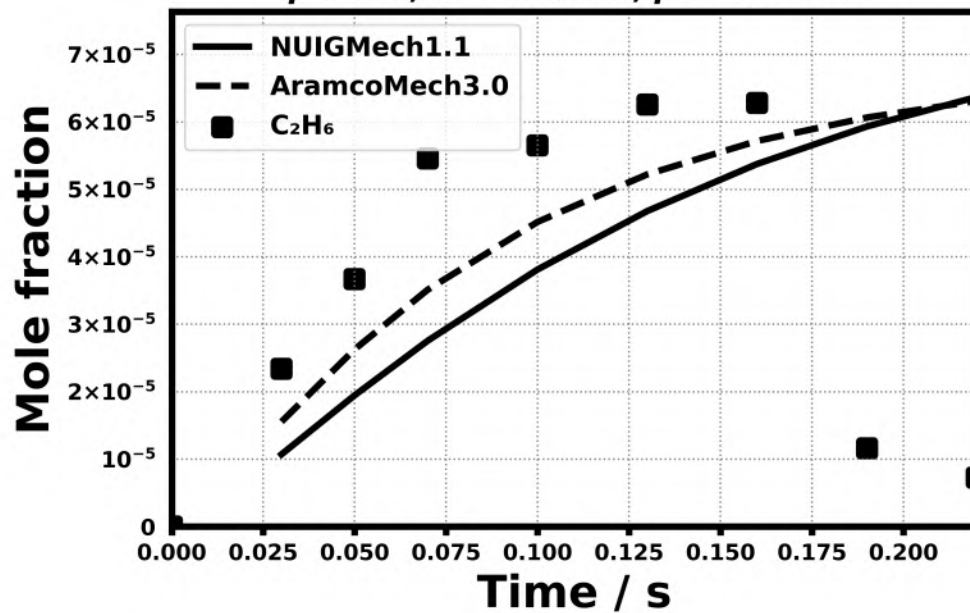


0.15% C₃H₆
0.68% O₂, 99.18% N₂
 $\phi = 1.0, T = 1200 \text{ K}, p = 1.0 \text{ atm}$



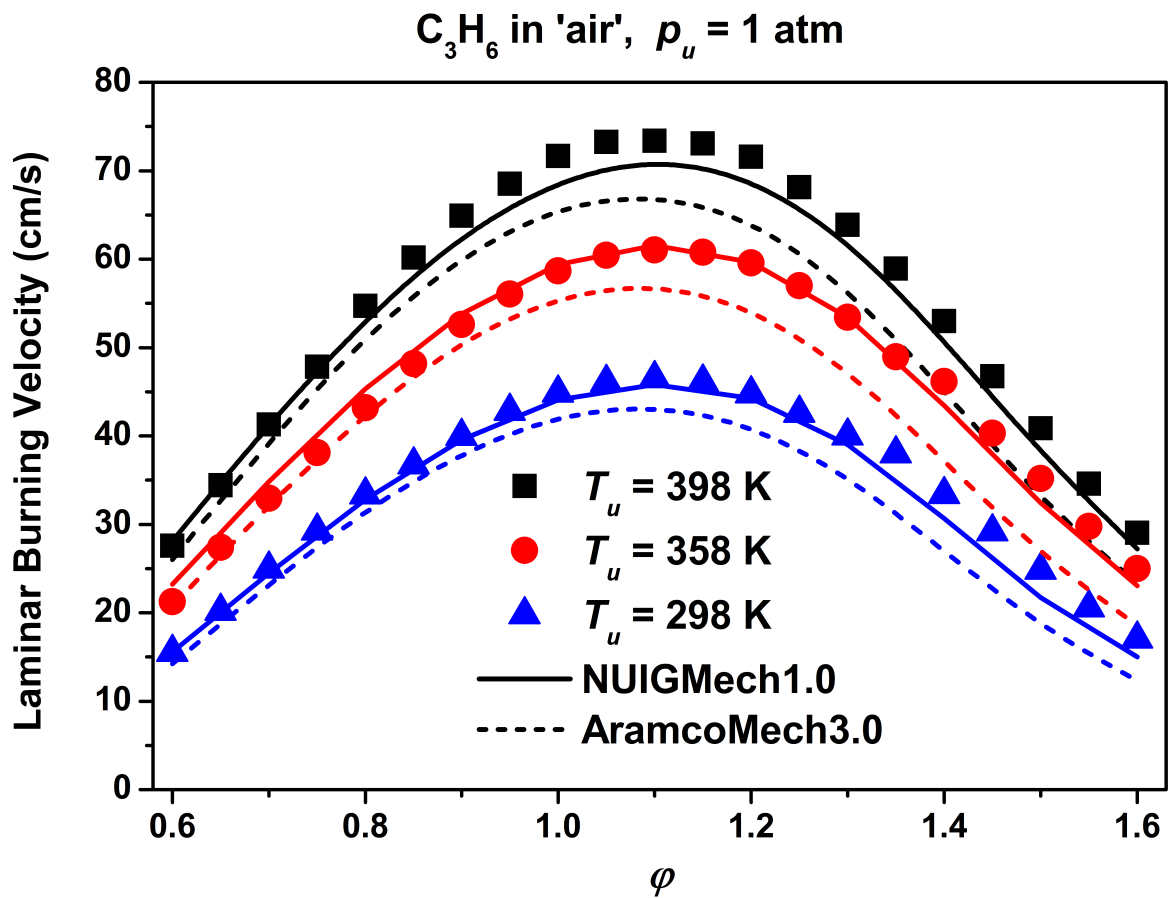


0.15% C₃H₆
0.68% O₂, 99.18% N₂
 $\phi = 1.0, T = 1200 \text{ K}, p = 1.0 \text{ atm}$



Laminar flame speed

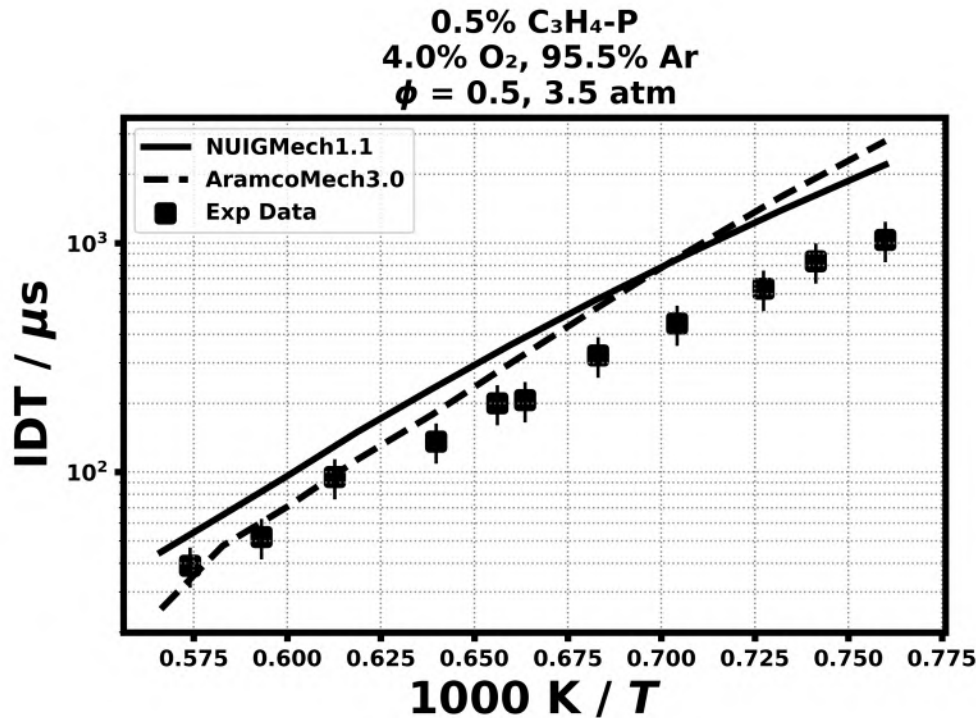
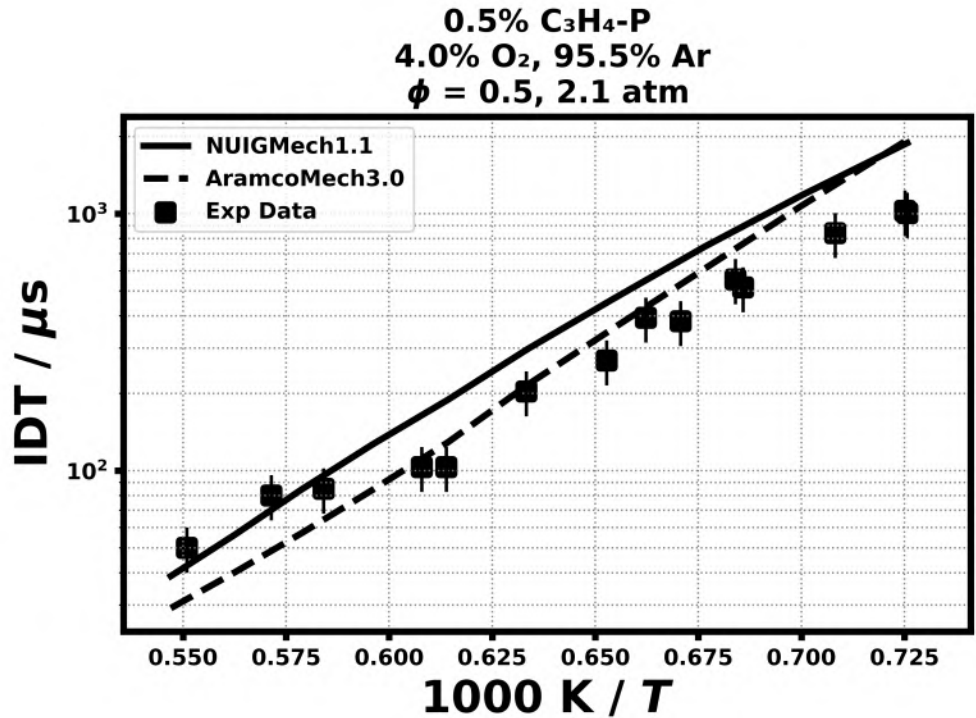
16.8) Burke, S. M., Burke, U., Mc Donagh, R., Mathieu, O., Osorio, I., Keesee, C., ... & Oehlschlaeger, M. A., Combustion and Flame, 162(2) (2015) 296-314.



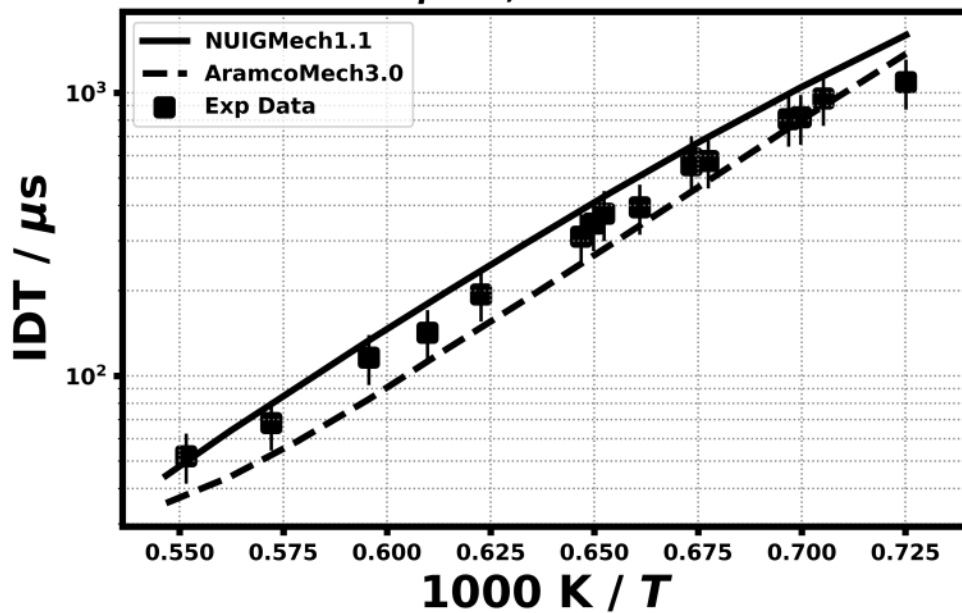
17. Validation for C₃H₄-p

Shock tube ignition delay time

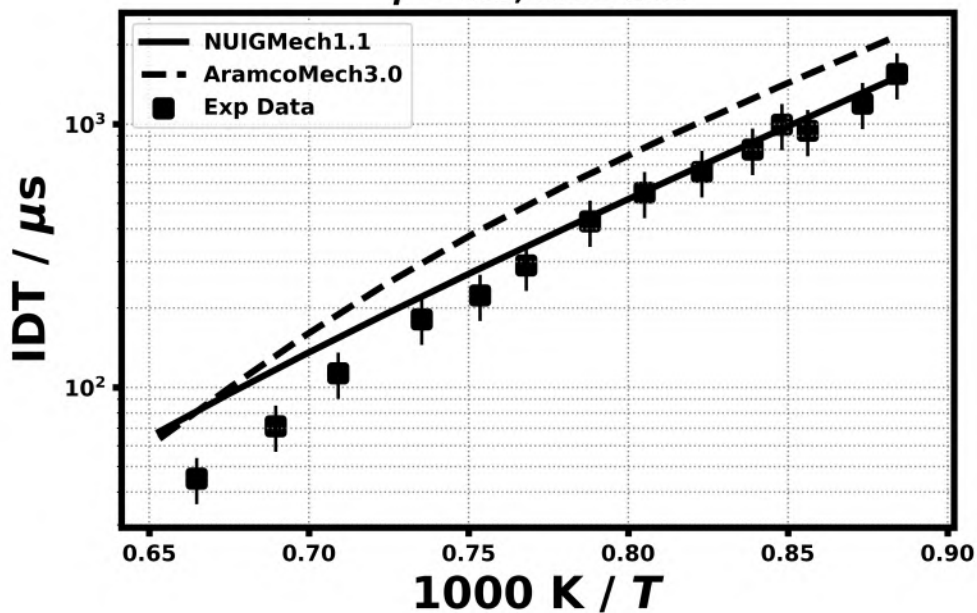
17.1) Curran, H., Simmie, J. M., Dagaut, P., Voisin, D., & Cathonnet, M., In Symposium (International) on Combustion, 26 (1996, January) 613-620.



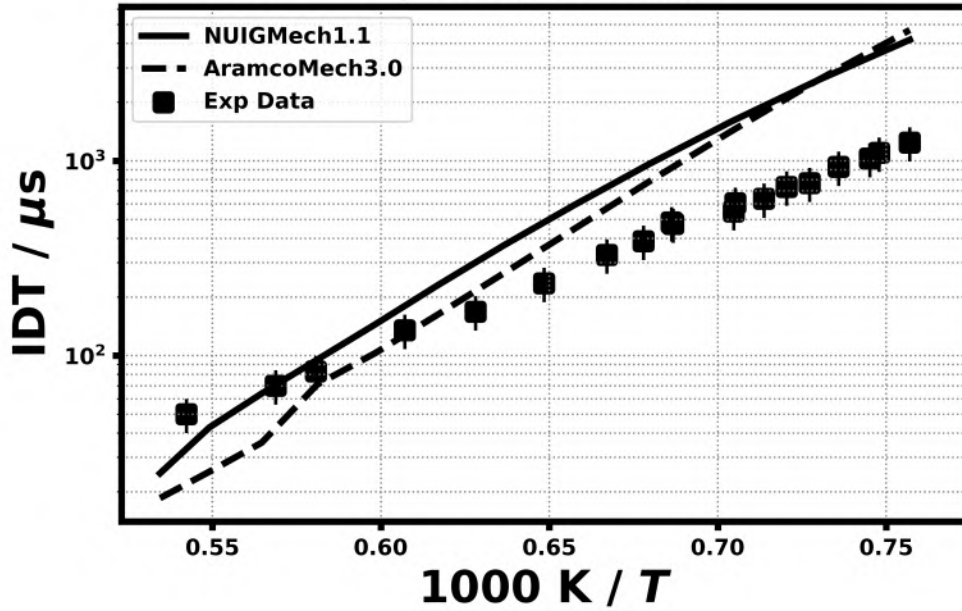
2.0% C₃H₄-P
4.0% O₂, 94.0% Ar
 $\phi = 2, 2.09 \text{ atm}$



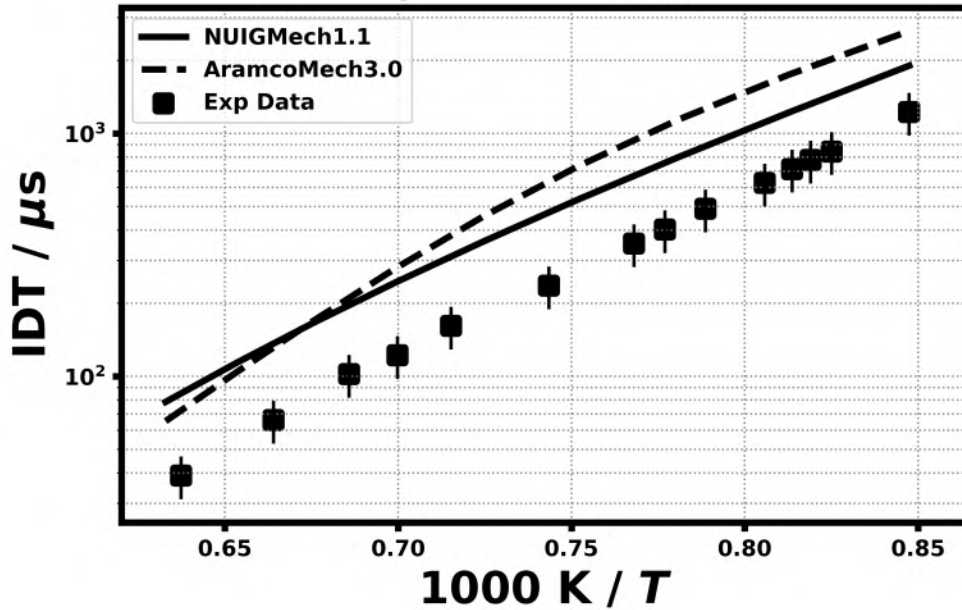
2.0% C₃H₄-P
16.0% O₂, 82.0% Ar
 $\phi = 0.5, 3.52 \text{ atm}$



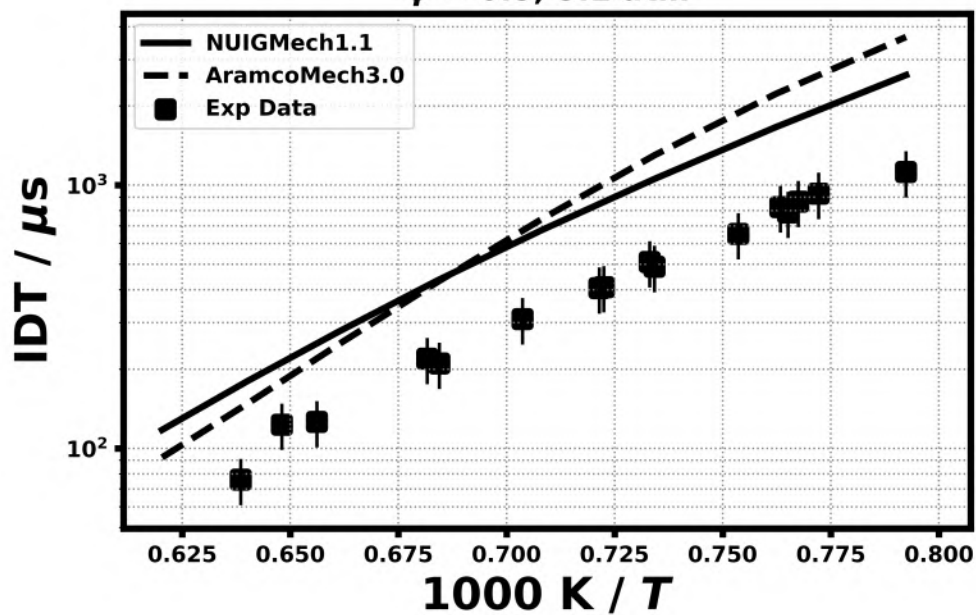
0.5% C₃H₄-P
2.5% O₂, 97.0% Ar
 $\phi = 0.8, 3.51 \text{ atm}$



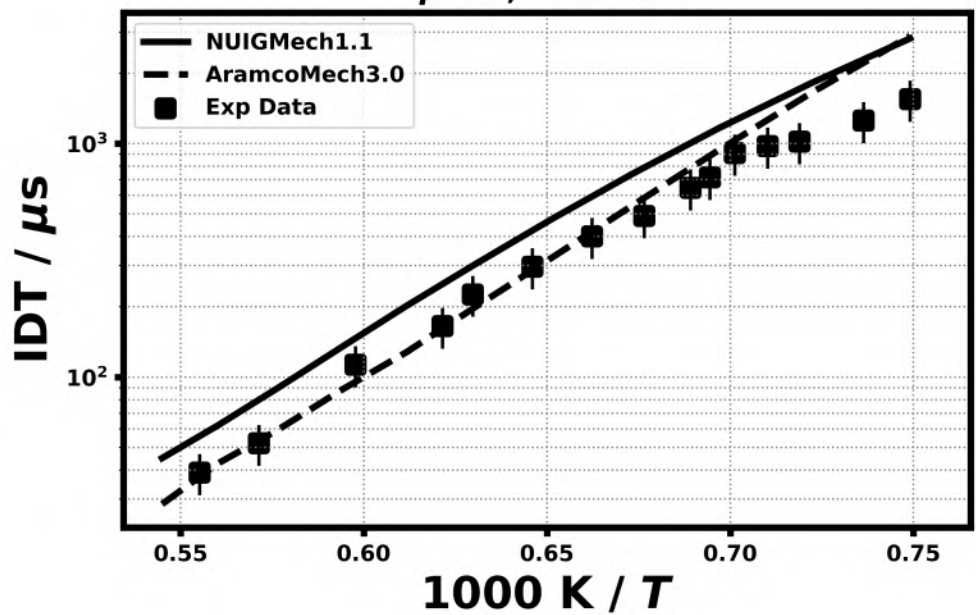
1.0% C₃H₄-P
8.0% O₂, 91.0% Ar
 $\phi = 0.5, 5.02 \text{ atm}$



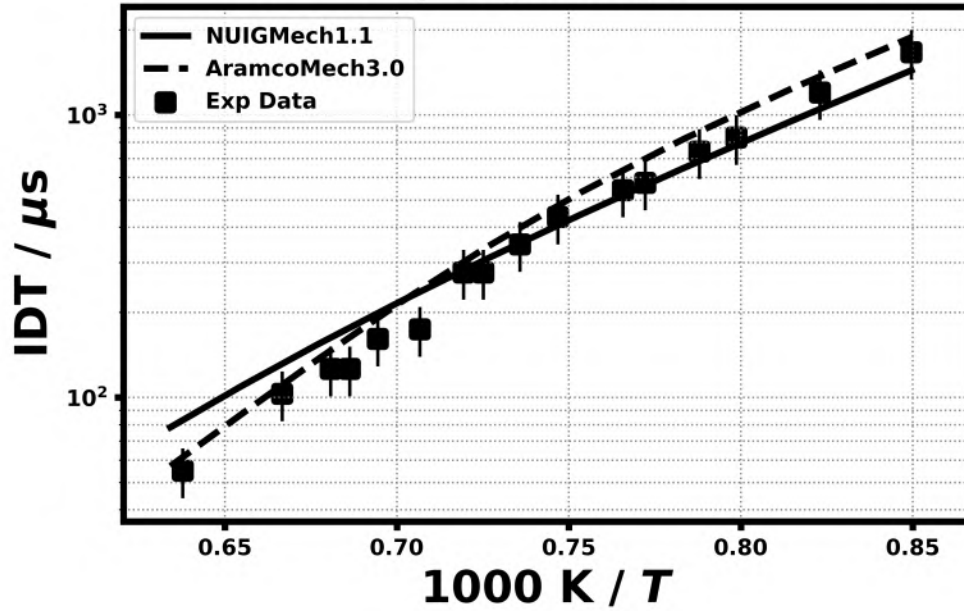
0.5% C₃H₄-P
4.0% O₂, 95.5% Ar
 $\phi = 0.5$, 5.1 atm



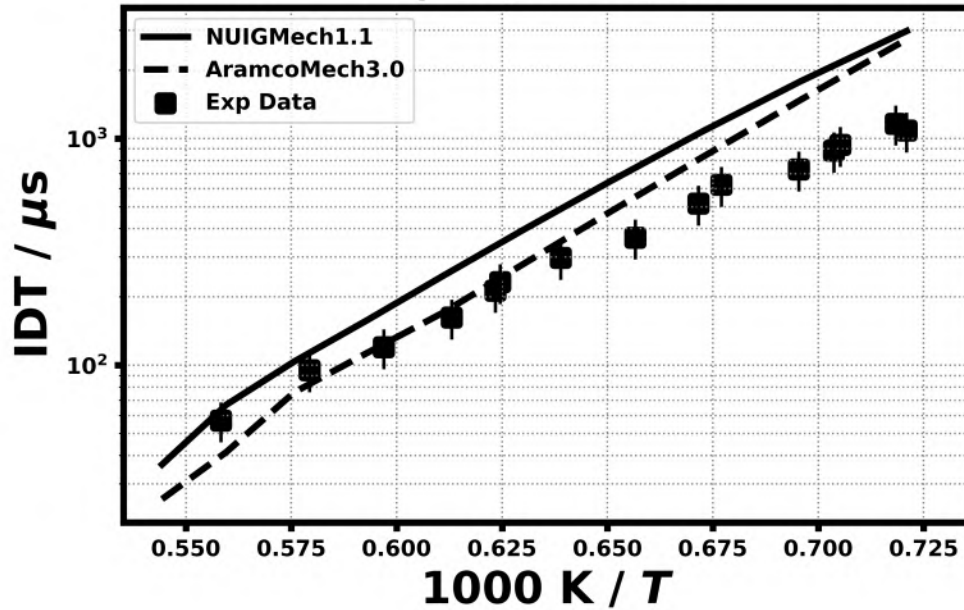
1.0% C₃H₄-P
4.0% O₂, 95.0% Ar
 $\phi = 1$, 2.03 atm



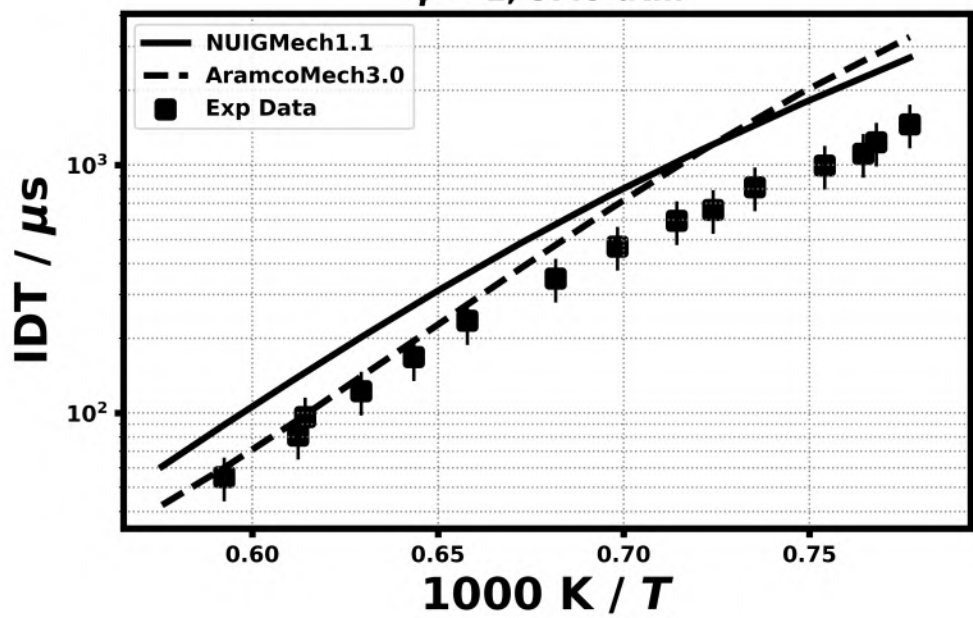
3.0% C₃H₄-P
12.0% O₂, 85.0% Ar
 $\phi = 1$, 2.68 atm



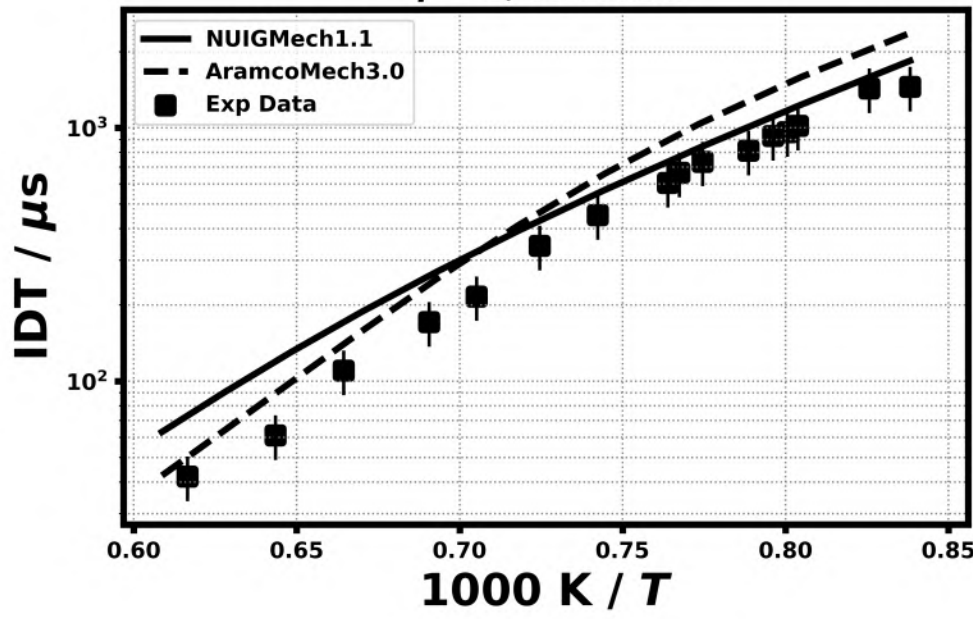
0.5% C₃H₄-P
2.0% O₂, 97.5% Ar
 $\phi = 1$, 3.55 atm



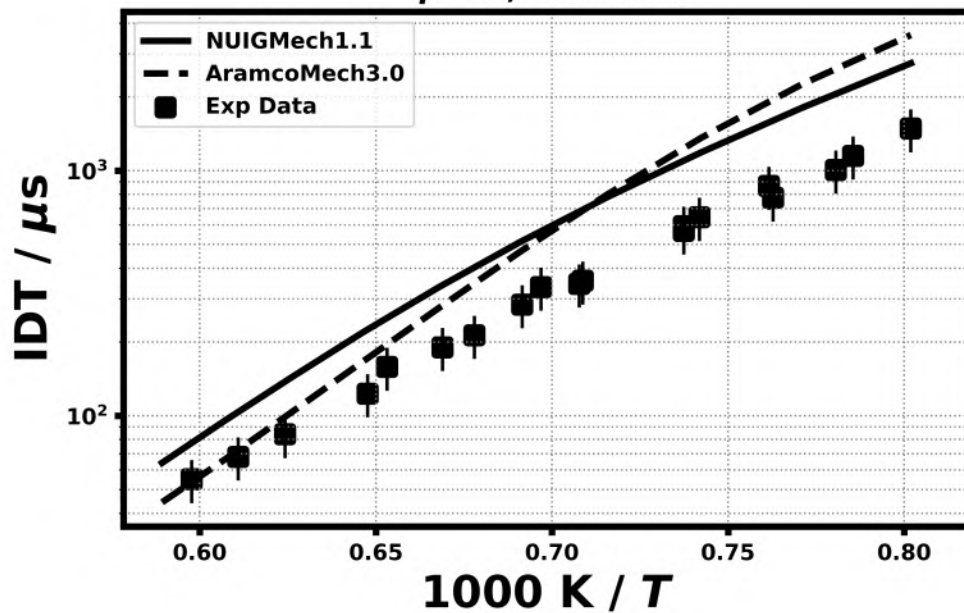
1.0% C₃H₄-P
4.0% O₂, 95.0% Ar
 $\phi = 1$, 3.49 atm



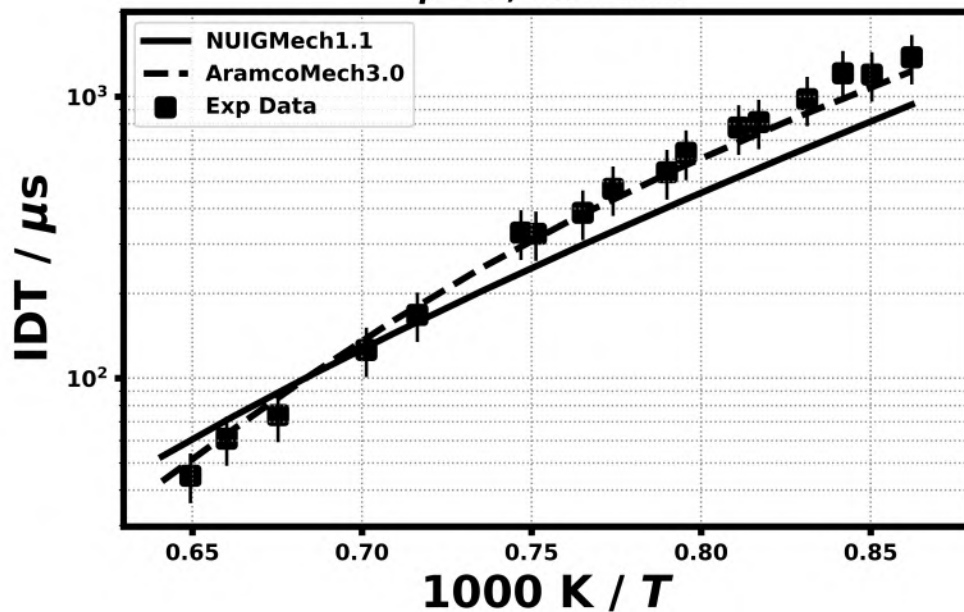
2.0% C₃H₄-P
8.0% O₂, 90.0% Ar
 $\phi = 1$, 3.52 atm



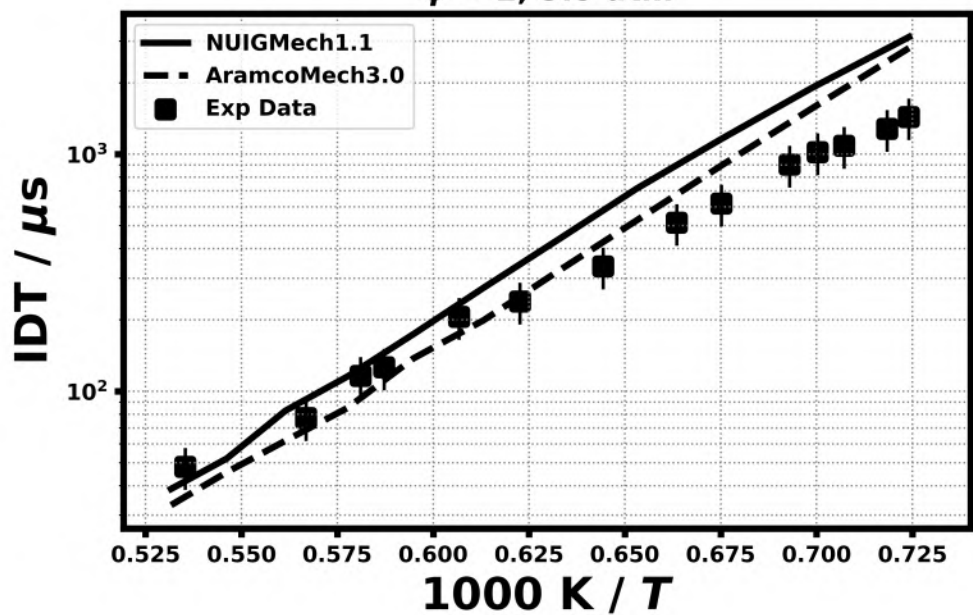
1.0% C₃H₄-P
4.0% O₂, 95.0% Ar
 $\phi = 1, 5.06 \text{ atm}$



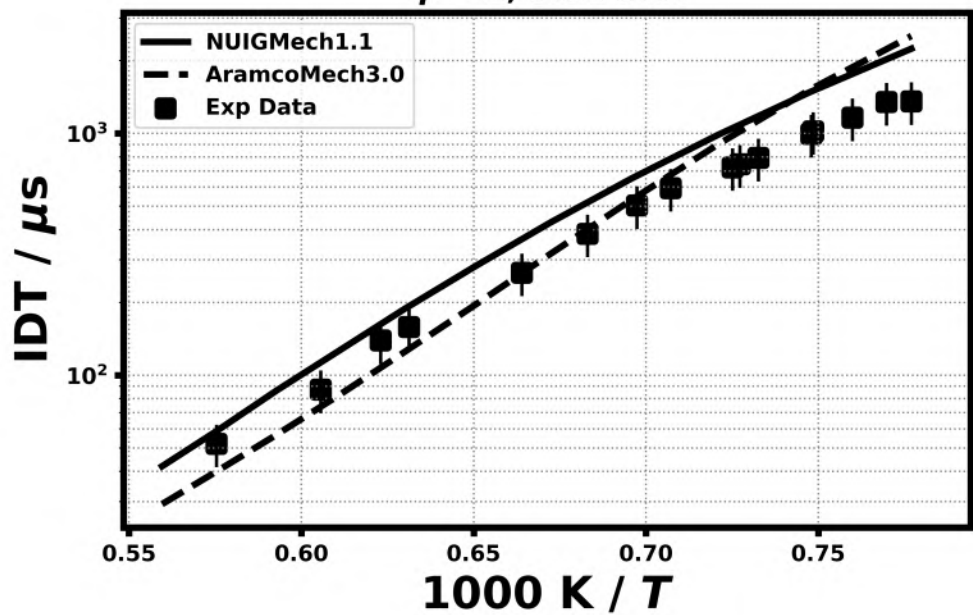
3.0% C₃H₄-P
12.0% O₂, 85.0% Ar
 $\phi = 1, 4.94 \text{ atm}$

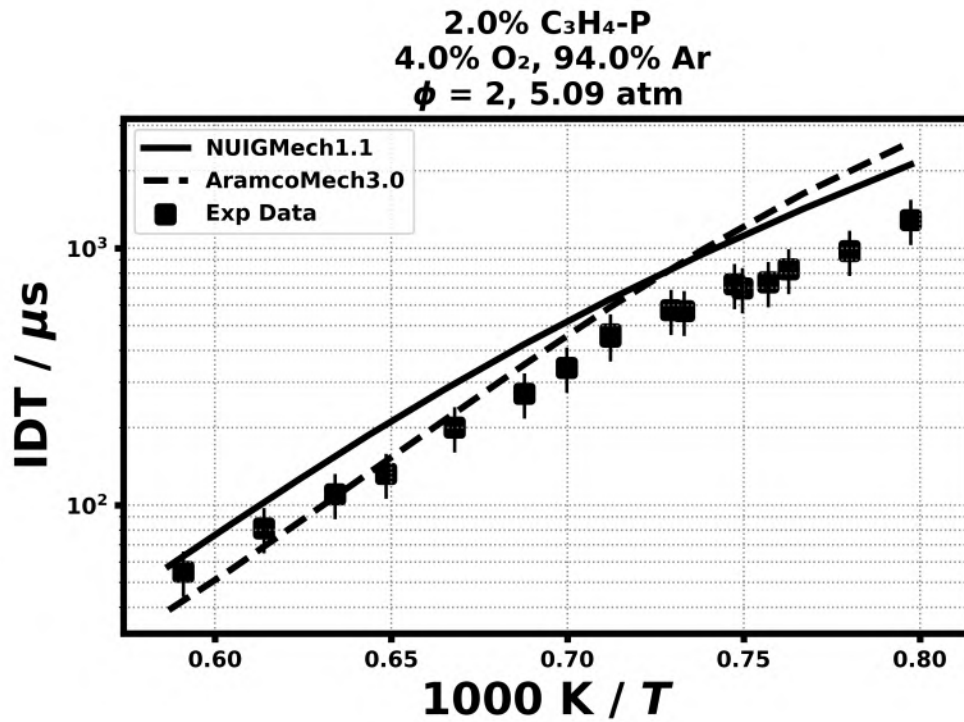


1.0% C₃H₄-P
2.0% O₂, 97.0% Ar
 $\phi = 2$, 3.5 atm



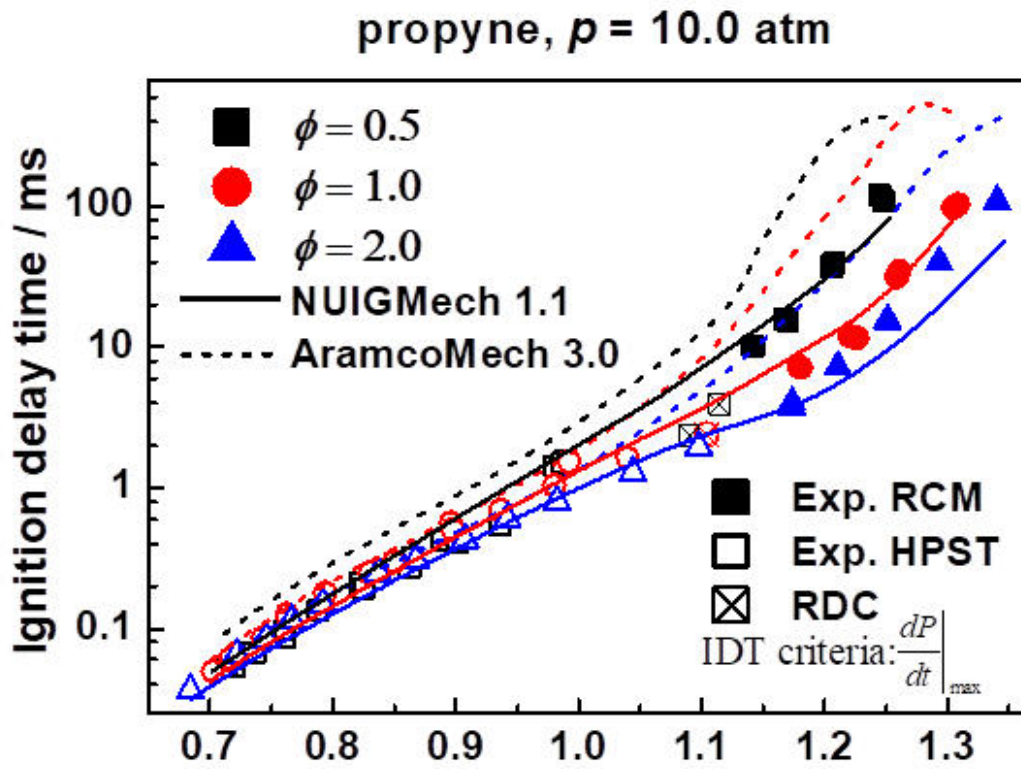
2.0% C₃H₄-P
4.0% O₂, 94.0% Ar
 $\phi = 2$, 3.51 atm

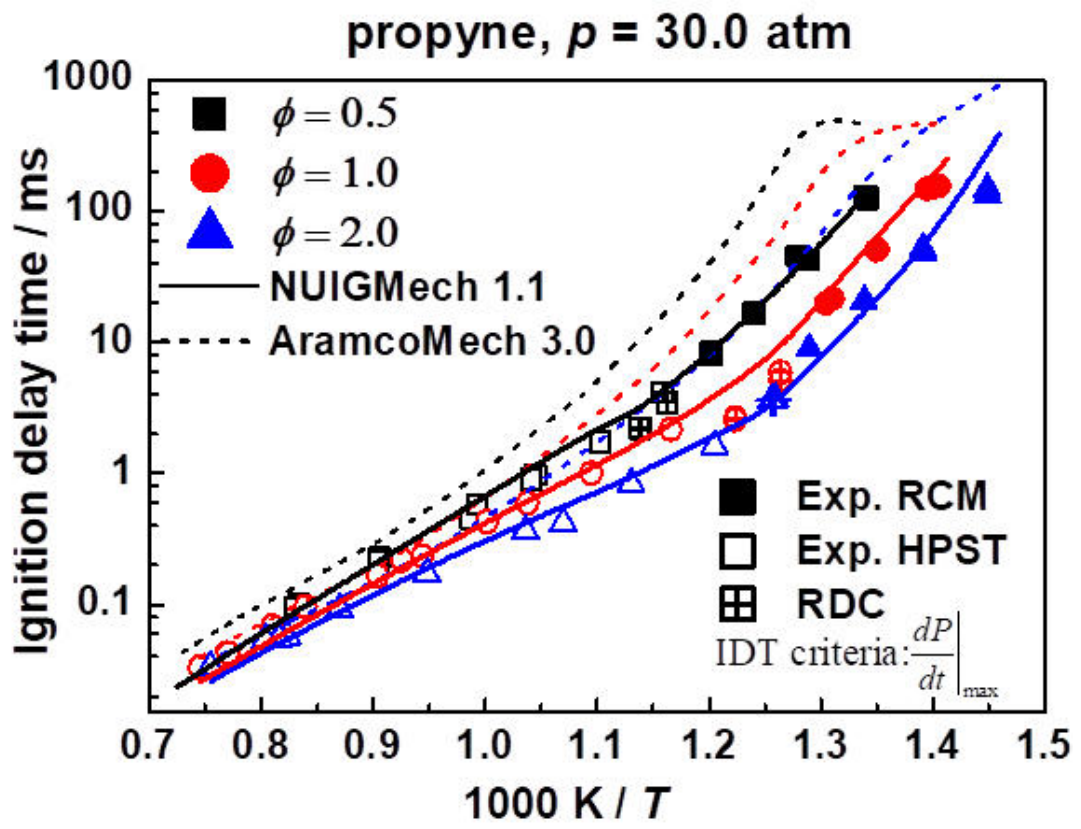




RCM Ignition delay time

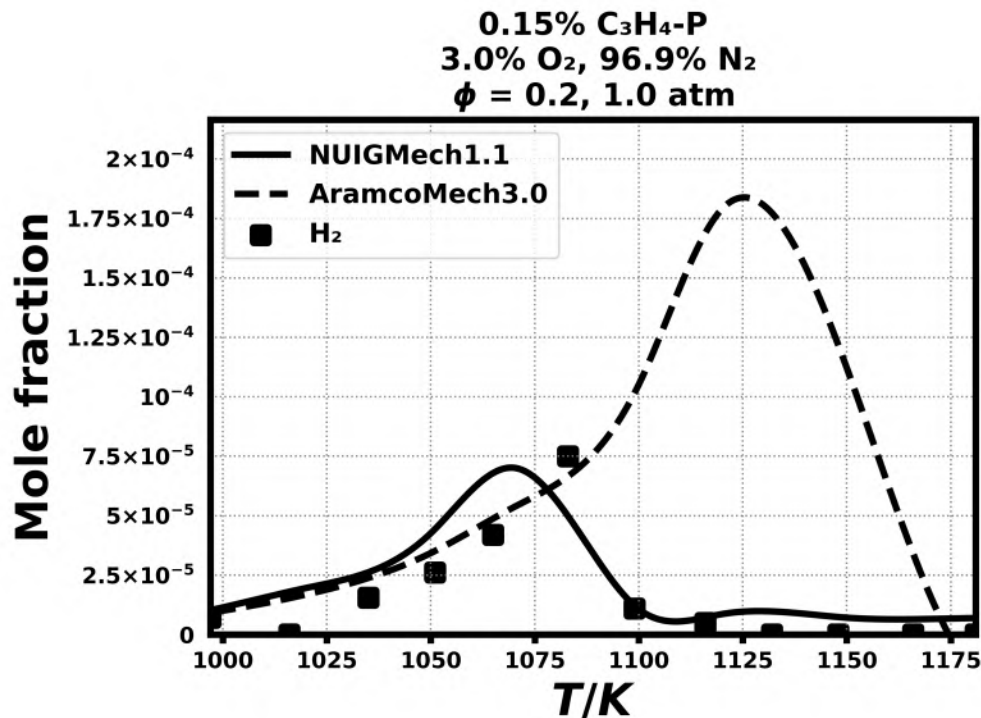
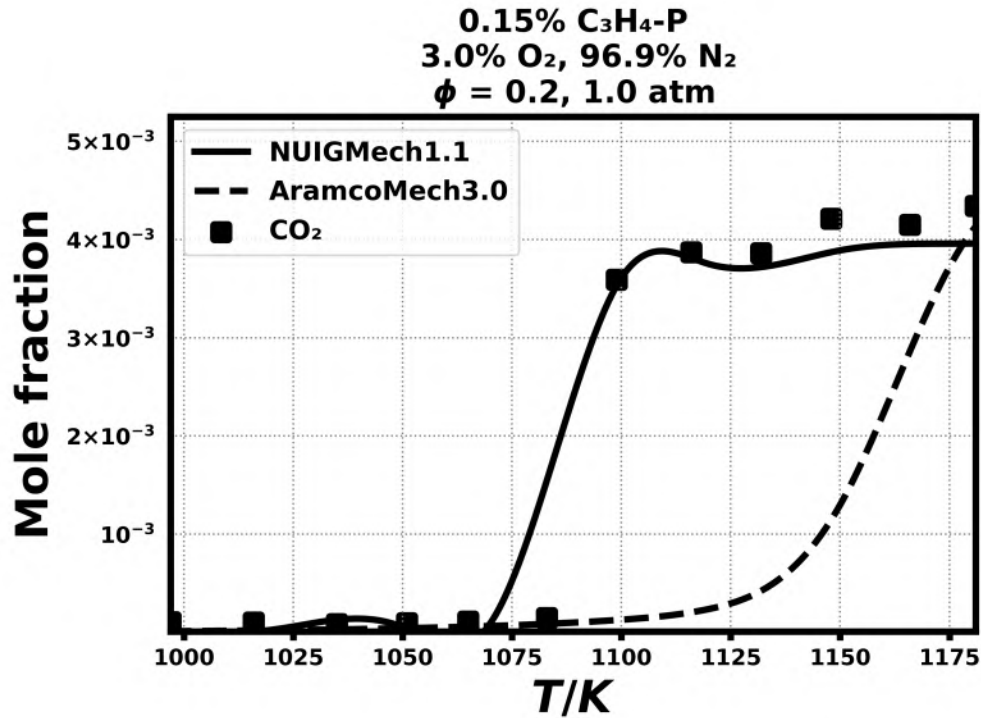
17.2) Panigrahy, S., Liang, J., Nagaraja, S. S., Zuo, Z., Kim, G., Dong, S., ... & Curran, H. J., Proceedings of the Combustion Institute (2020).



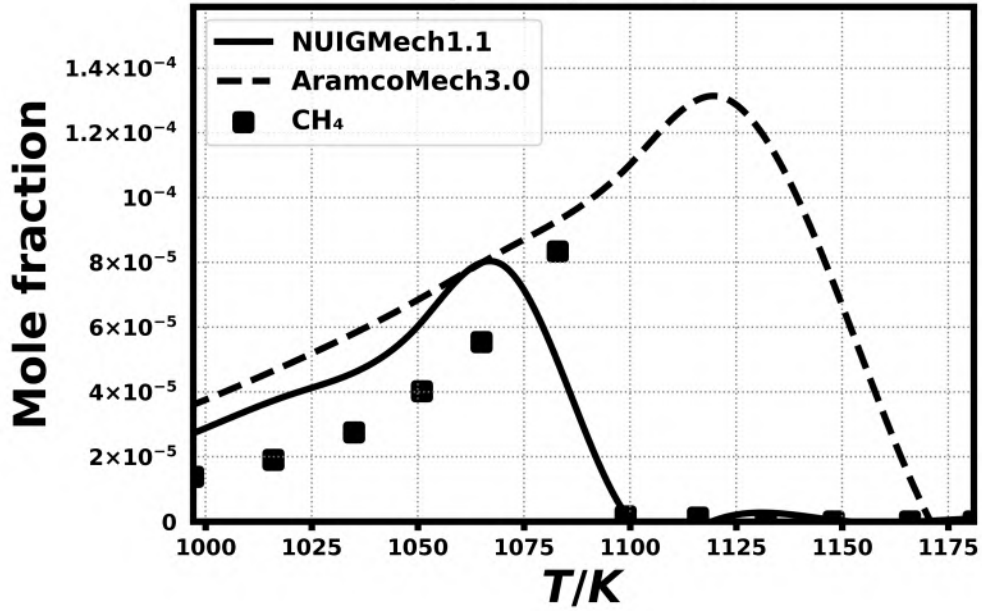


Speciation in Jet-stirred reactor

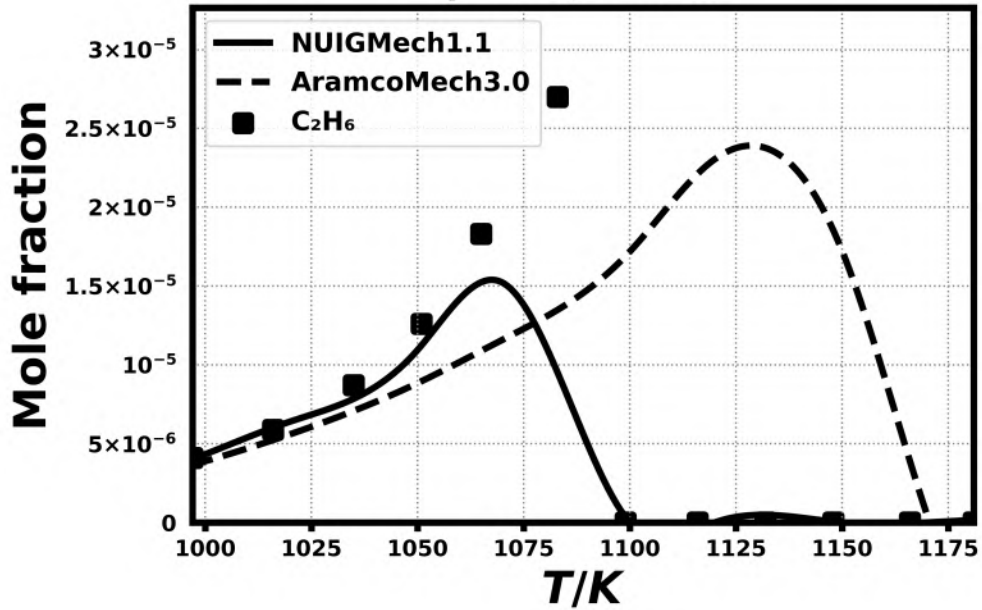
17.3) DAGAUT, P., CATHONNET, M., & BOETTNER, J. C. (1990), *Combustion Science and Technology*, 71(1-3), 111-128.



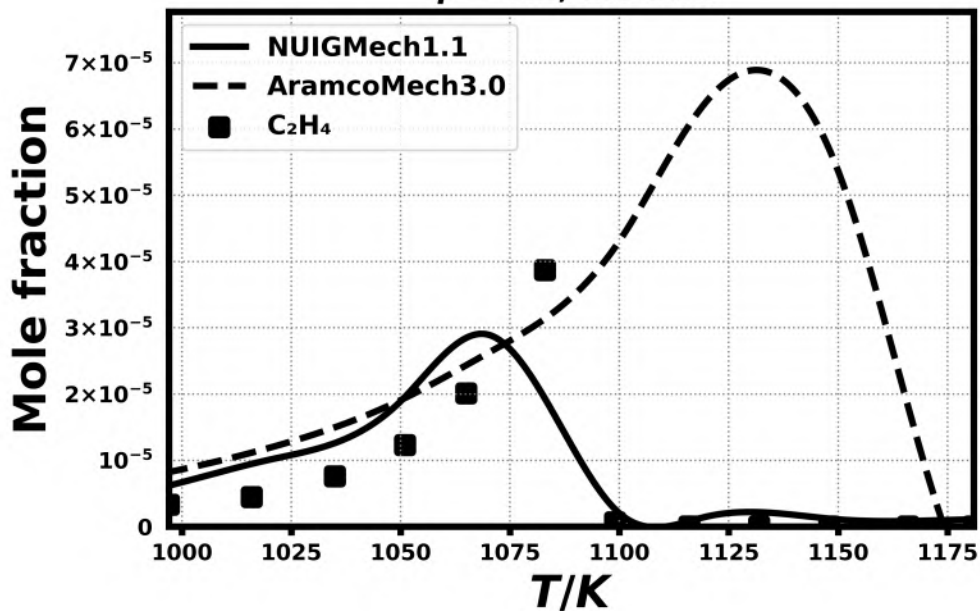
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



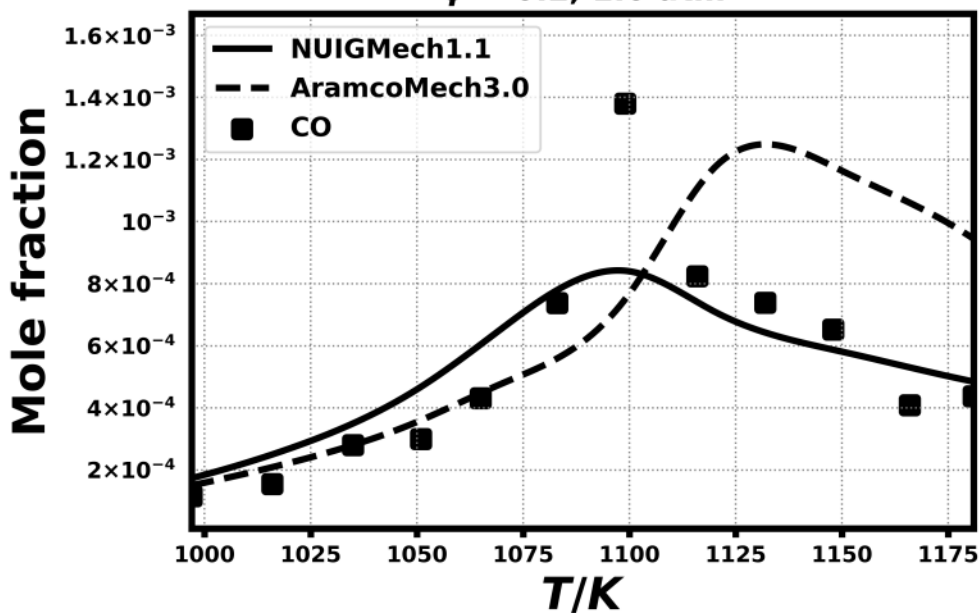
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



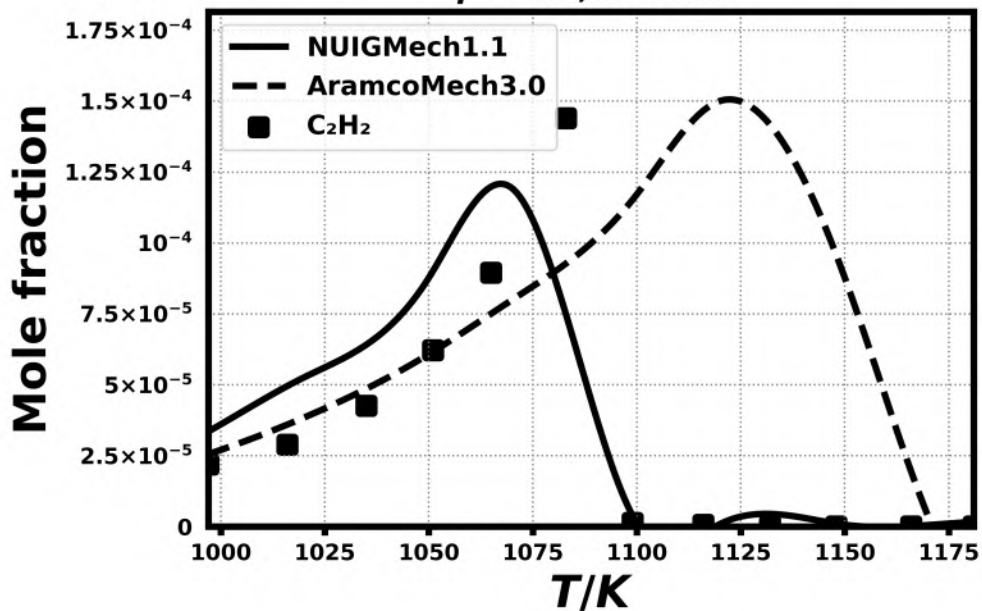
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



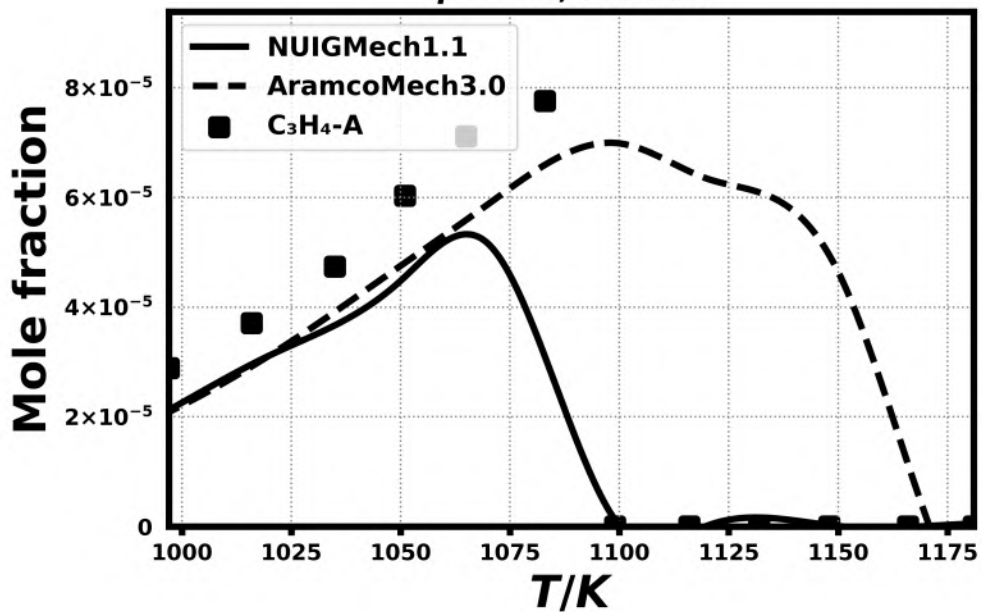
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



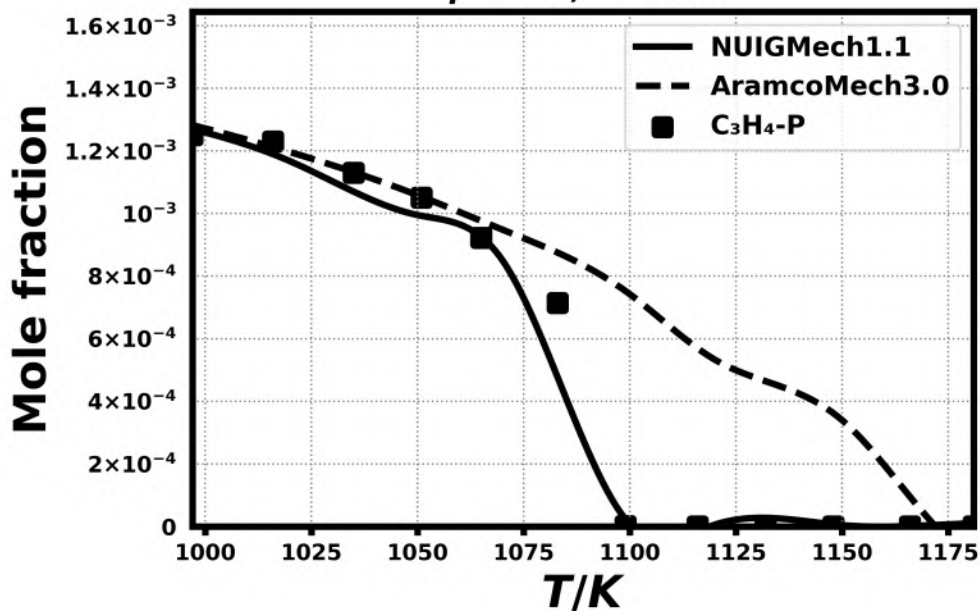
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



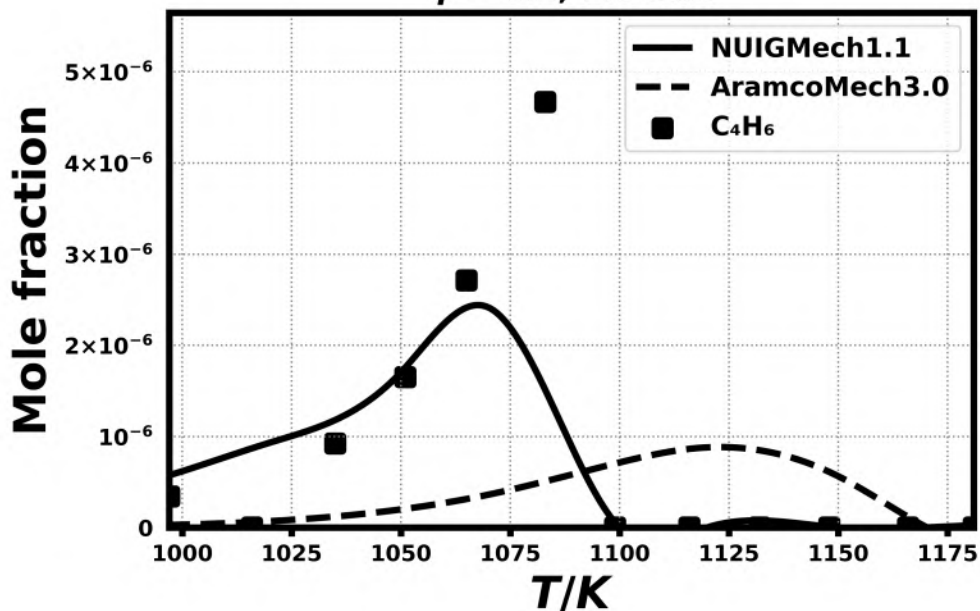
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



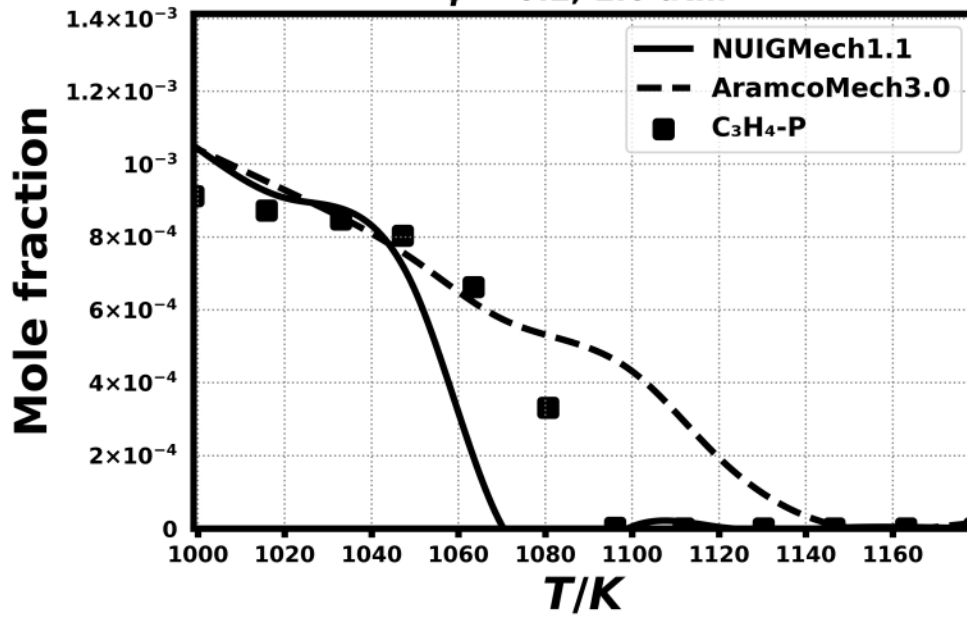
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



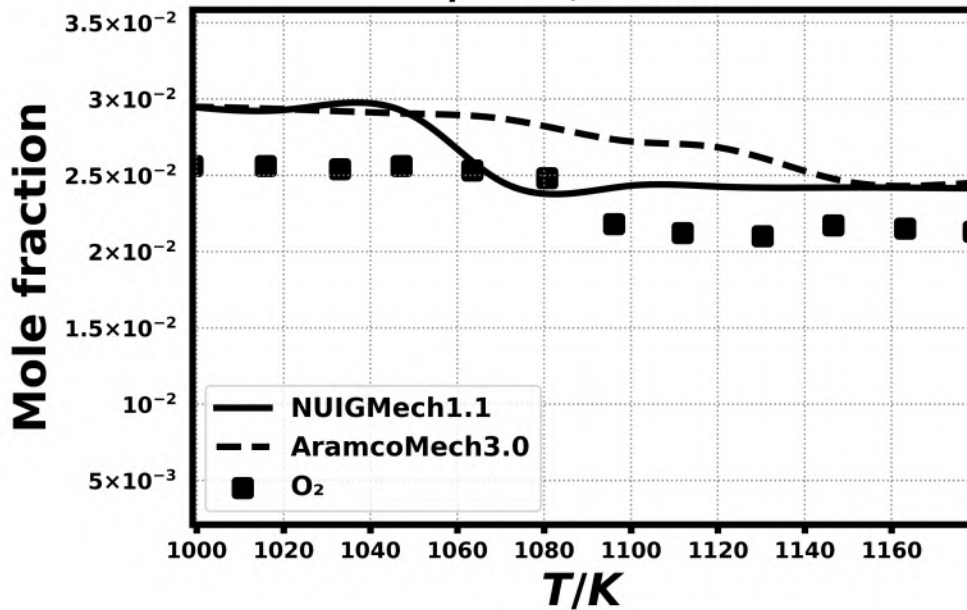
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



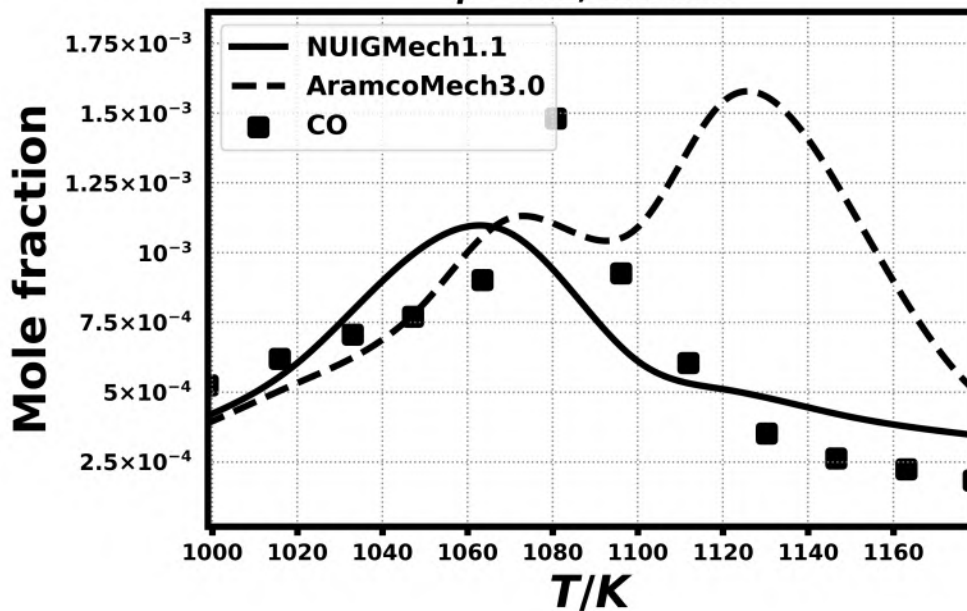
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



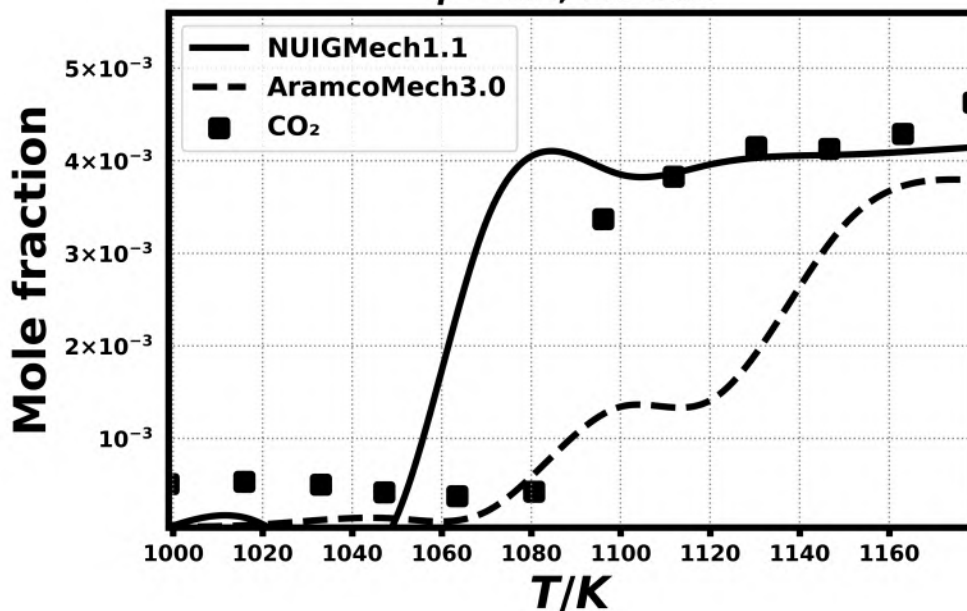
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



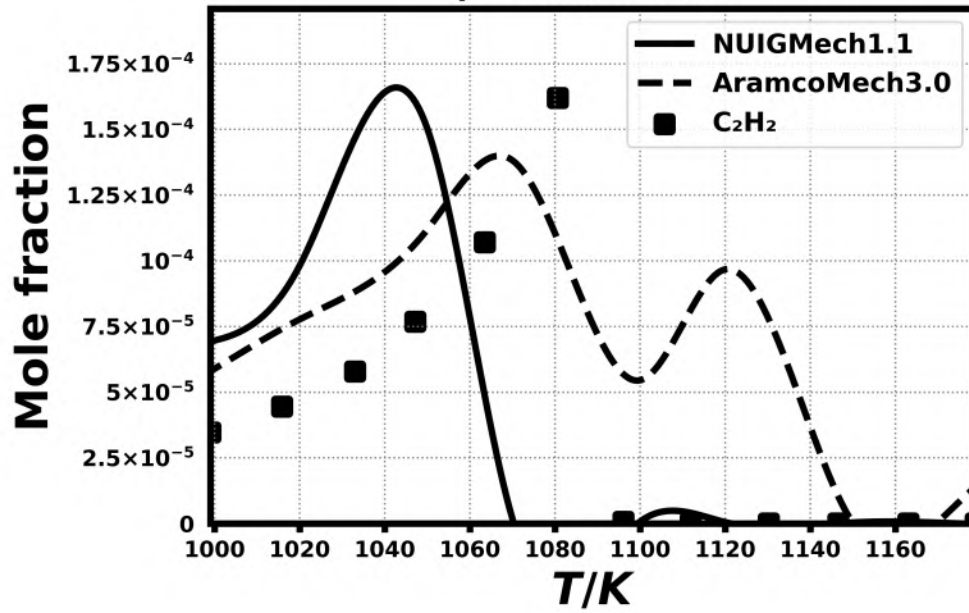
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



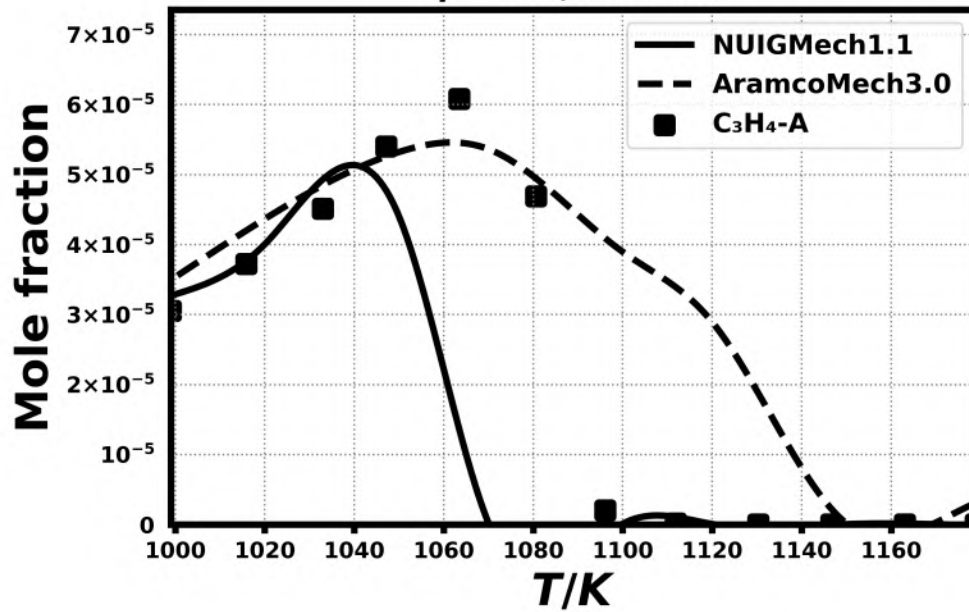
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



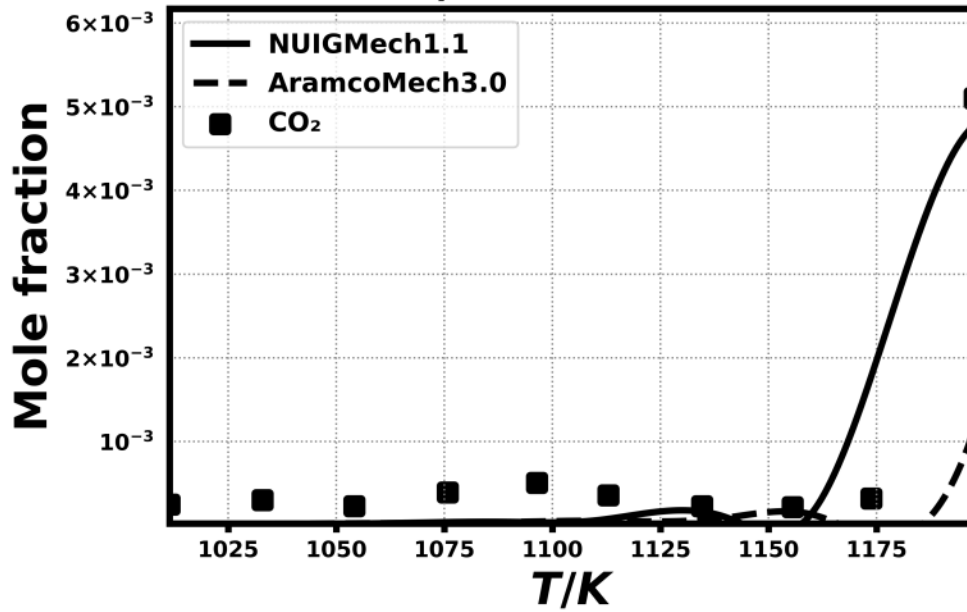
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



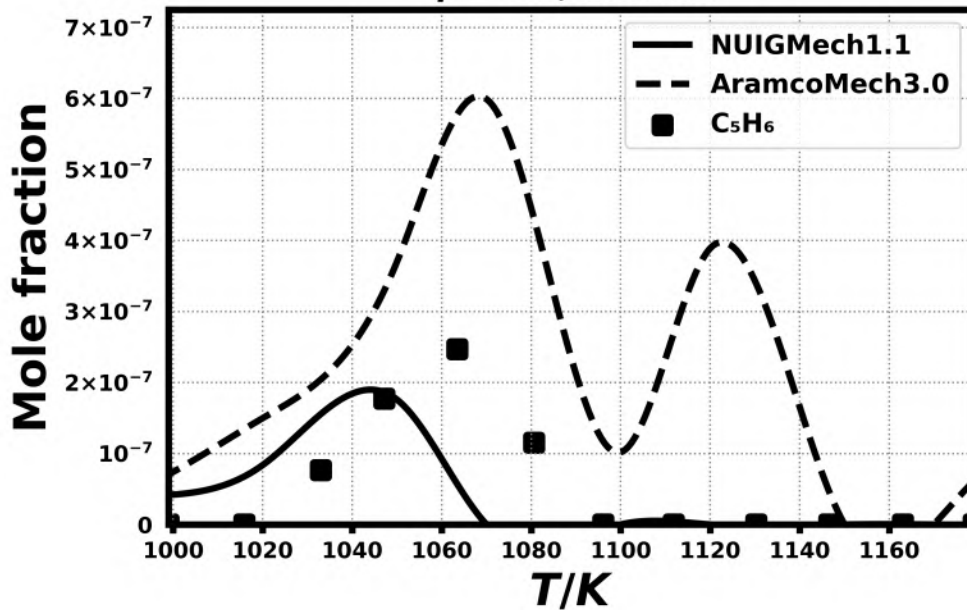
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



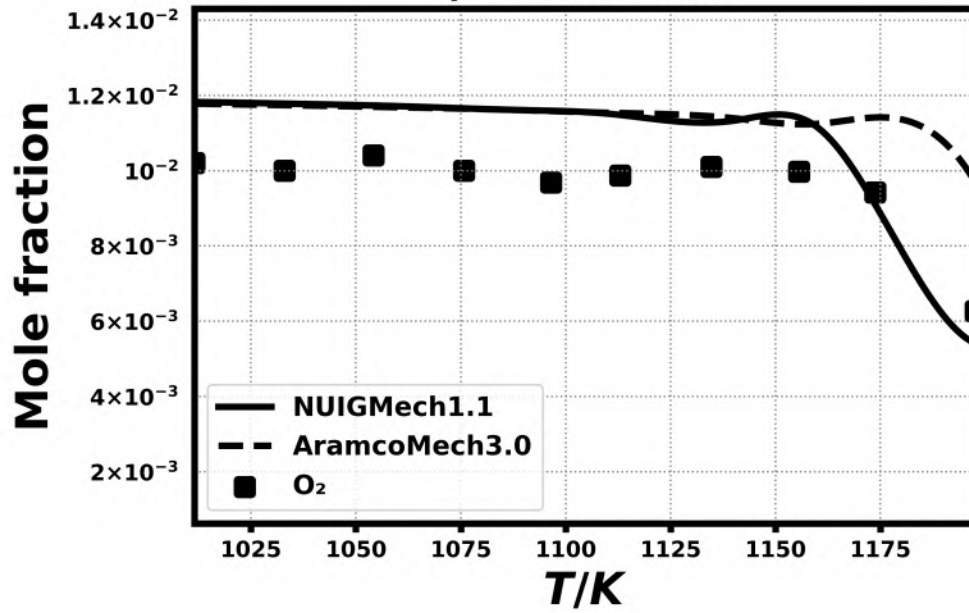
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



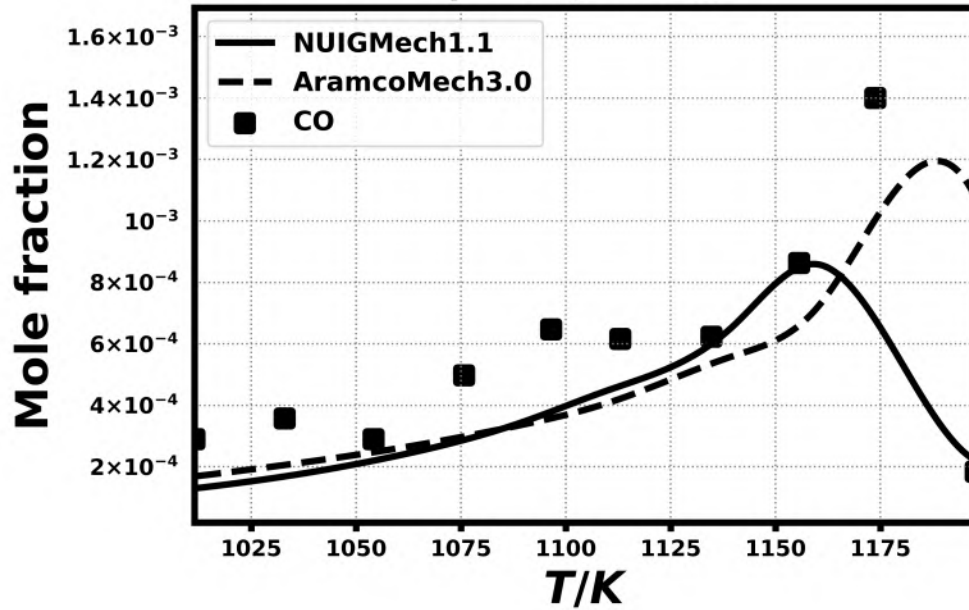
0.15% C₃H₄-P
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



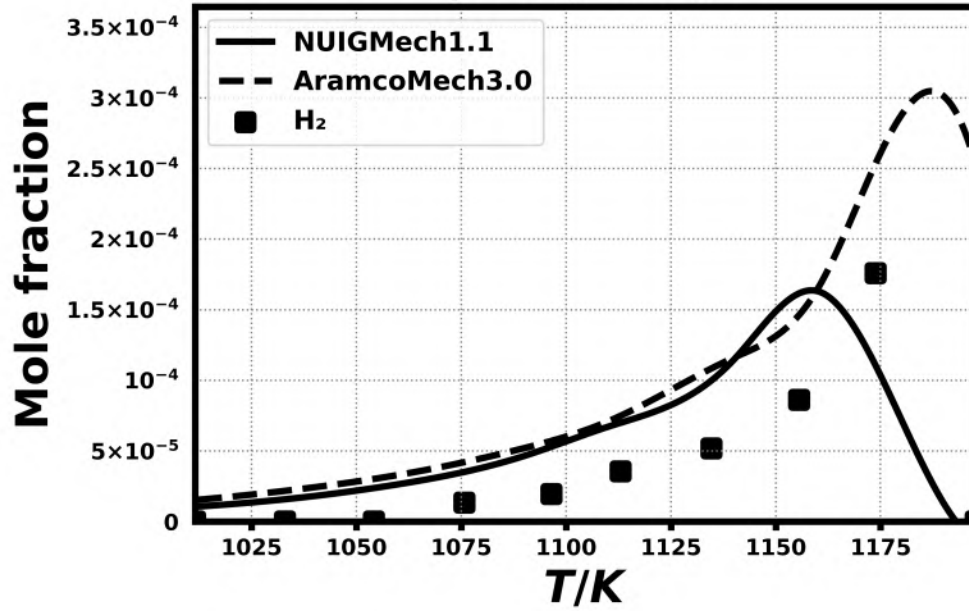
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



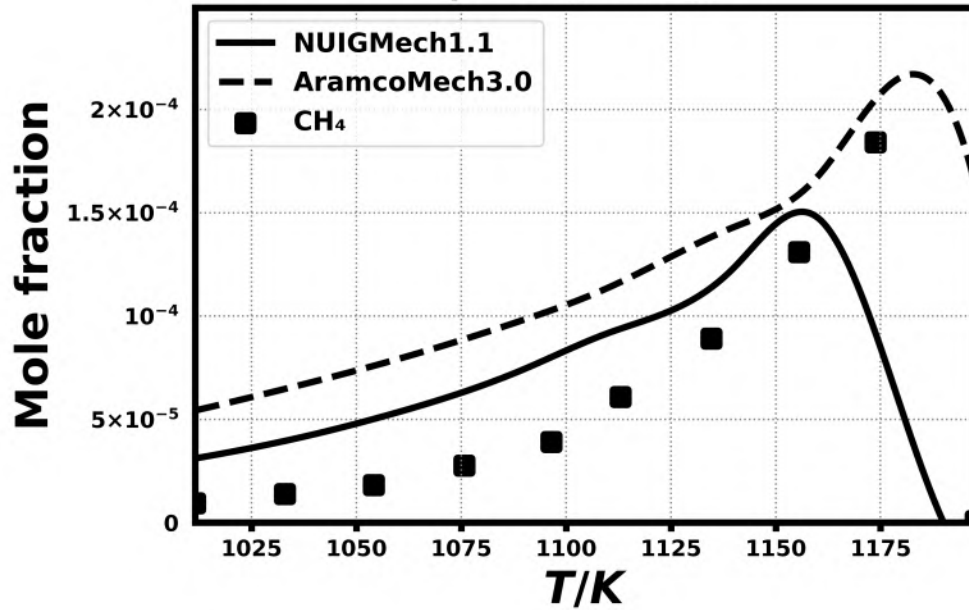
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



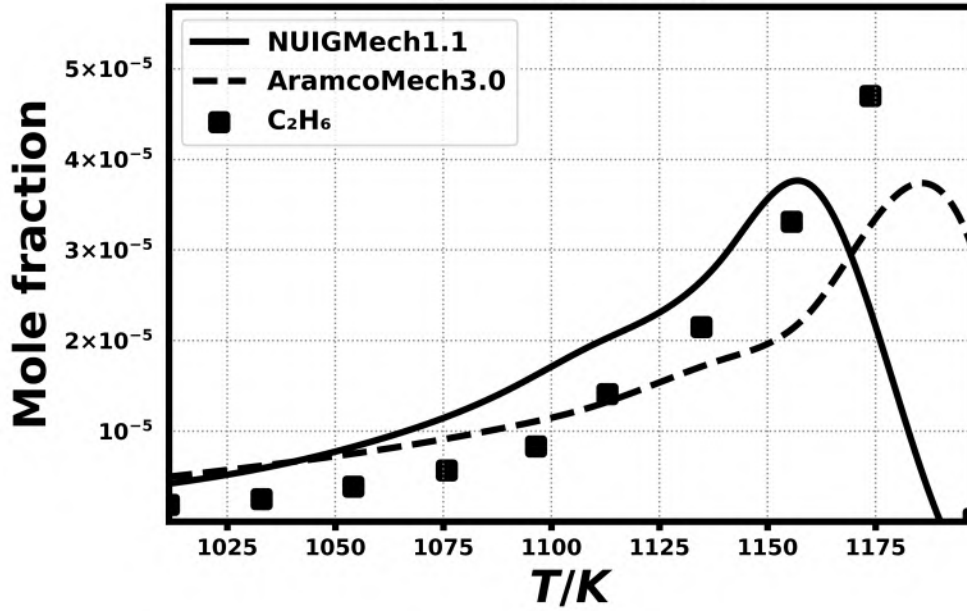
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



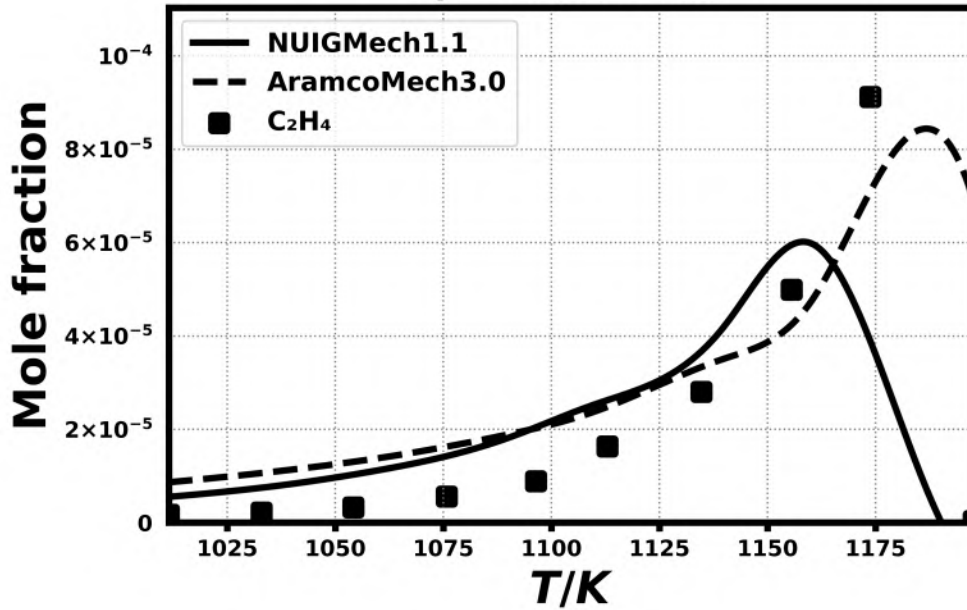
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



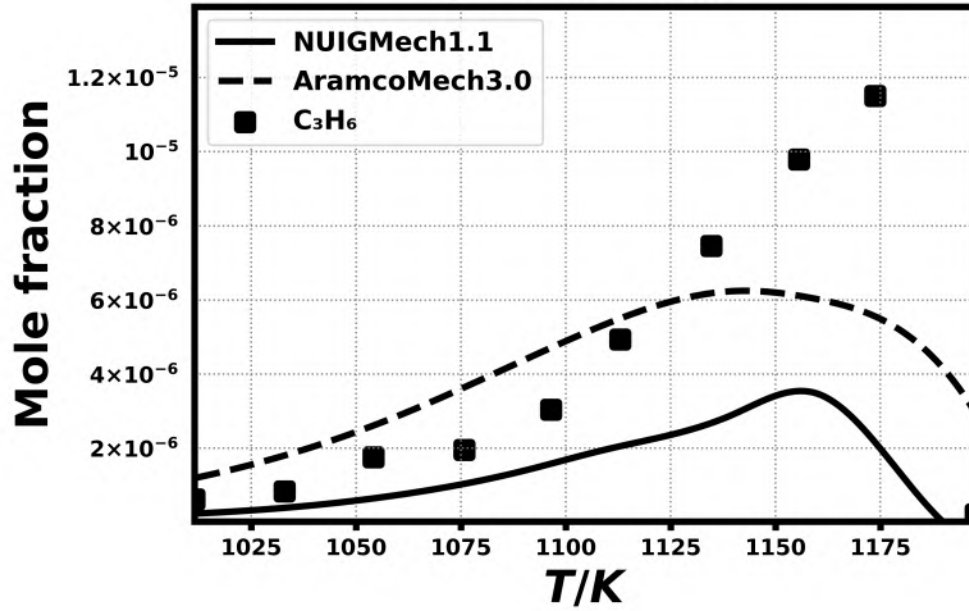
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



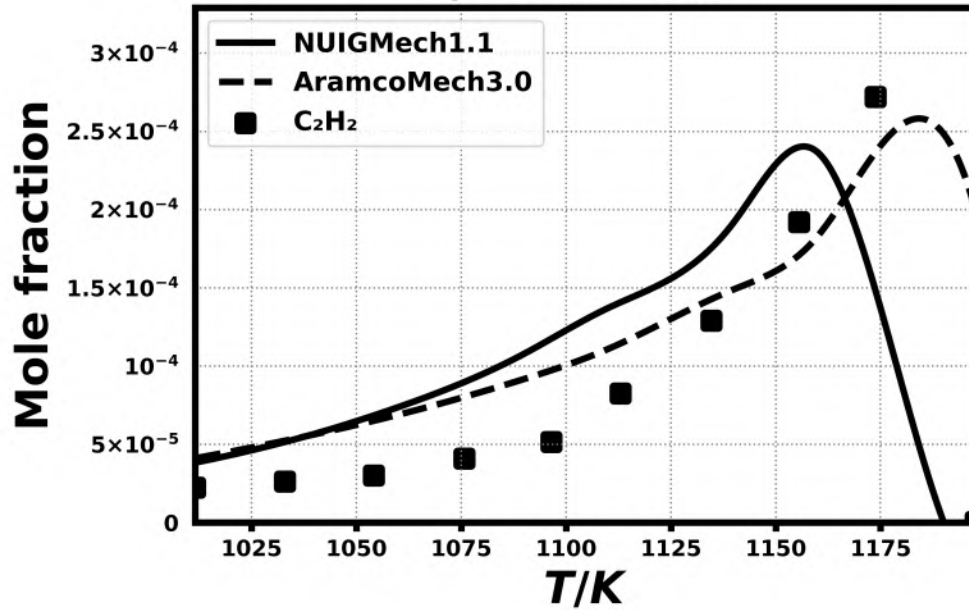
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



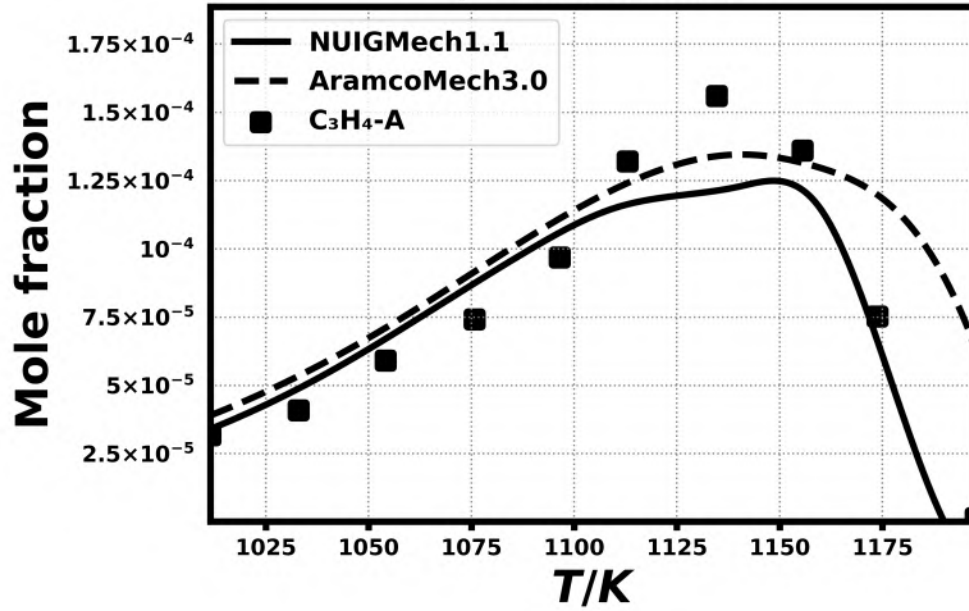
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5$, 1.0 atm



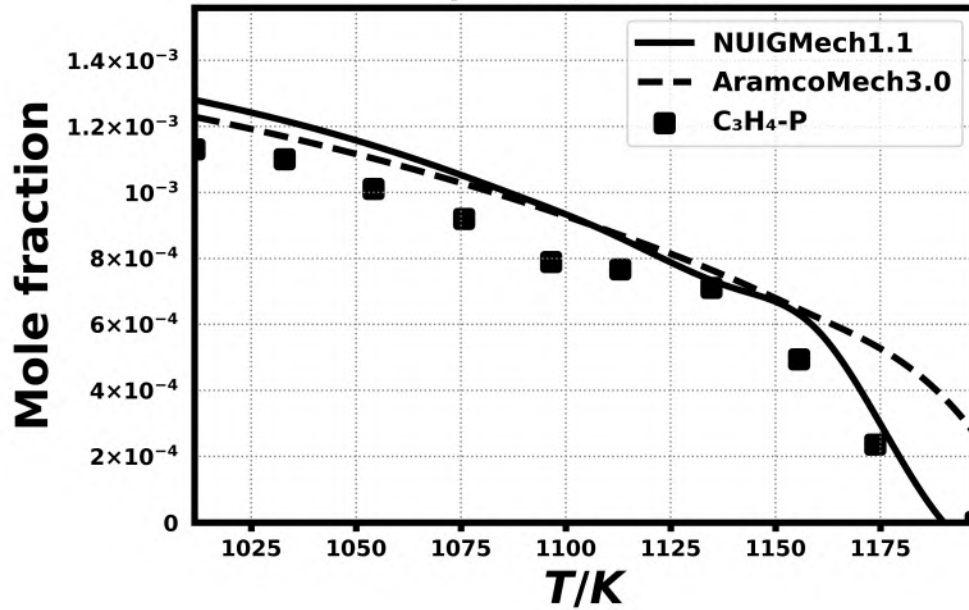
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5$, 1.0 atm



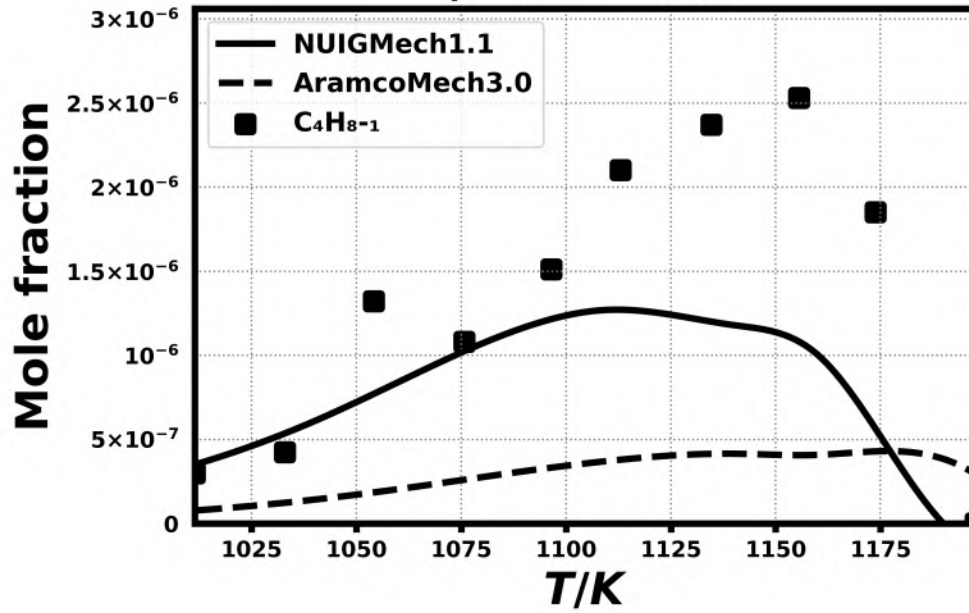
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



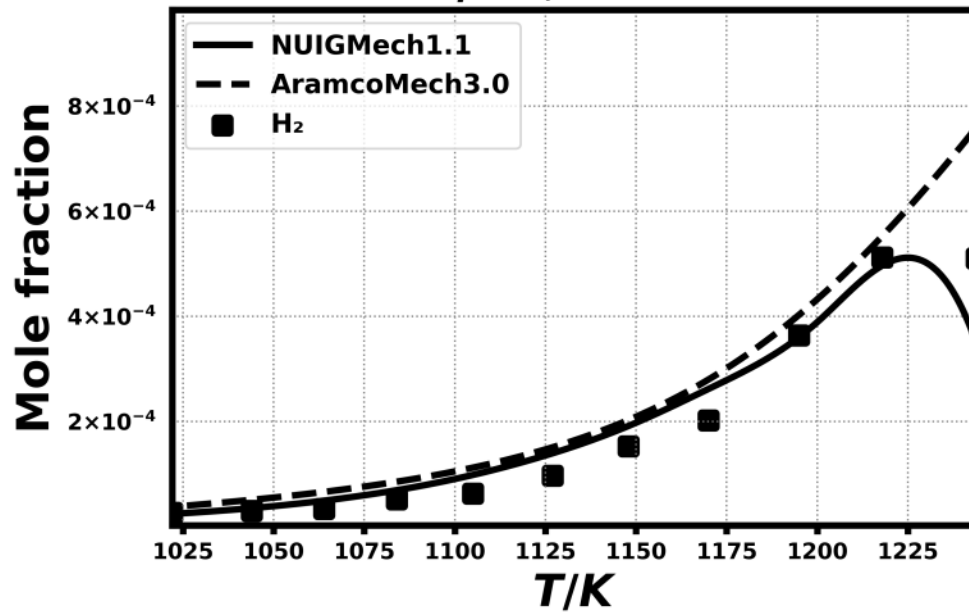
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



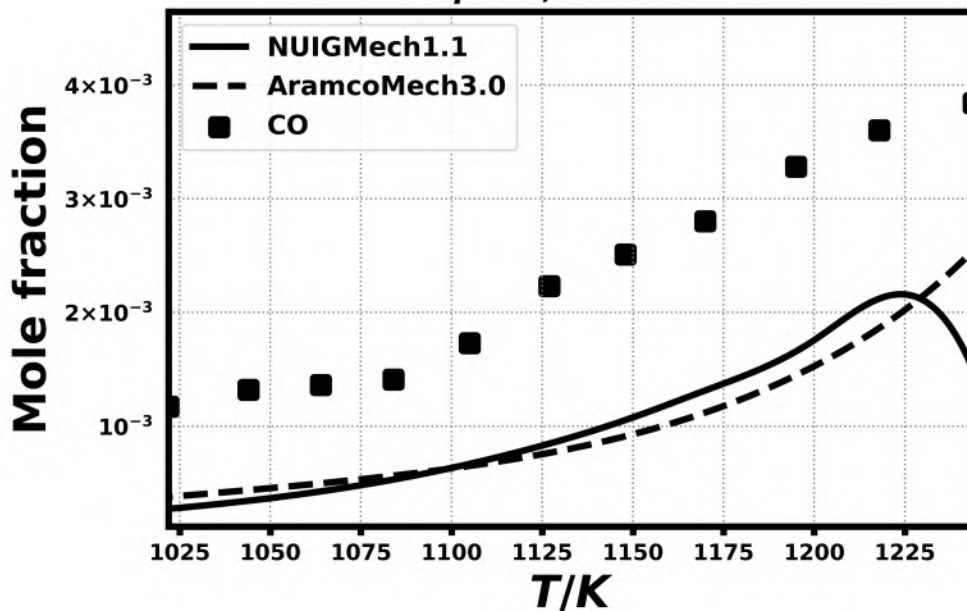
0.15% C₃H₄-P
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



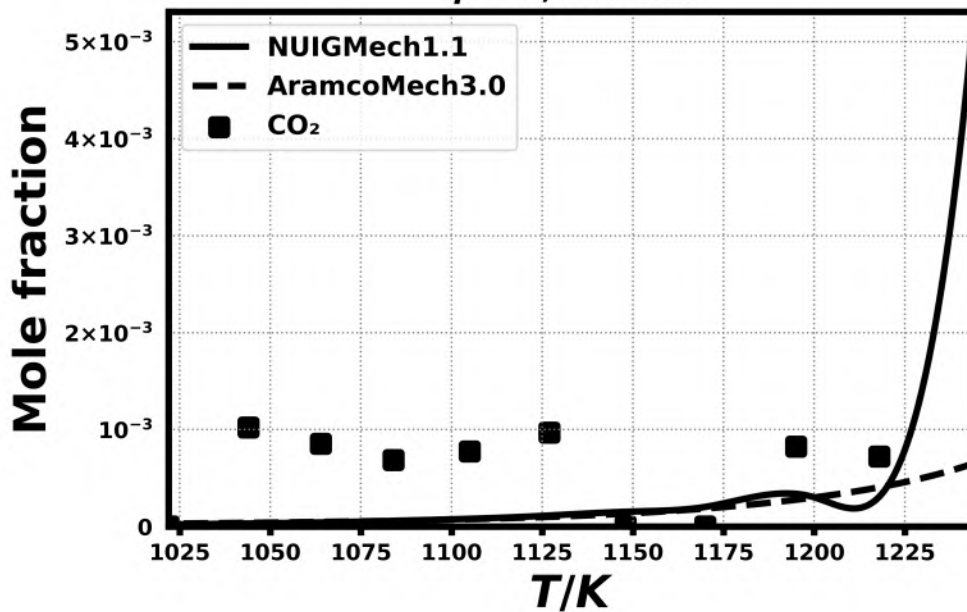
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



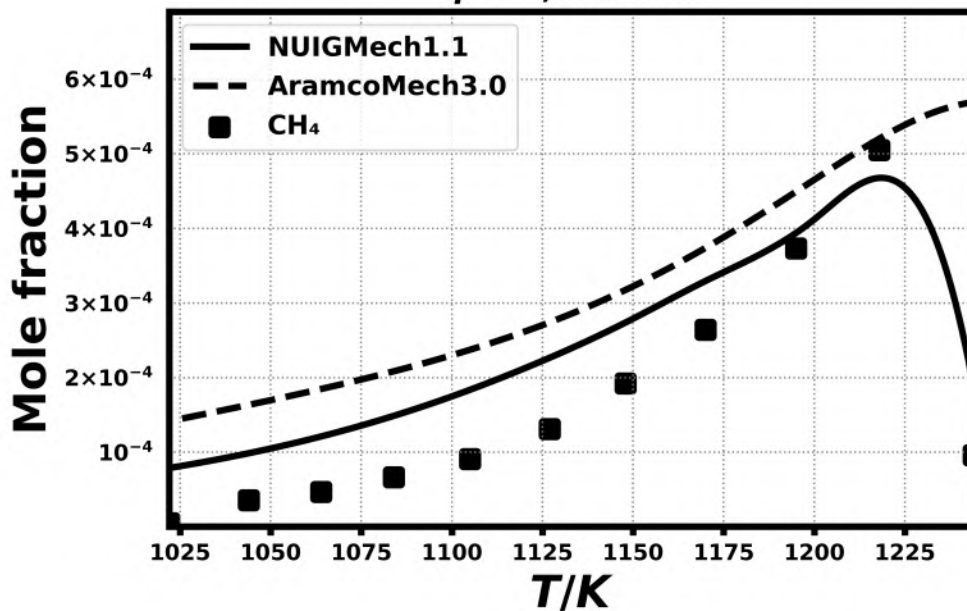
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



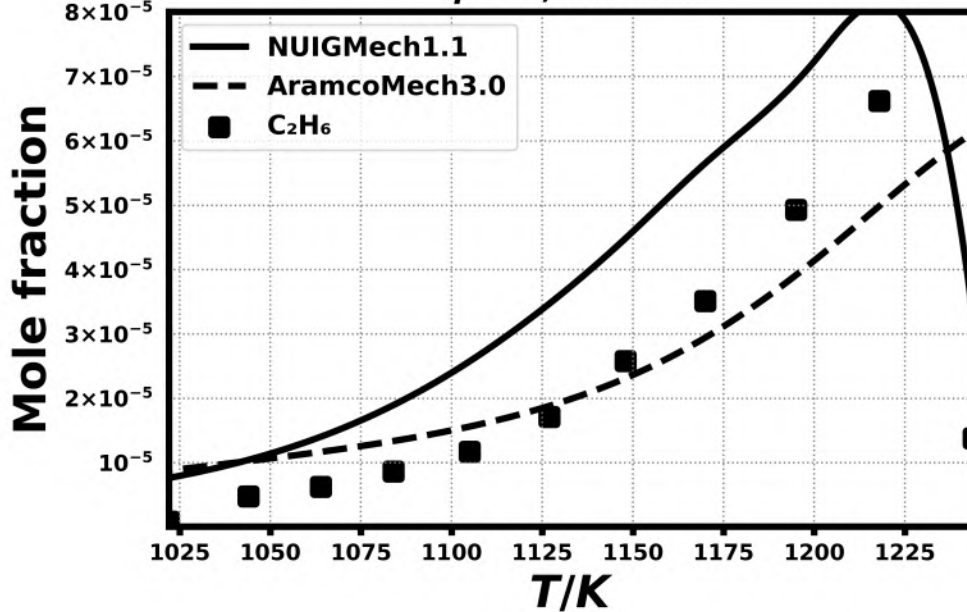
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



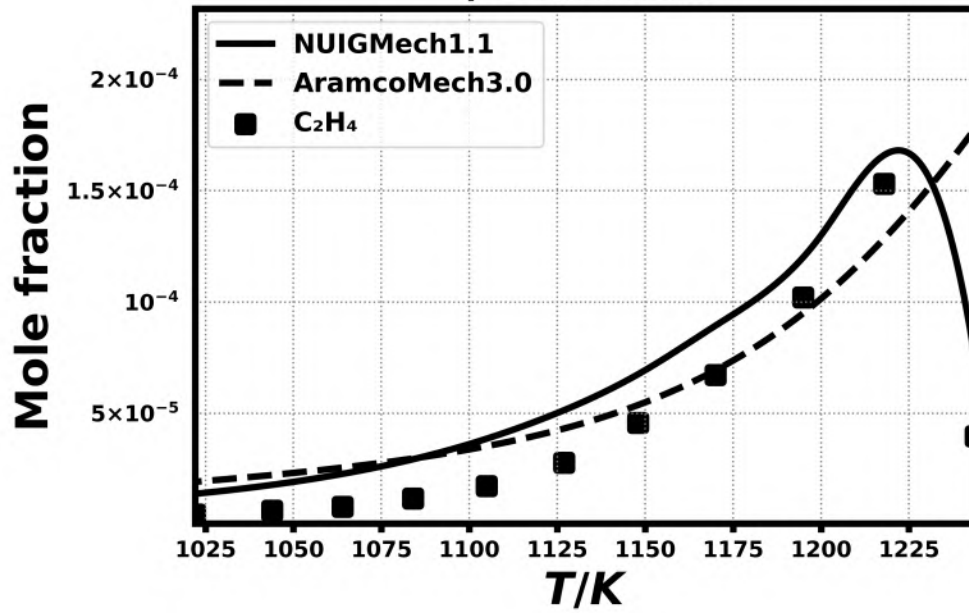
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



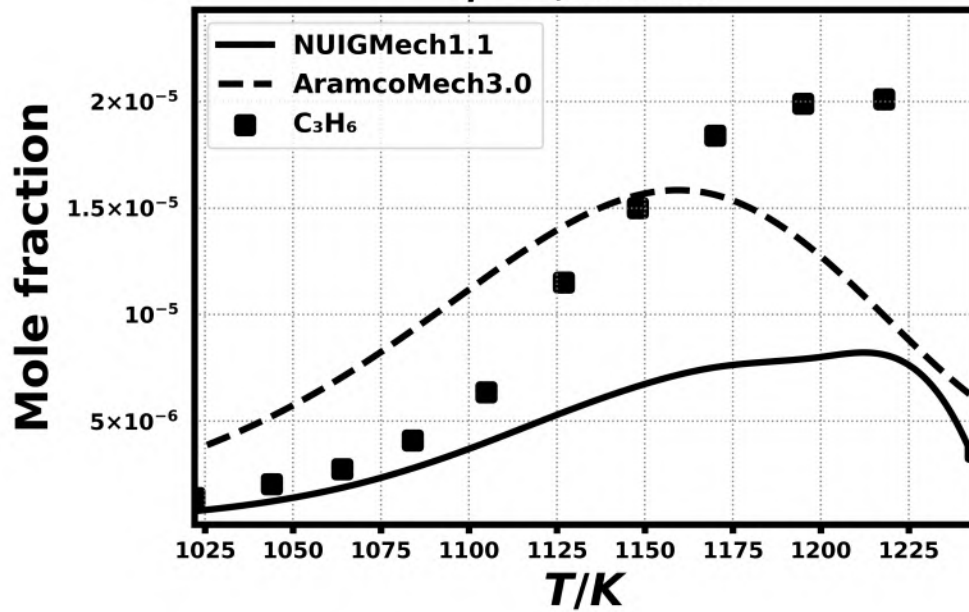
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



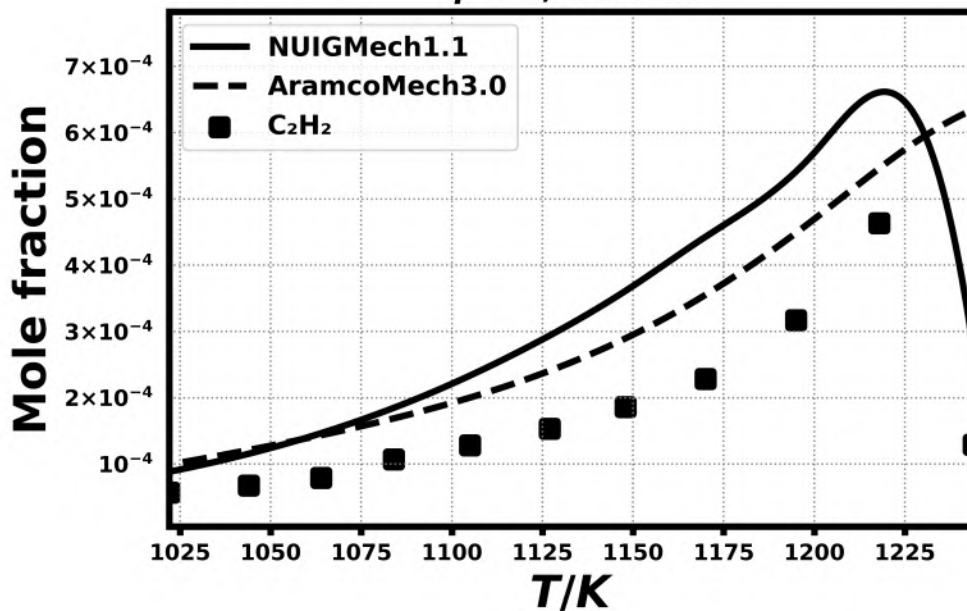
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



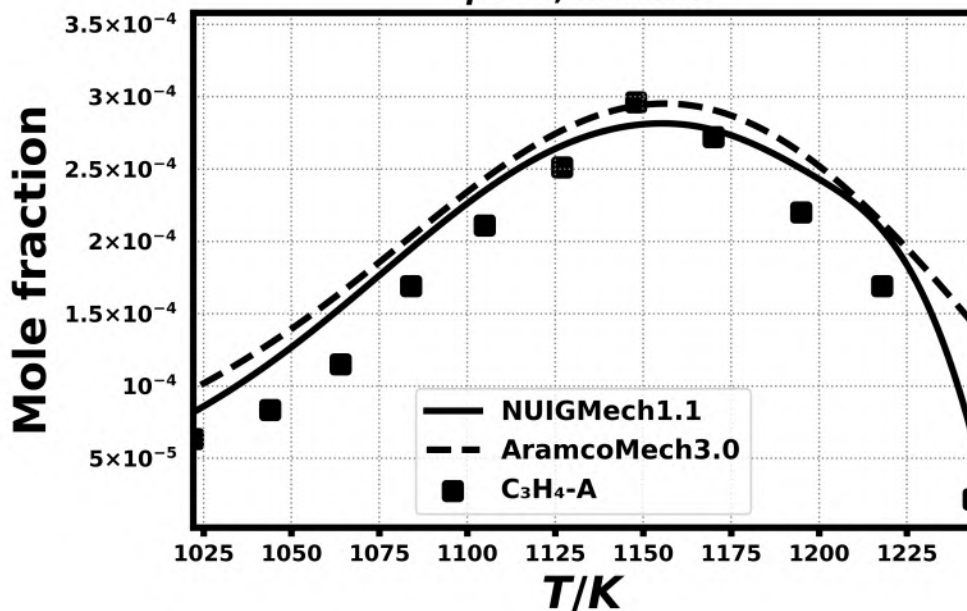
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



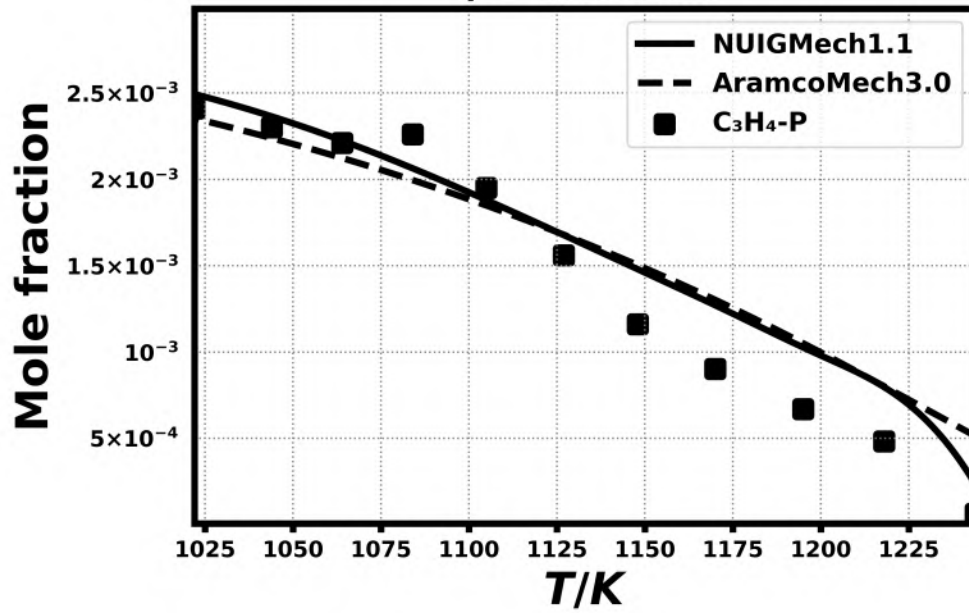
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



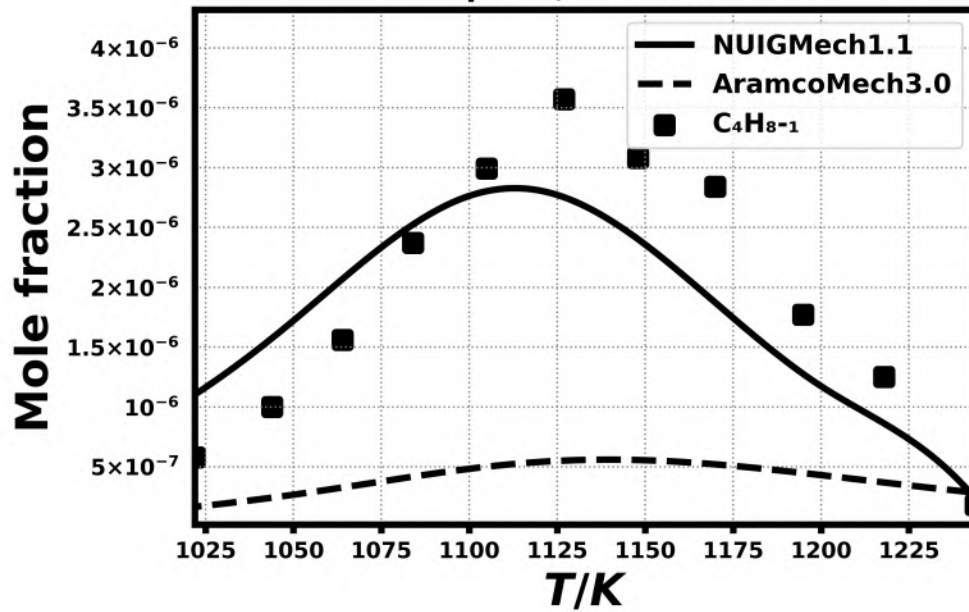
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



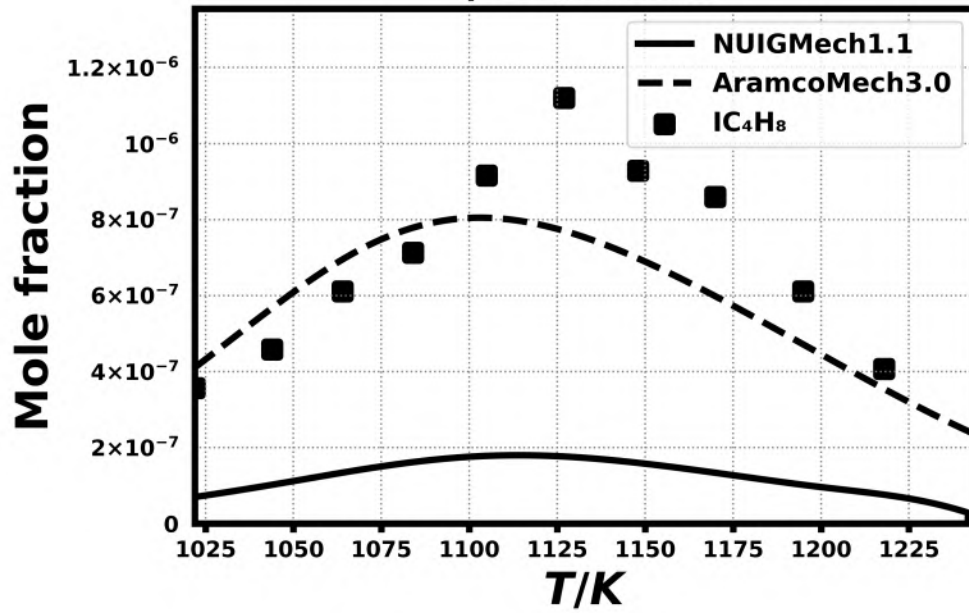
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



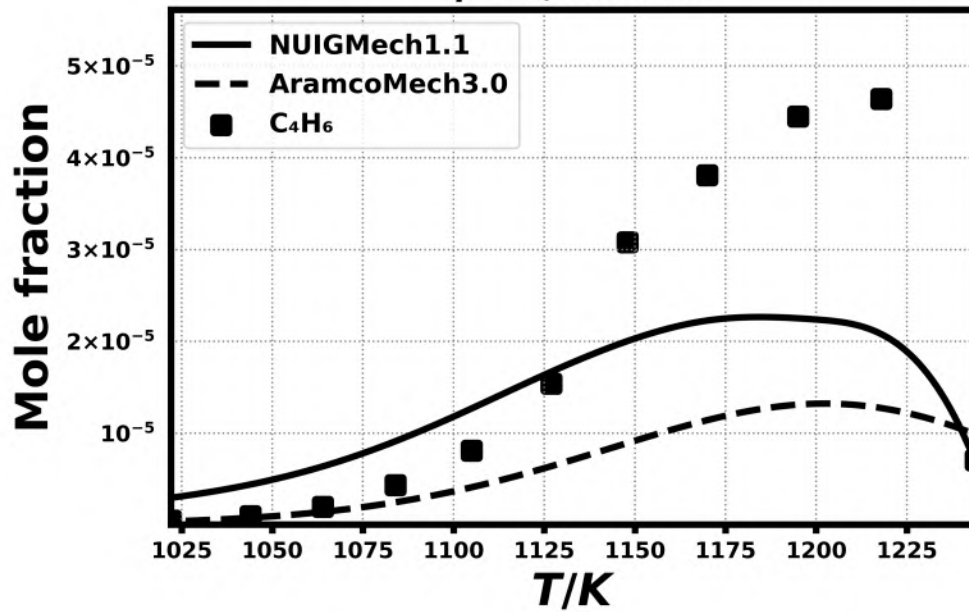
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



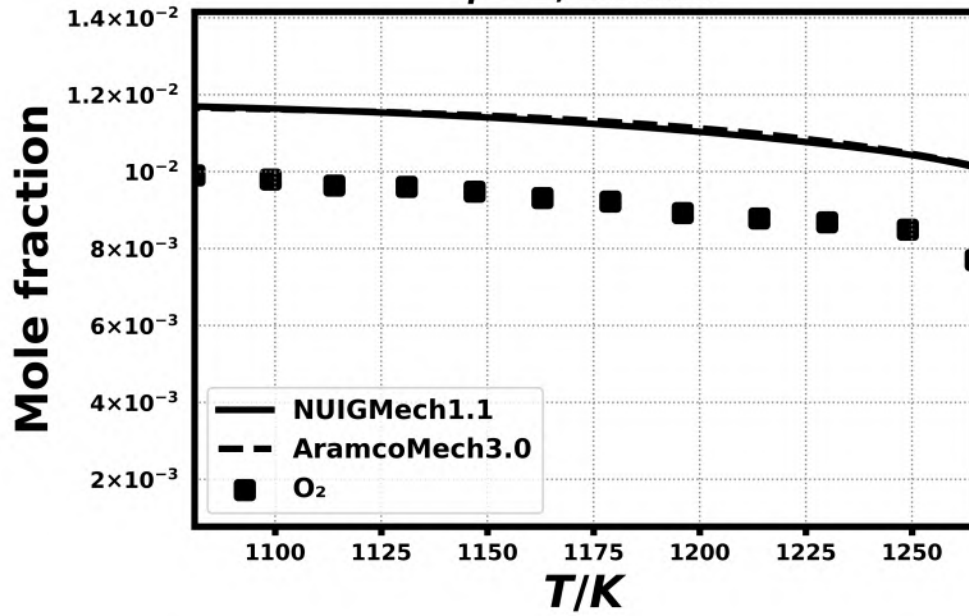
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



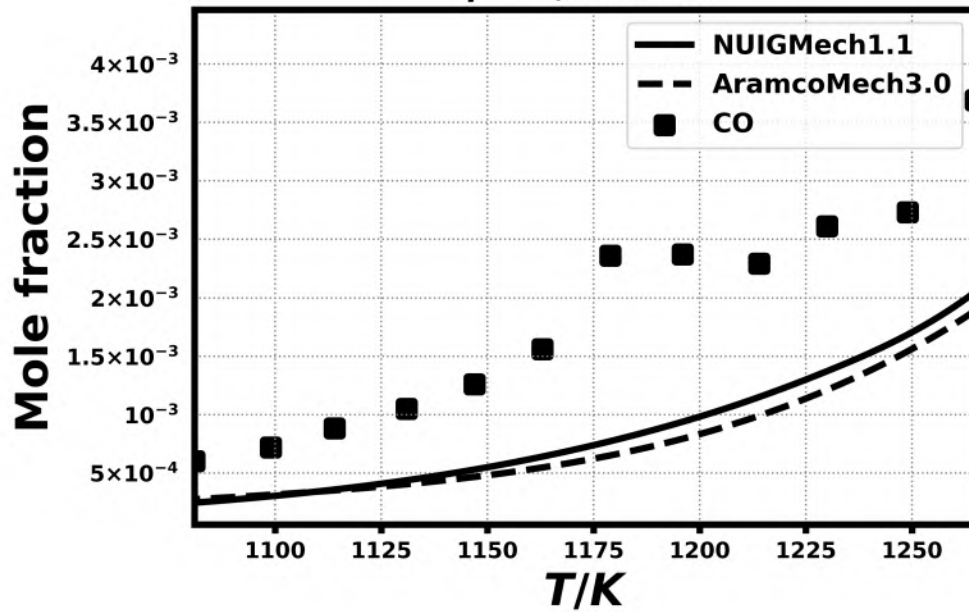
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



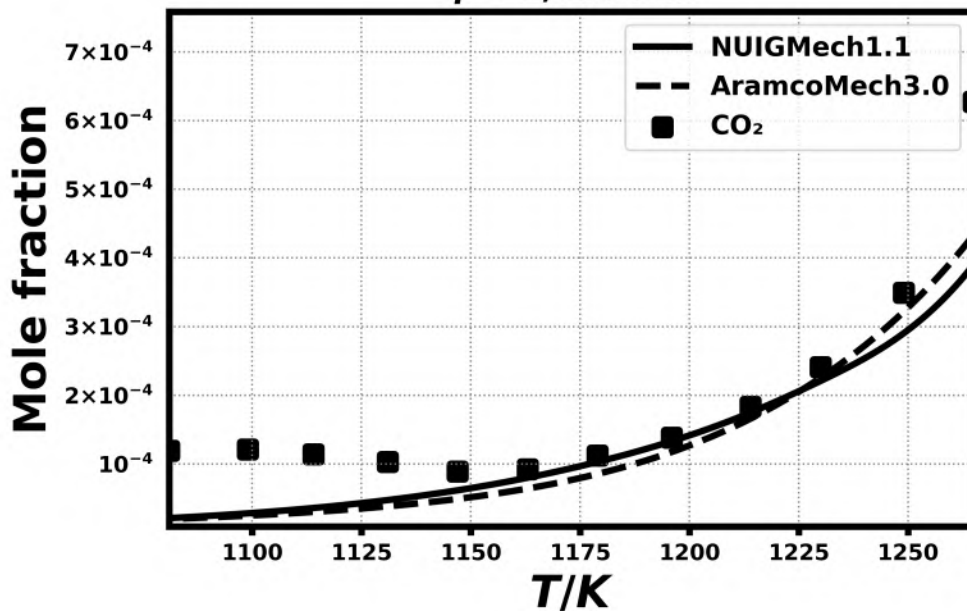
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



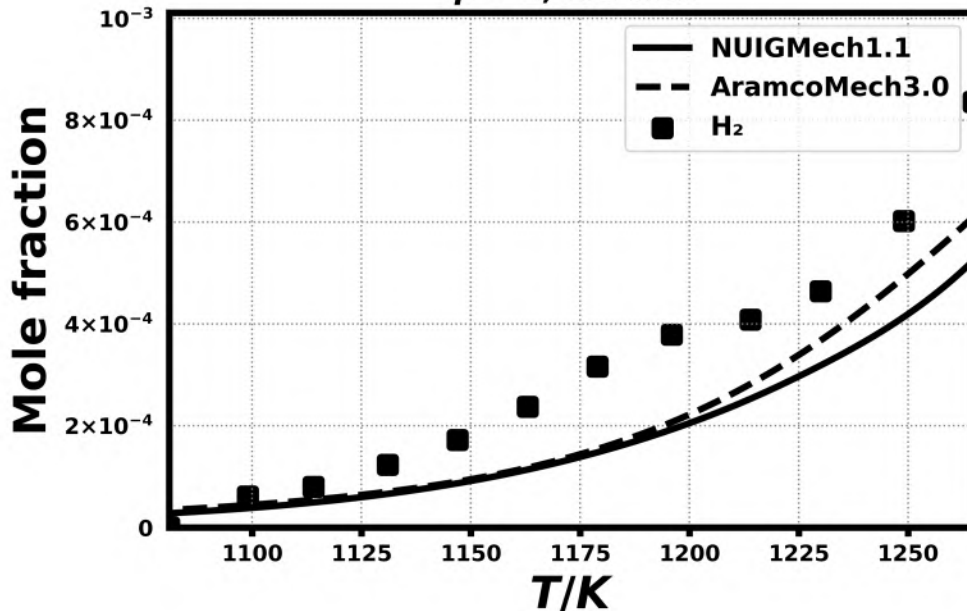
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



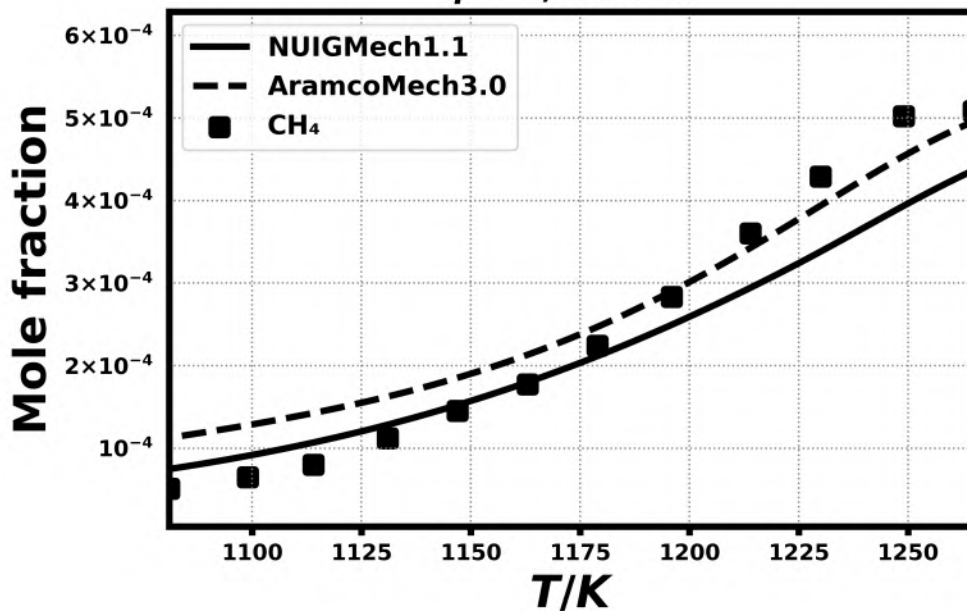
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



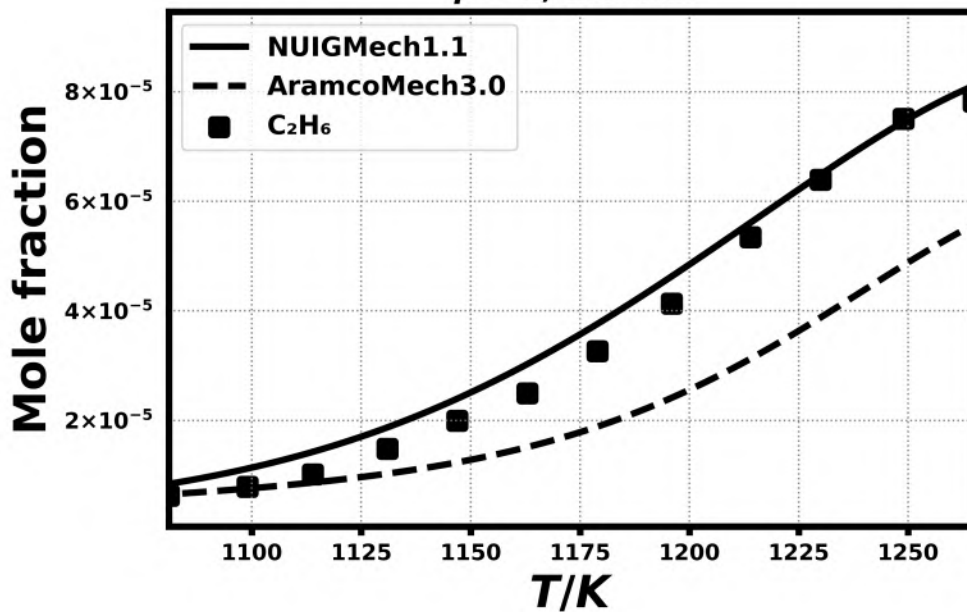
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



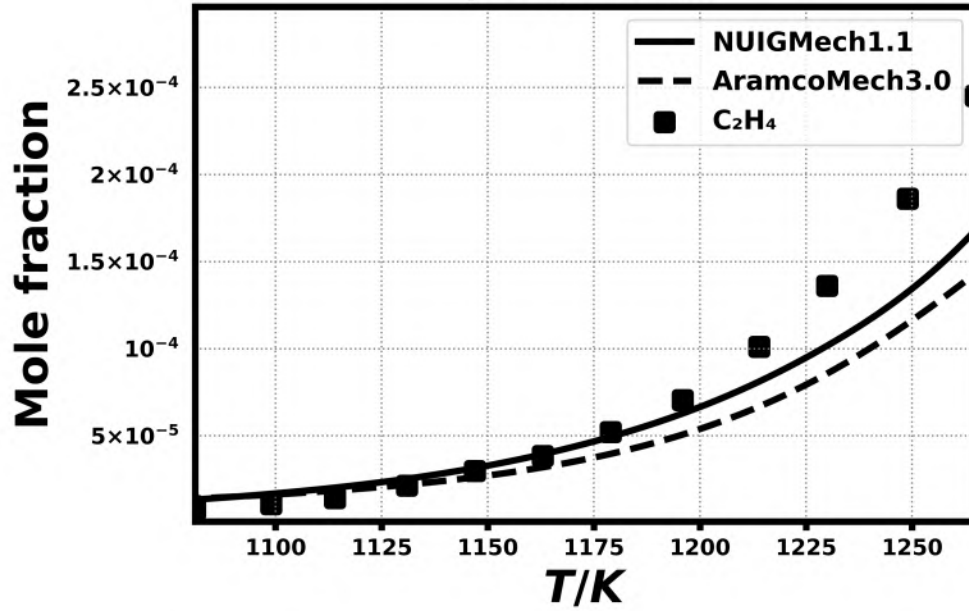
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



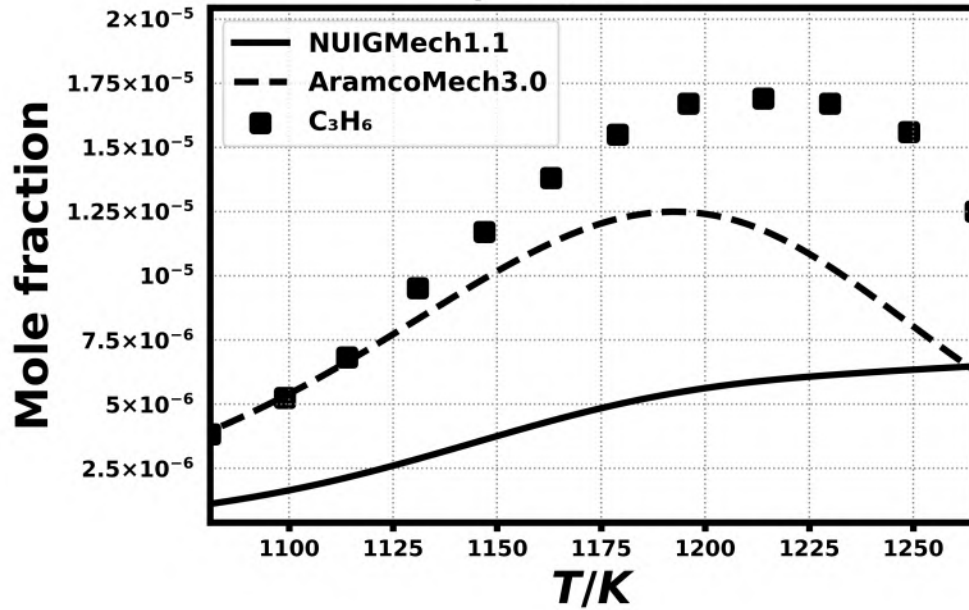
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



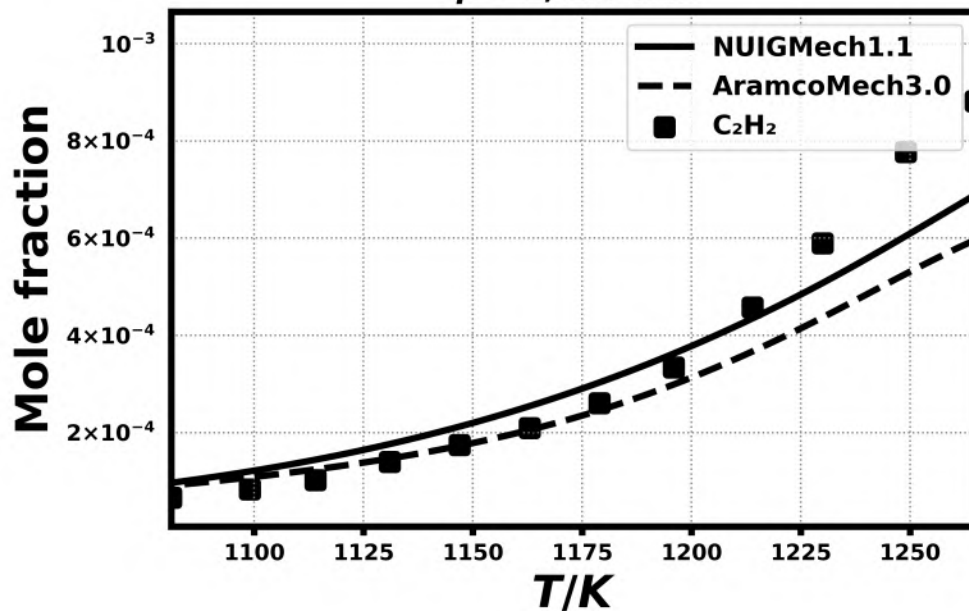
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



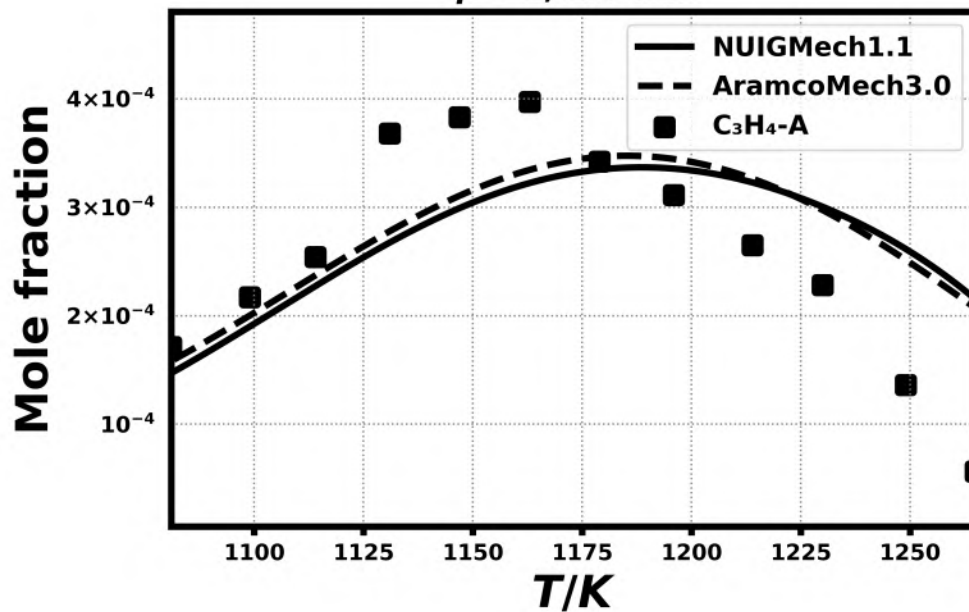
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



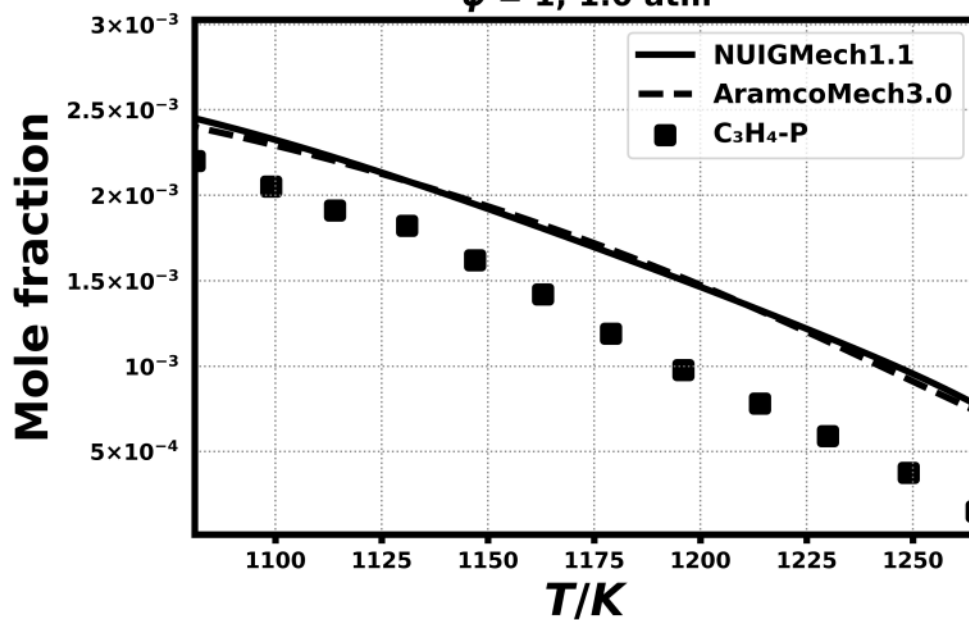
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



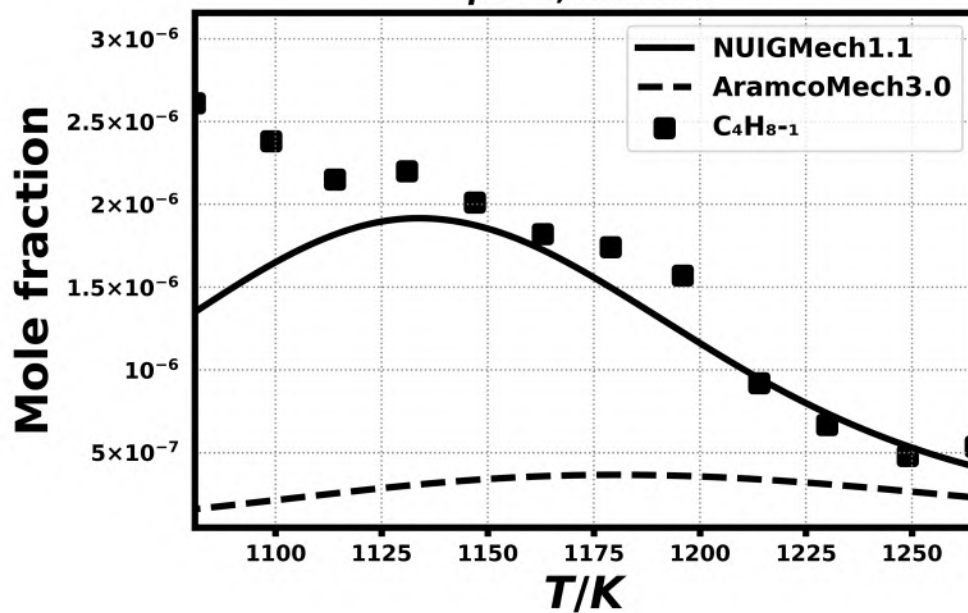
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



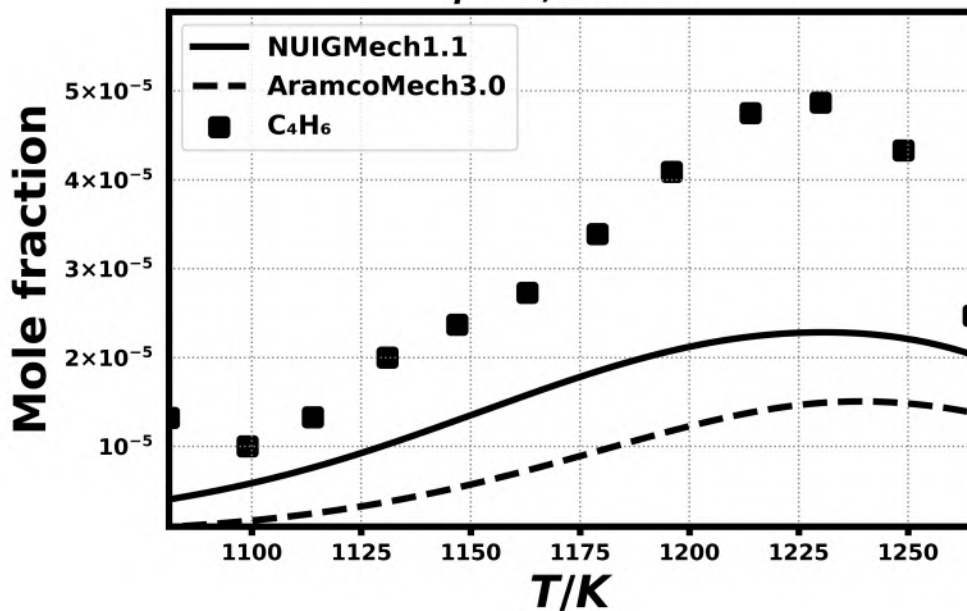
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



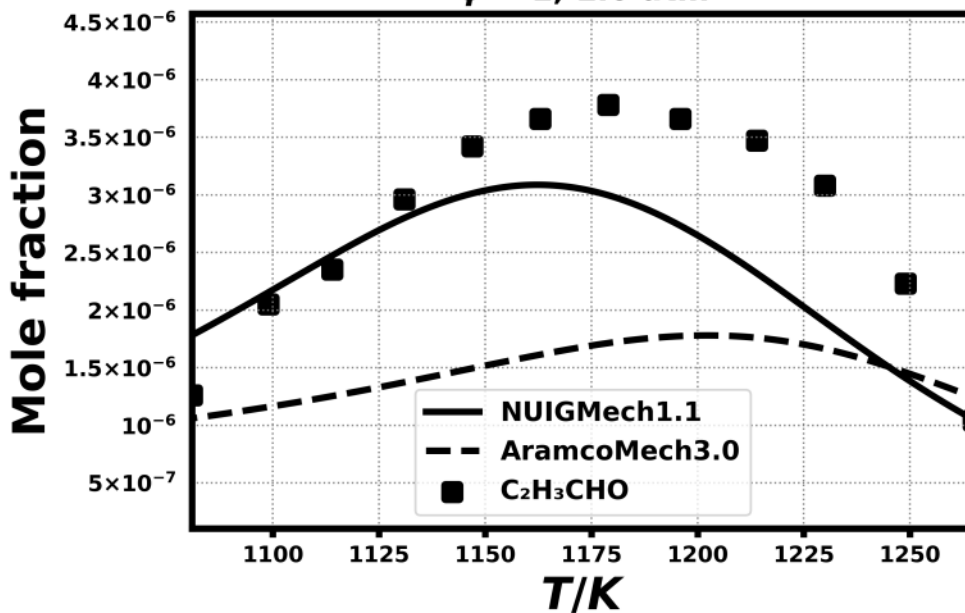
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



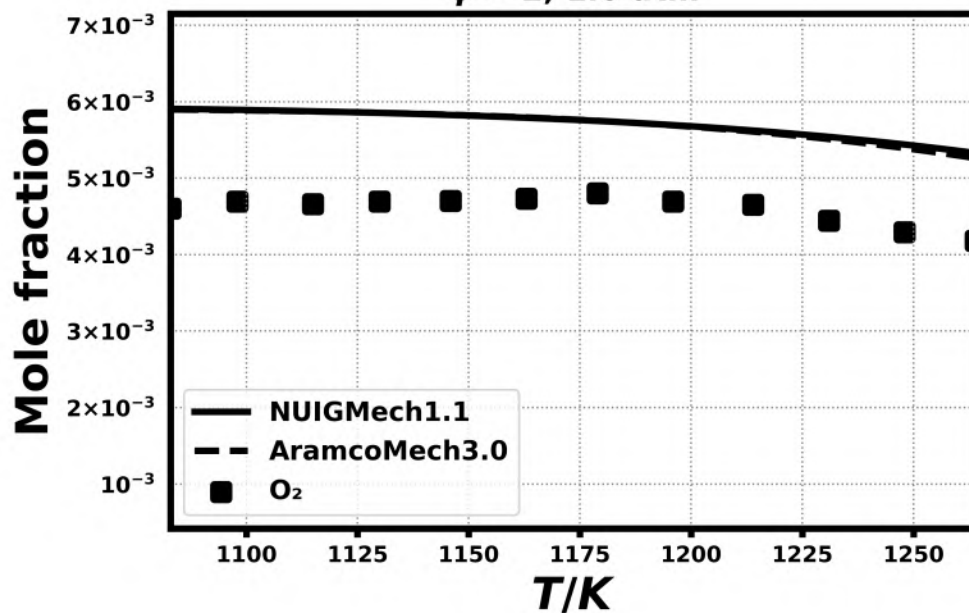
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



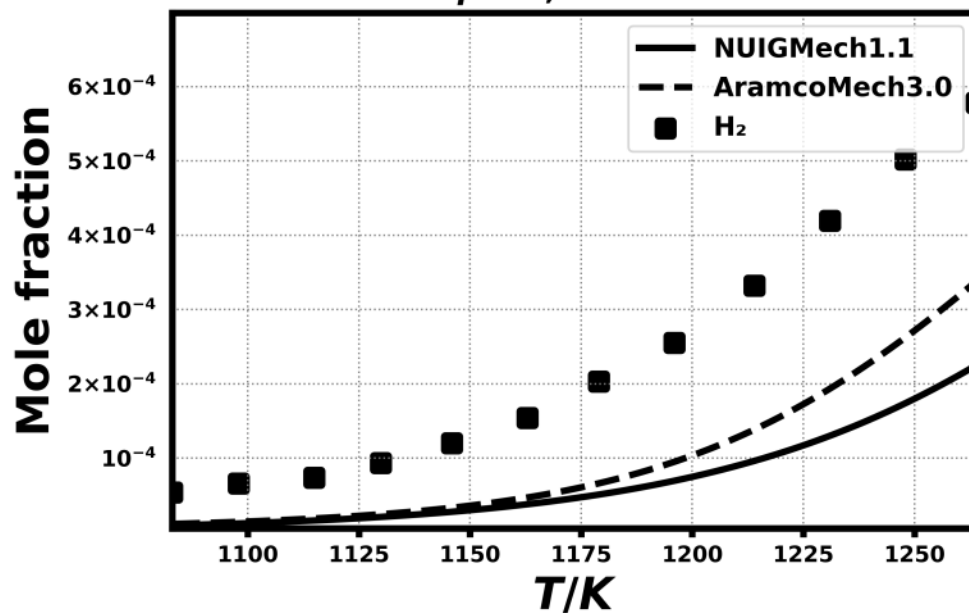
0.3% C₃H₄-P
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



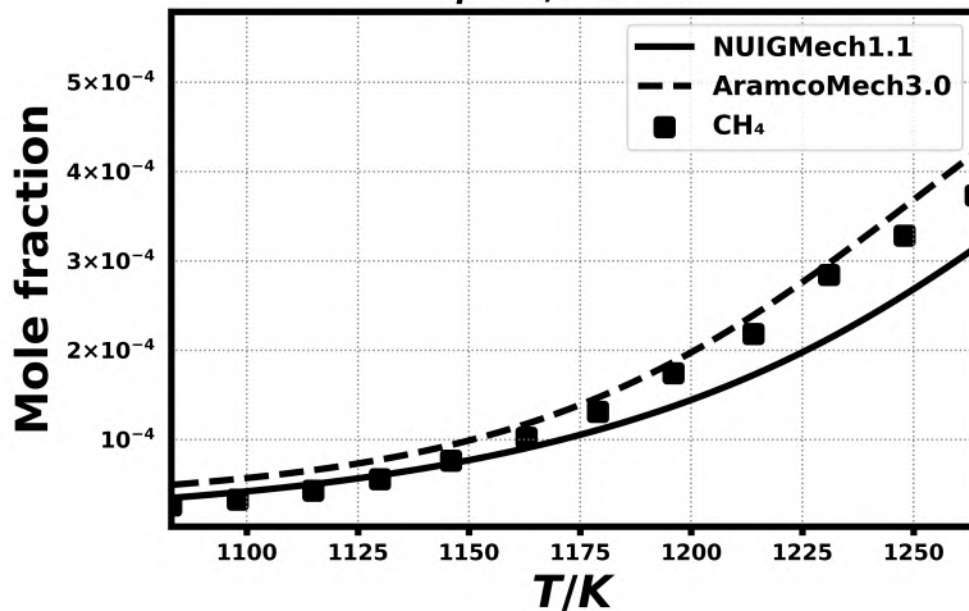
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



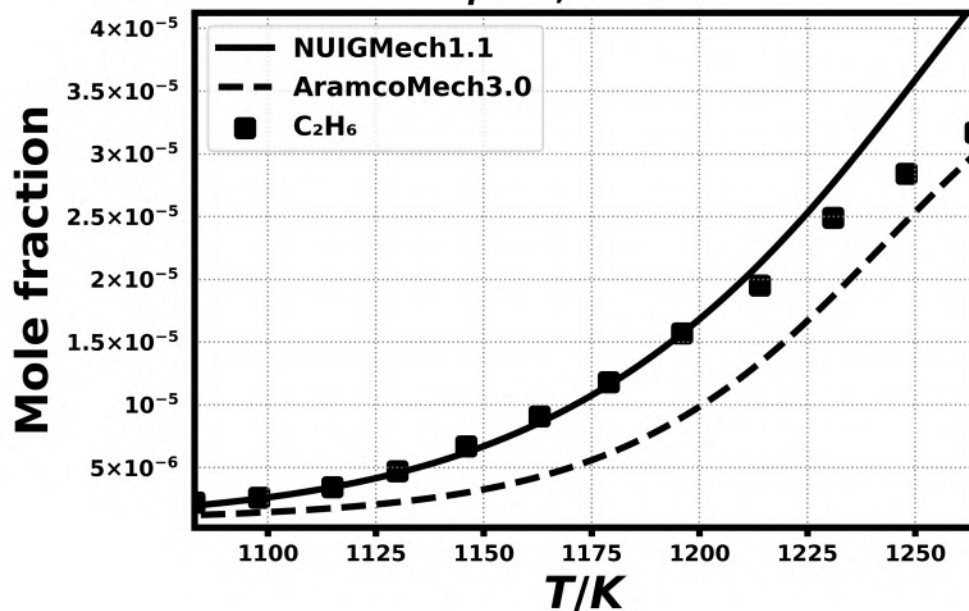
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



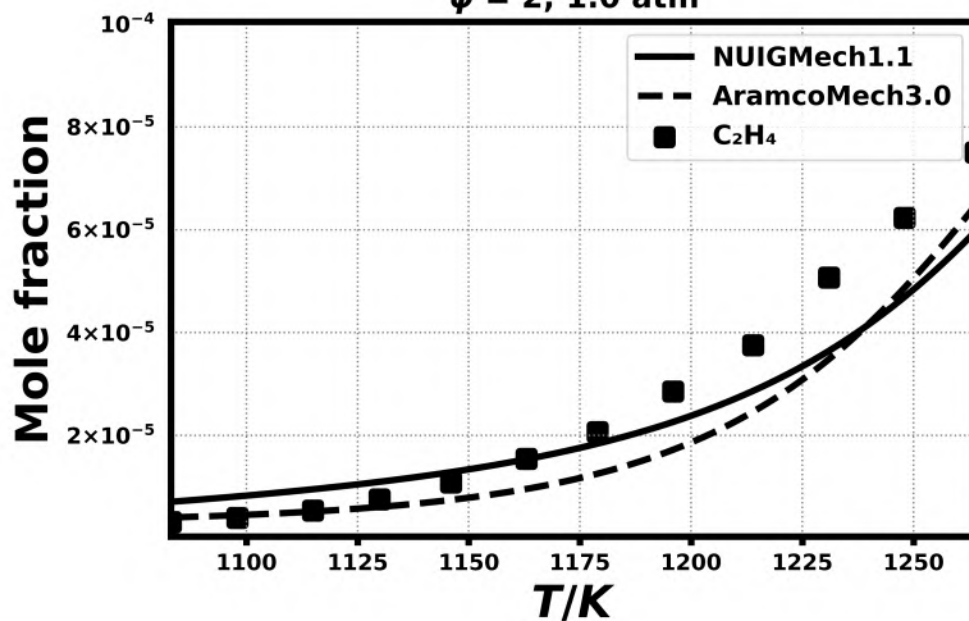
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



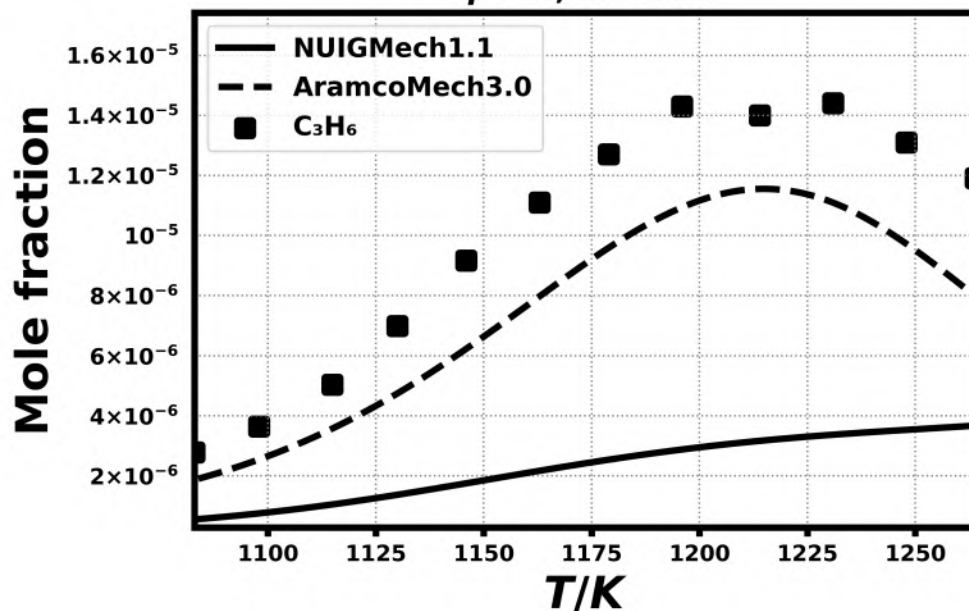
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



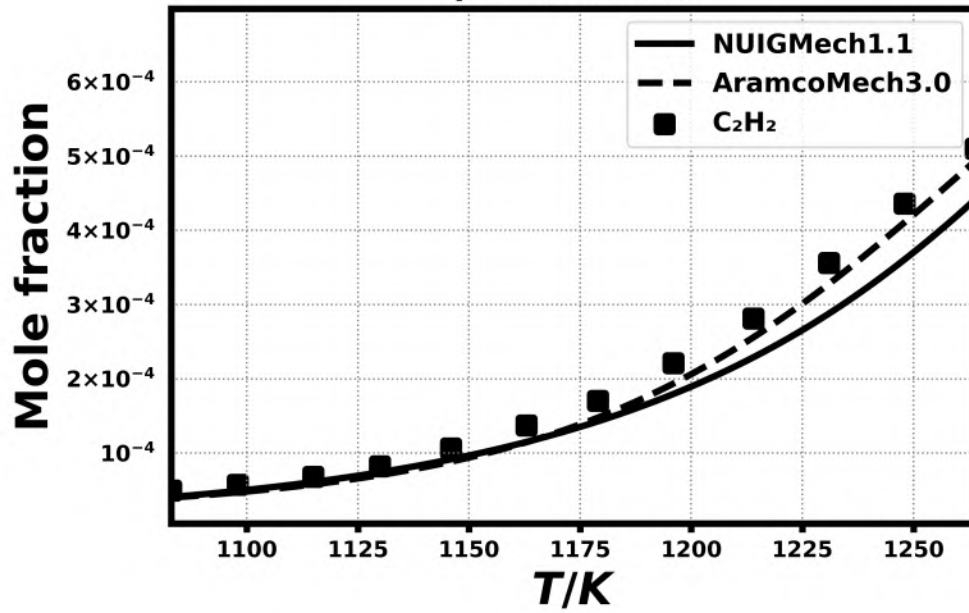
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



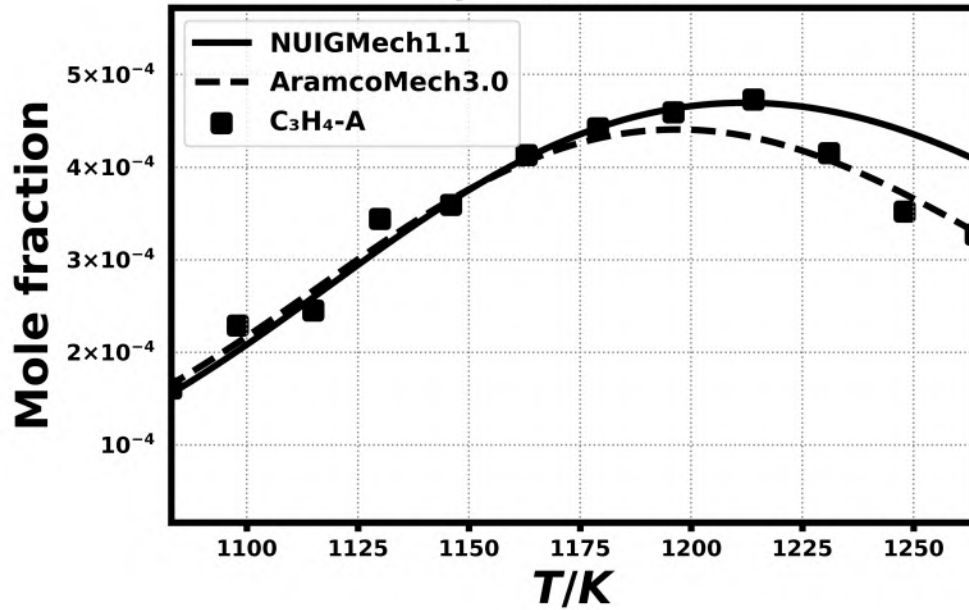
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



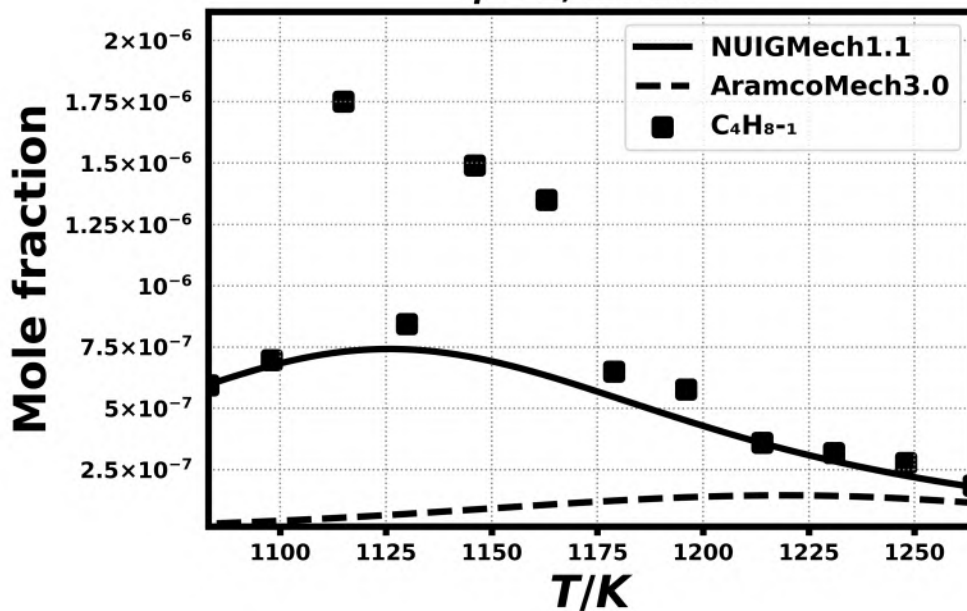
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



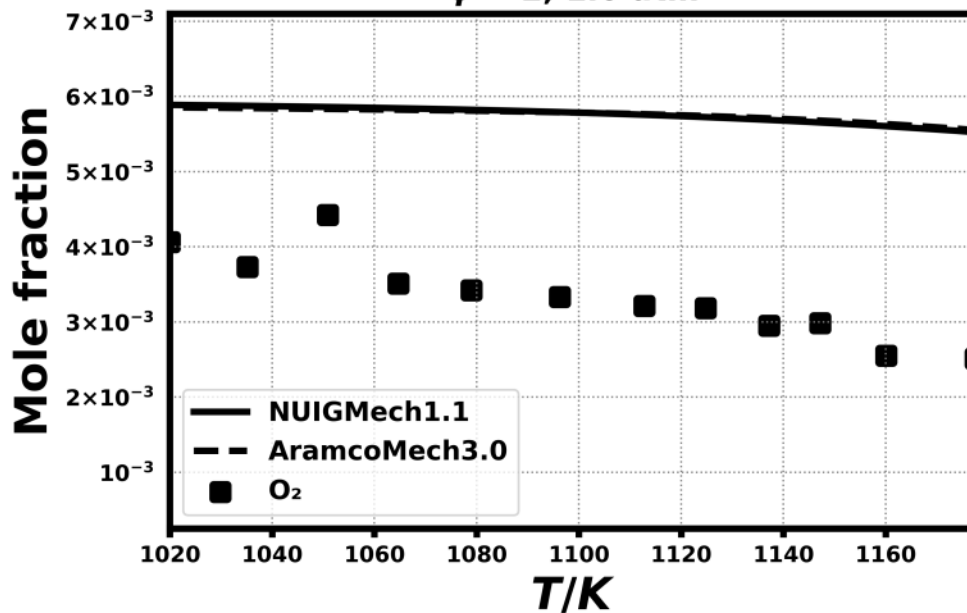
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



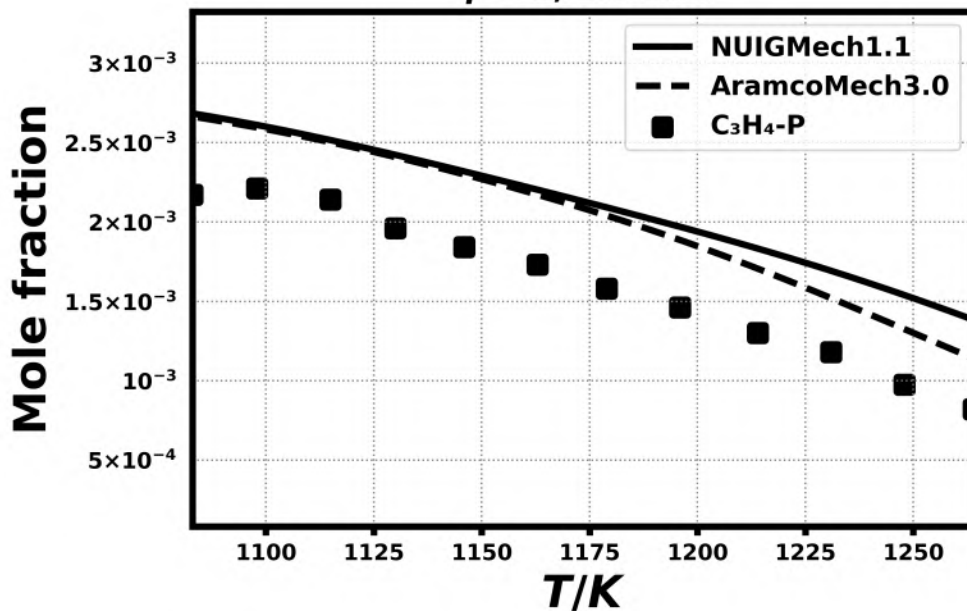
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



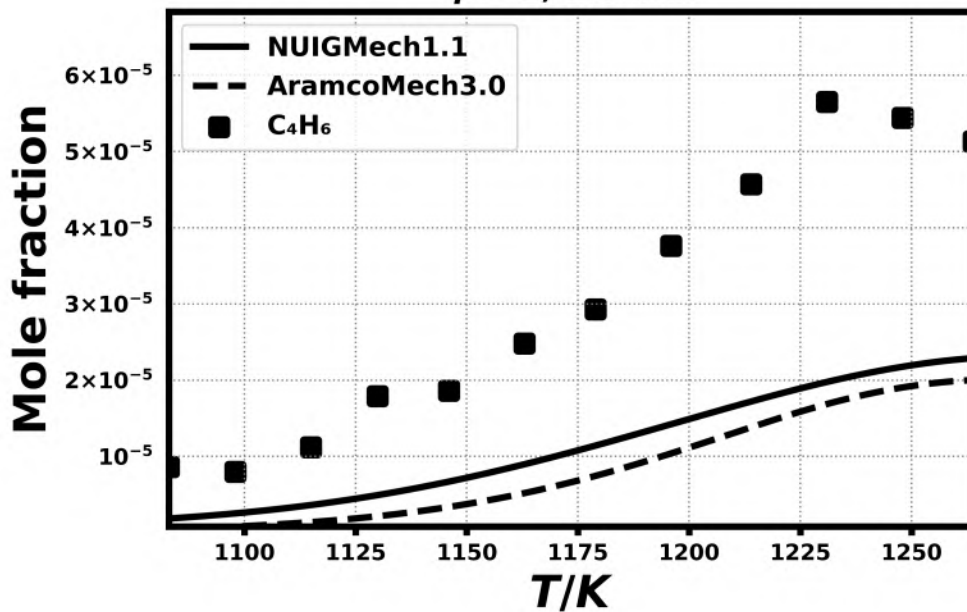
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



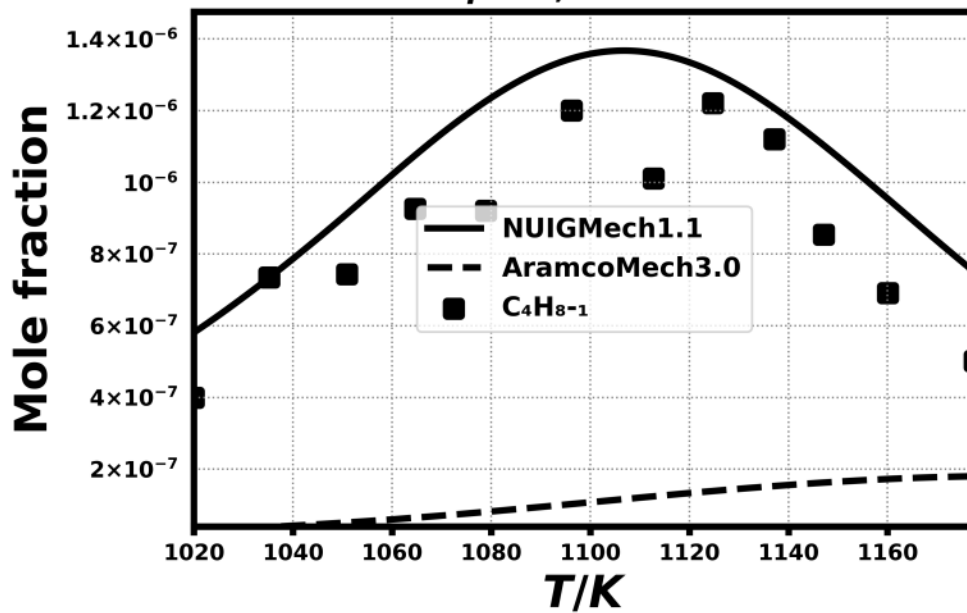
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



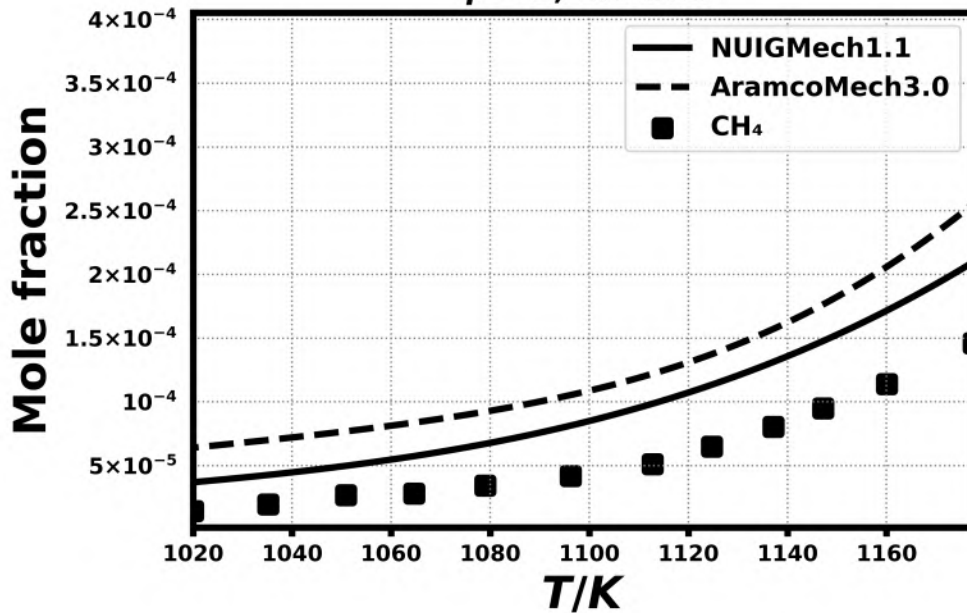
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



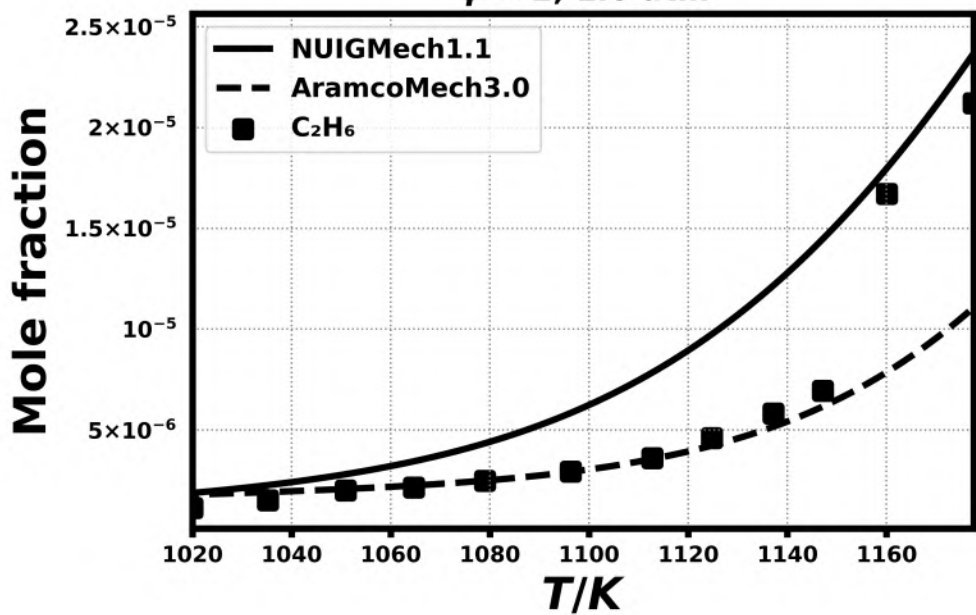
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



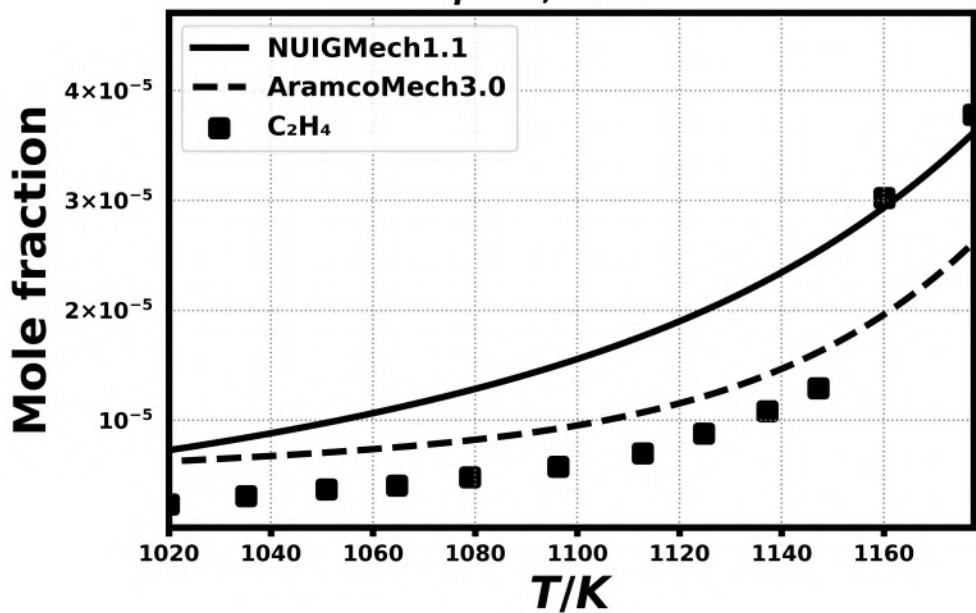
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



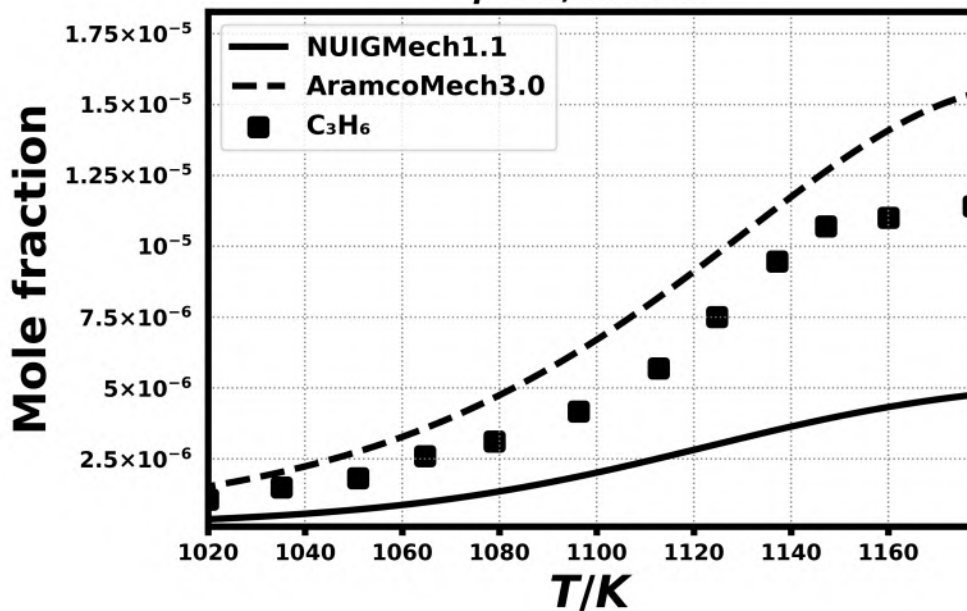
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



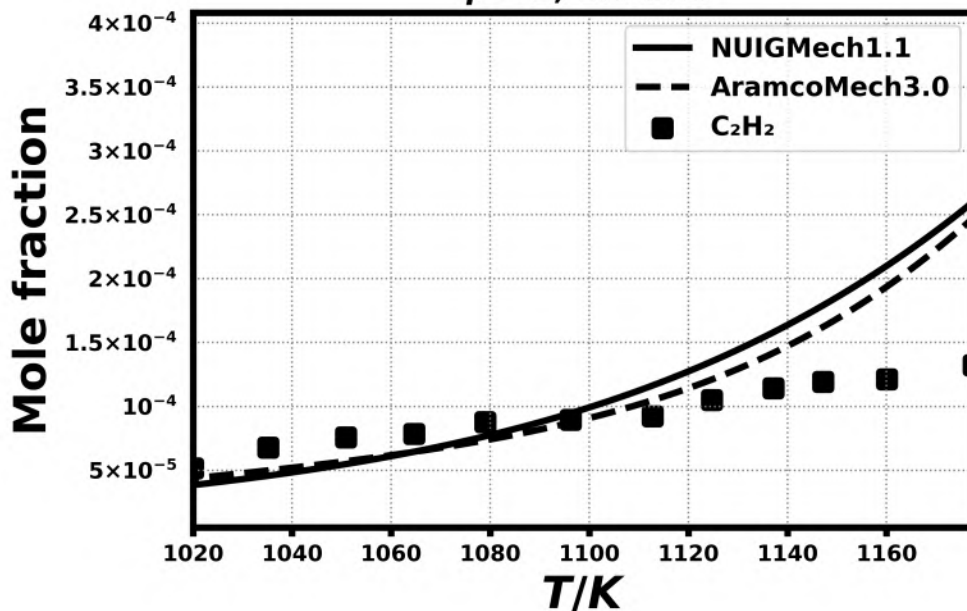
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



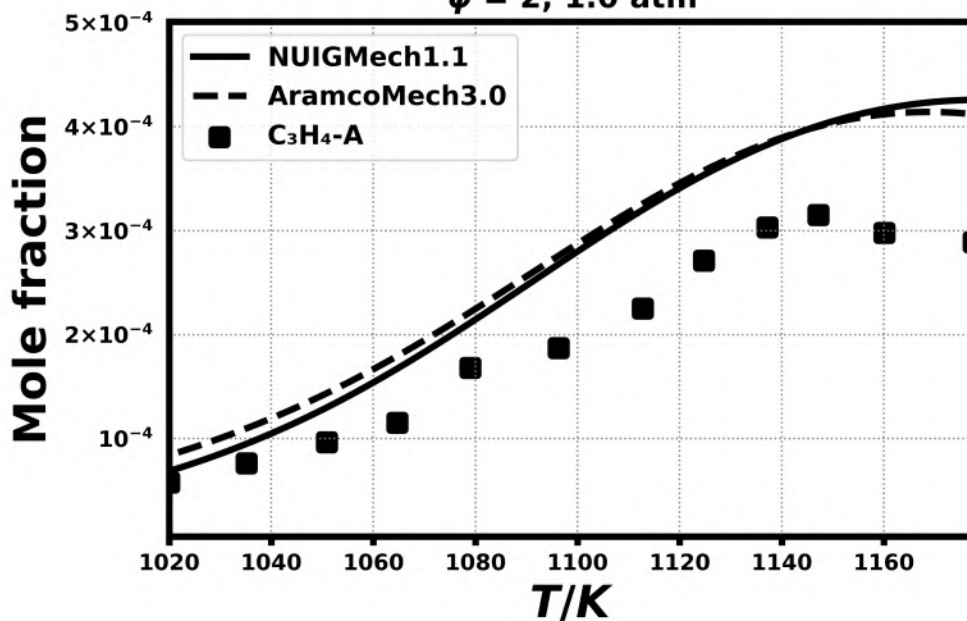
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



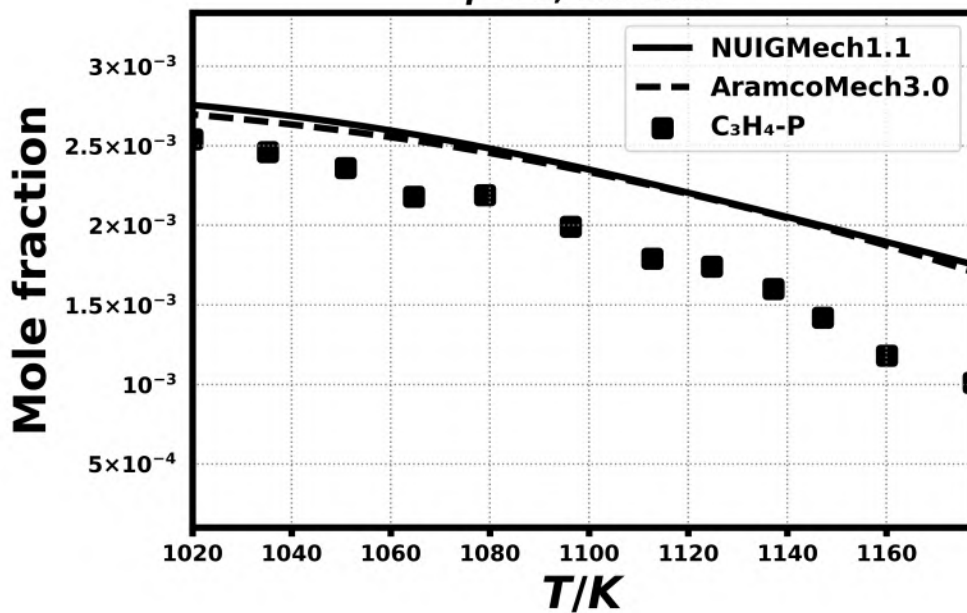
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



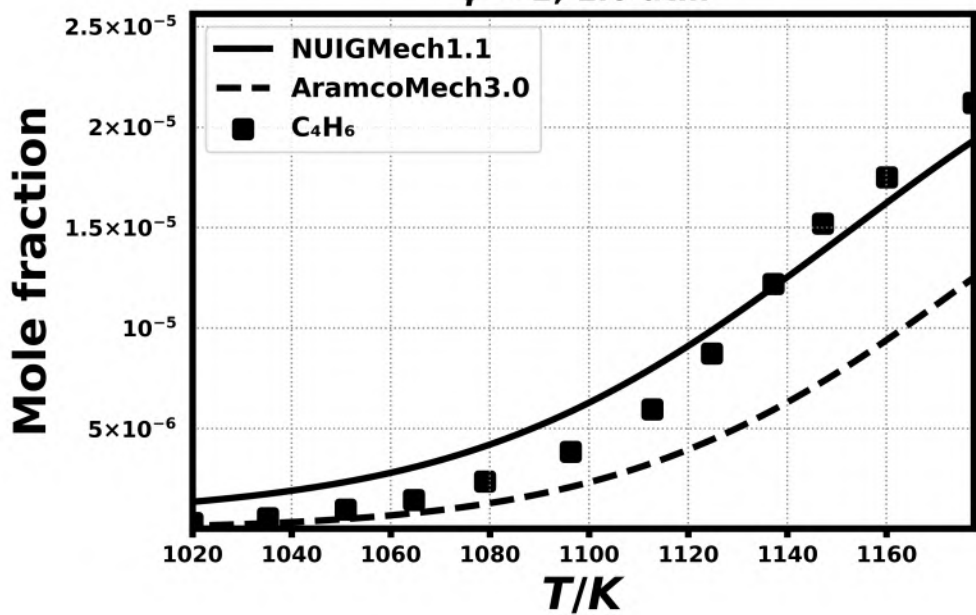
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



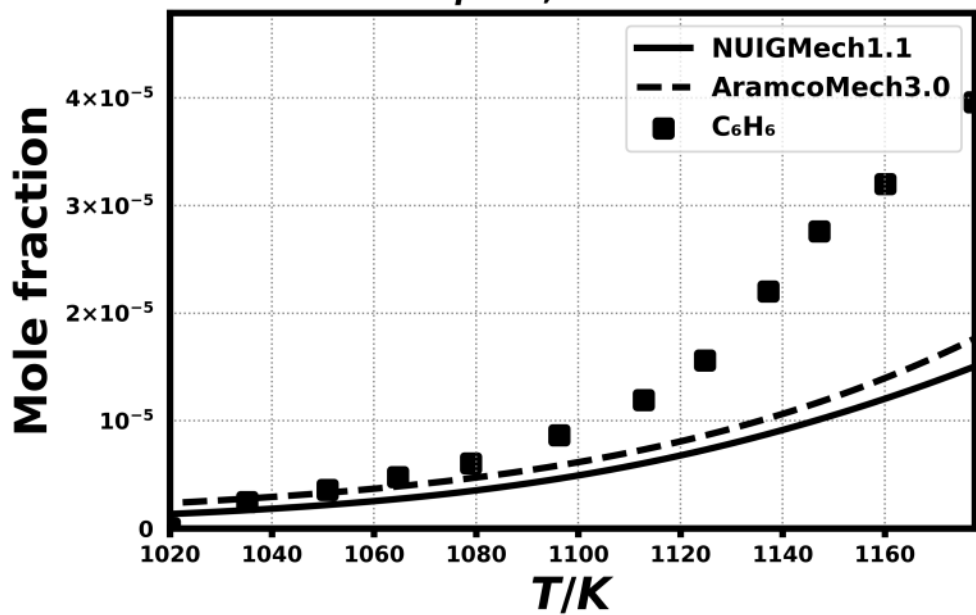
0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$

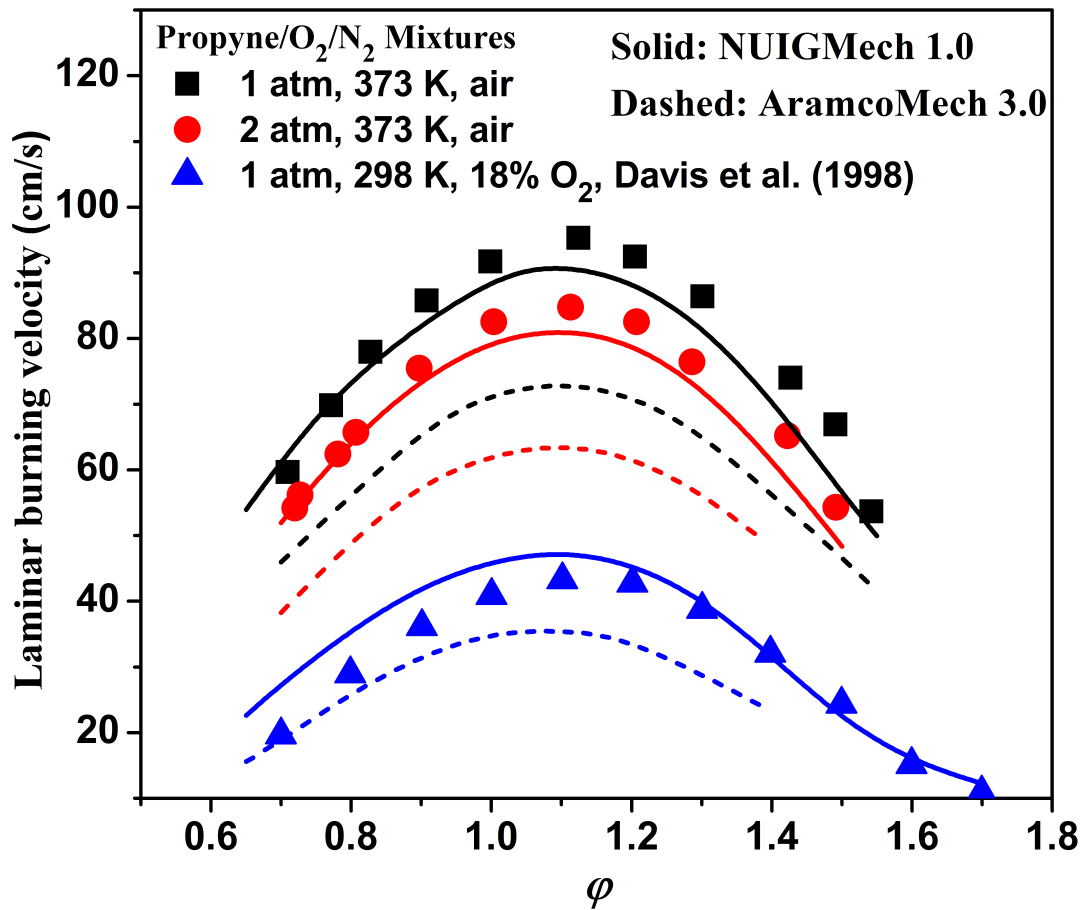


0.3% C₃H₄-P
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



Laminar flame speed

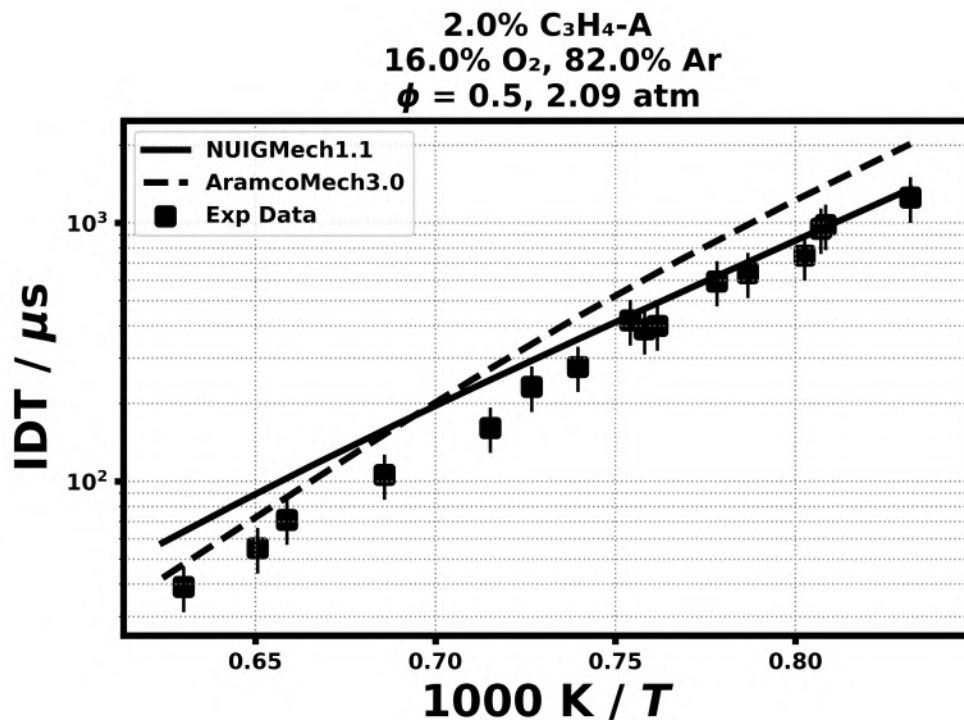
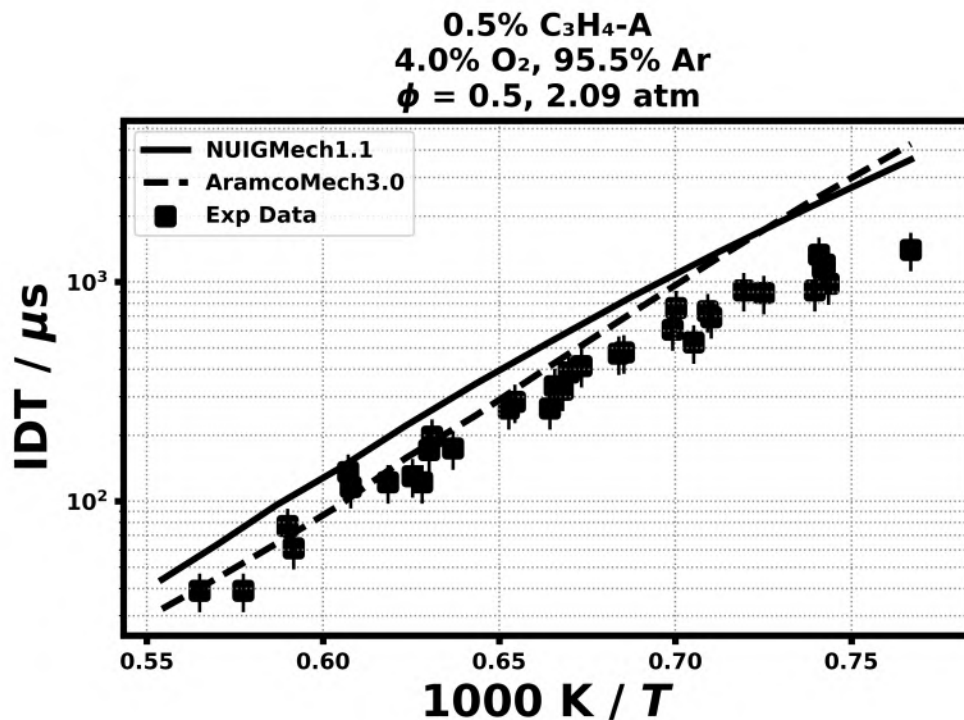
17.4) Panigrahy, S., Liang, J., Nagaraja, S. S., Zuo, Z., Kim, G., Dong, S., ... & Curran, H. J., Proceedings of the Combustion Institute (2020).



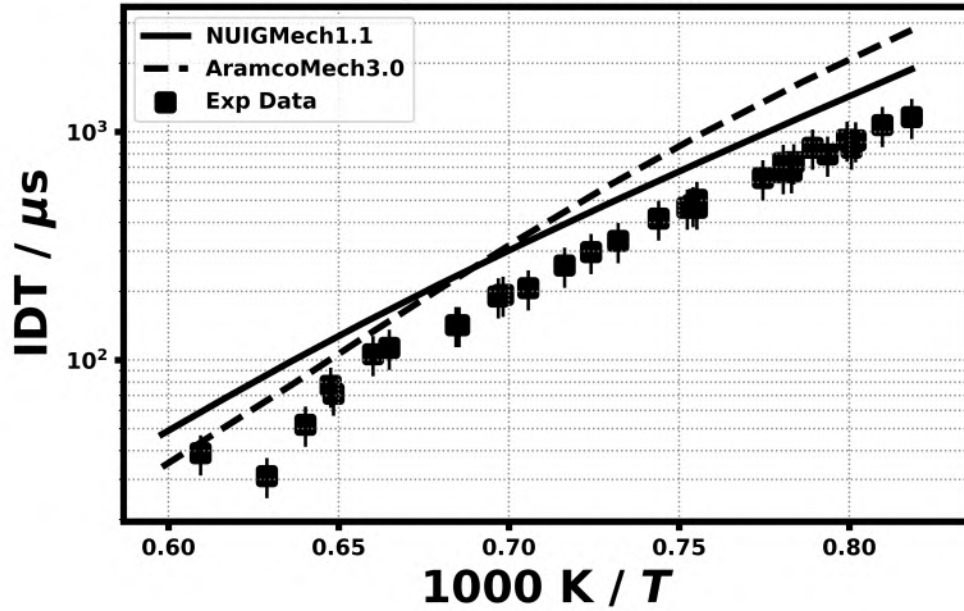
18. Validation for C₃H₄-a

Shock tube ignition delay time

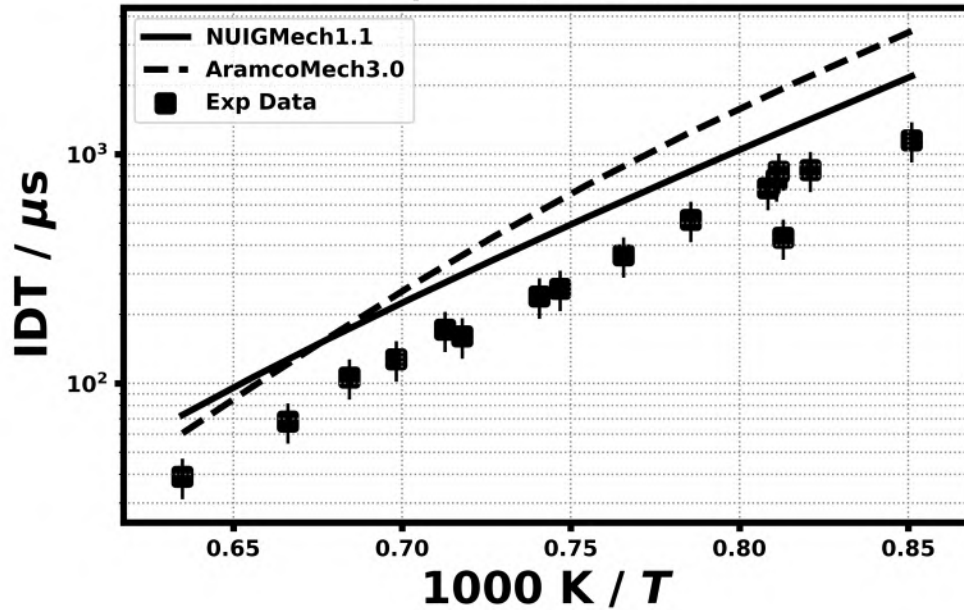
18.1) Curran, H., Simmie, J. M., Dagaut, P., Voisin, D., & Cathonnet, M., In Symposium (International) on Combustion, 26 (1996, January) 613-620.



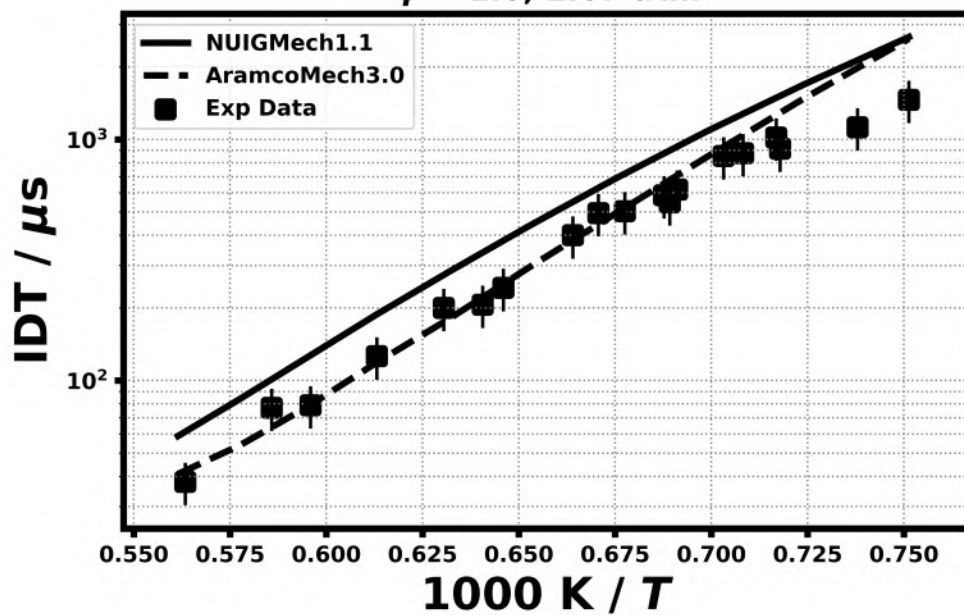
1.0% C₃H₄-A
8.0% O₂, 91.0% Ar
 $\phi = 0.5, 3.52 \text{ atm}$



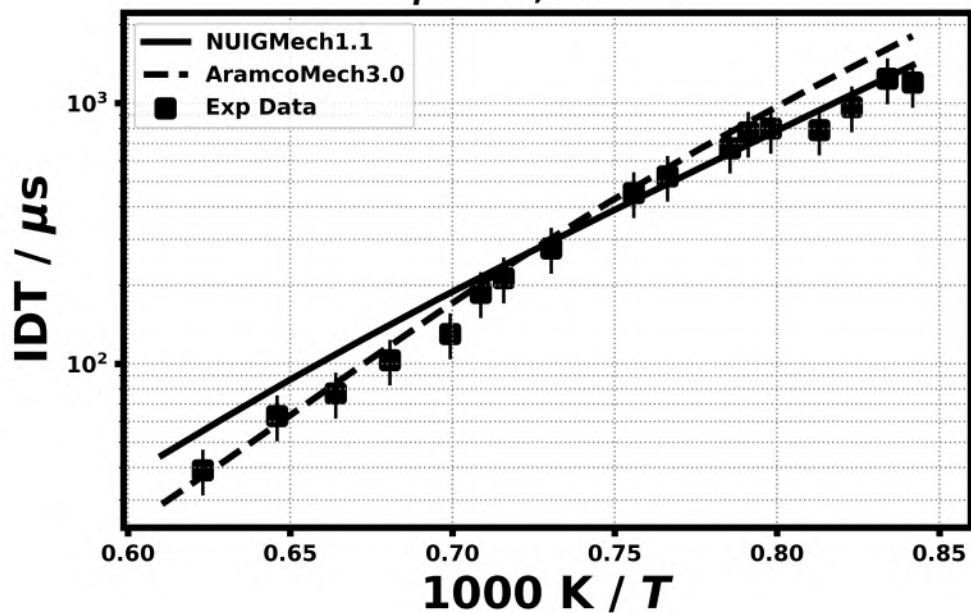
1.0% C₃H₄-A
8.0% O₂, 91.0% Ar
 $\phi = 0.5, 5.0 \text{ atm}$



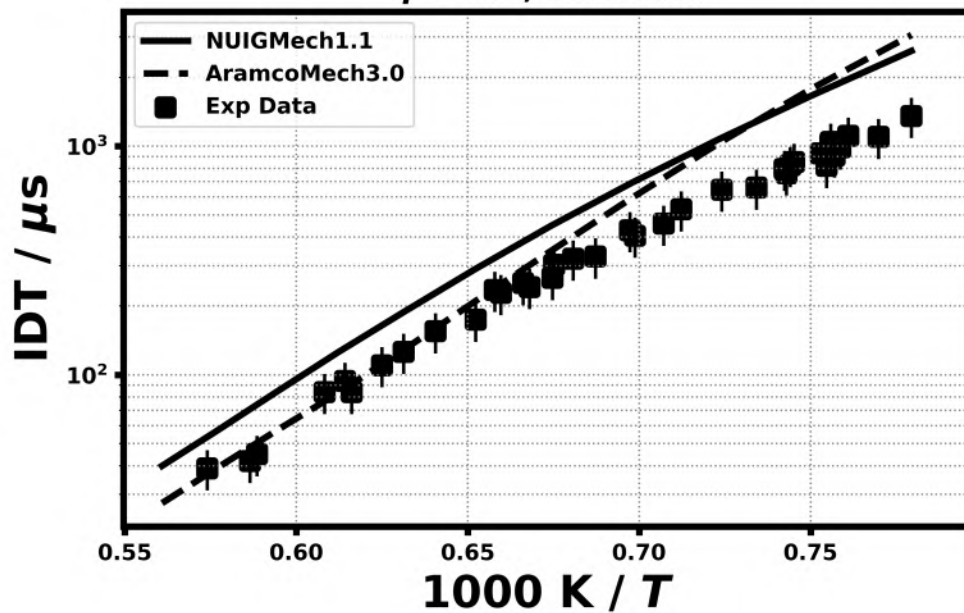
1.0% C₃H₄-A
4.0% O₂, 95.0% Ar
 $\phi = 1.0$, 2.07 atm



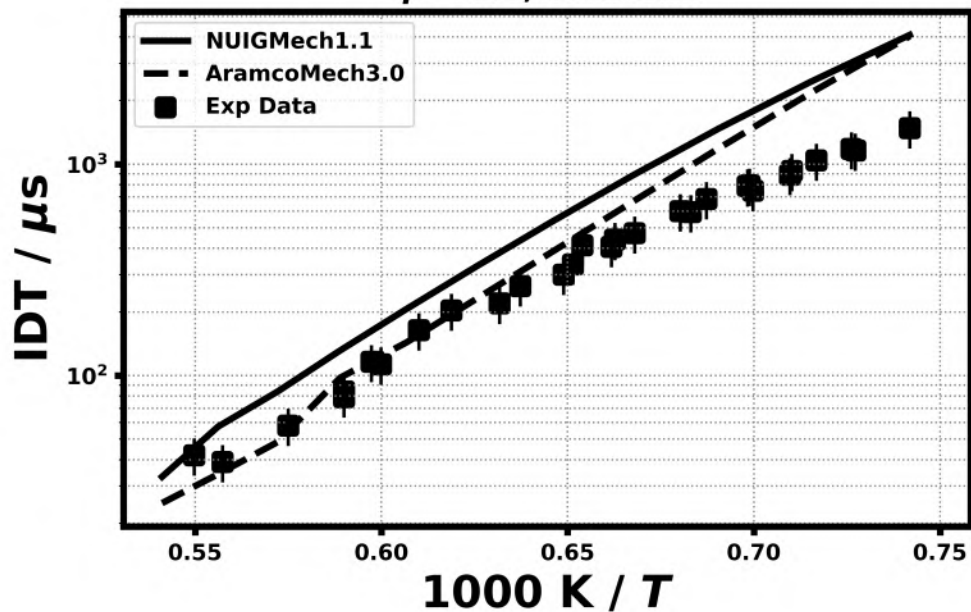
3.0% C₃H₄-A
12.0% O₂, 85.0% Ar
 $\phi = 1.0$, 2.7 atm



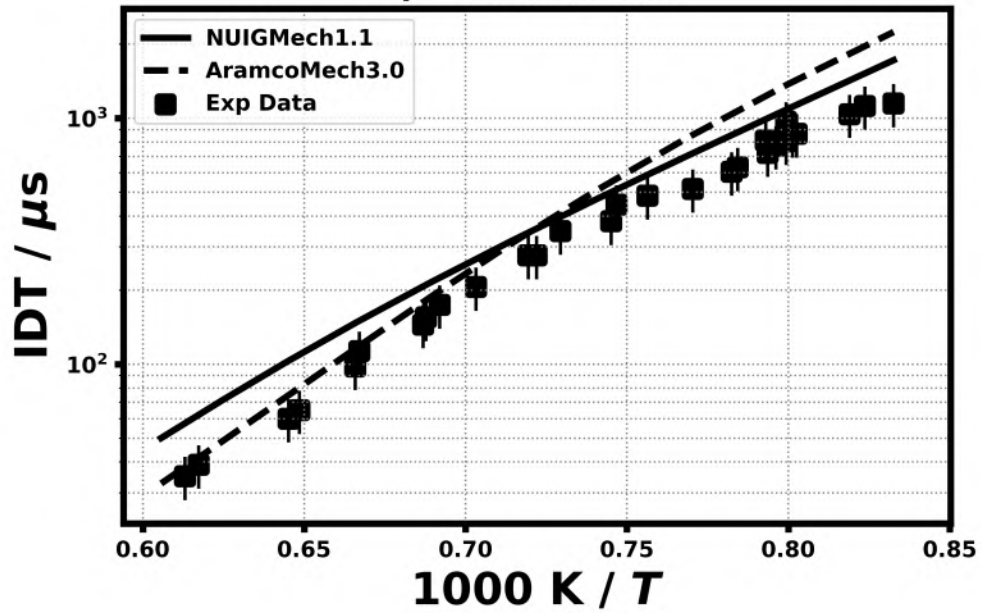
1.0% C₃H₄-A
4.0% O₂, 95.0% Ar
 $\phi = 1.0$, 3.56 atm



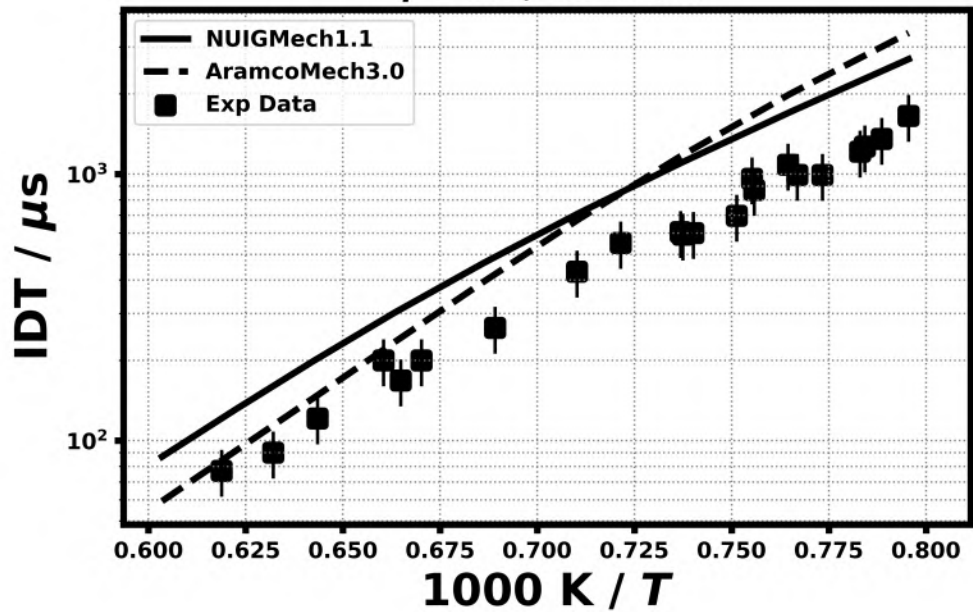
0.5% C₃H₄-A
2.0% O₂, 97.5% Ar
 $\phi = 1.0$, 3.62 atm



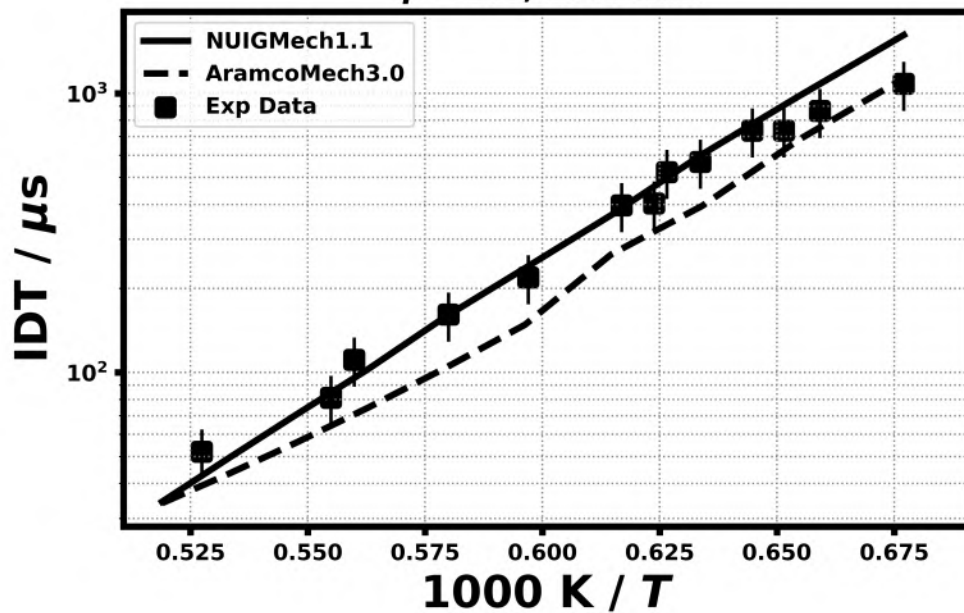
2.0% C₃H₄-A
8.0% O₂, 90.0% Ar
 $\phi = 1.0$, 3.7 atm



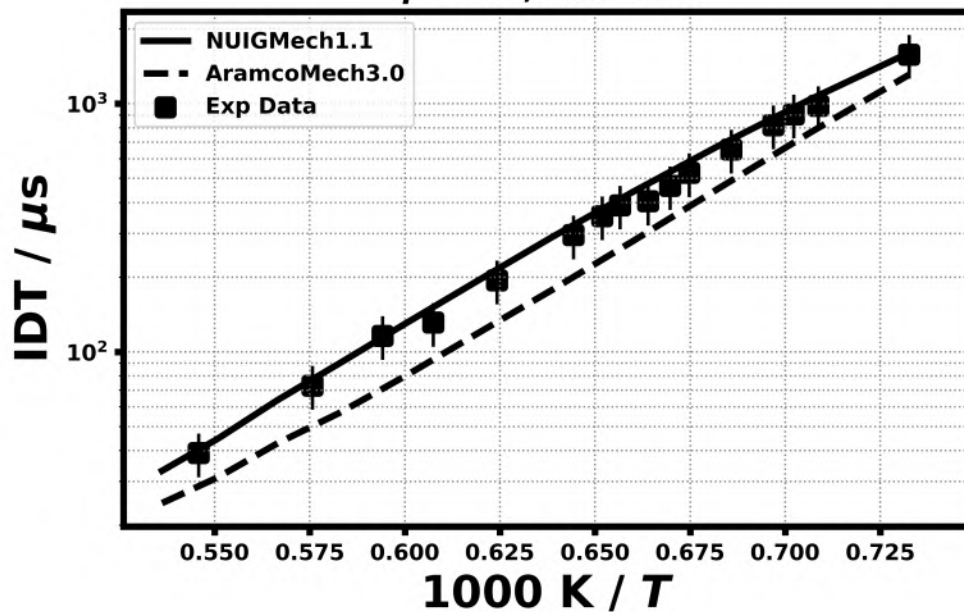
1.0% C₃H₄-A
4.0% O₂, 95.0% Ar
 $\phi = 1.0$, 4.51 atm



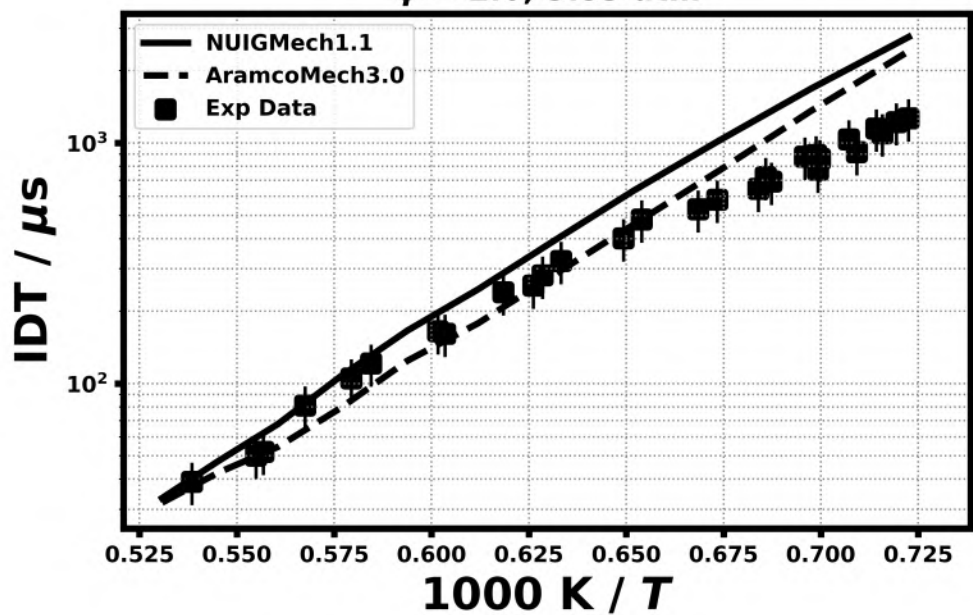
1.0% C₃H₄-A
2.0% O₂, 97.0% Ar
 $\phi = 2.0, 2.04 \text{ atm}$



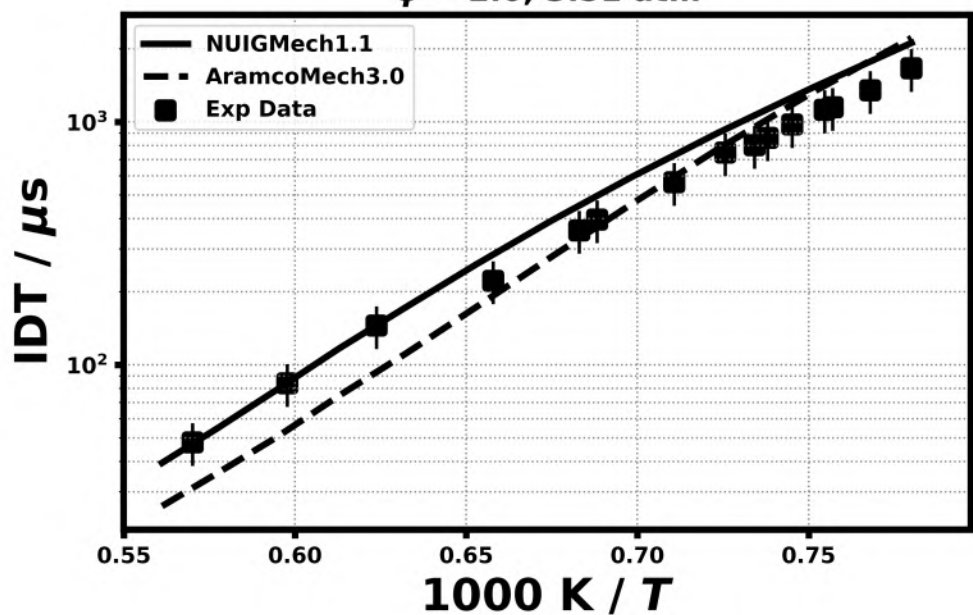
2.0% C₃H₄-A
4.0% O₂, 94.0% Ar
 $\phi = 2.0, 2.08 \text{ atm}$



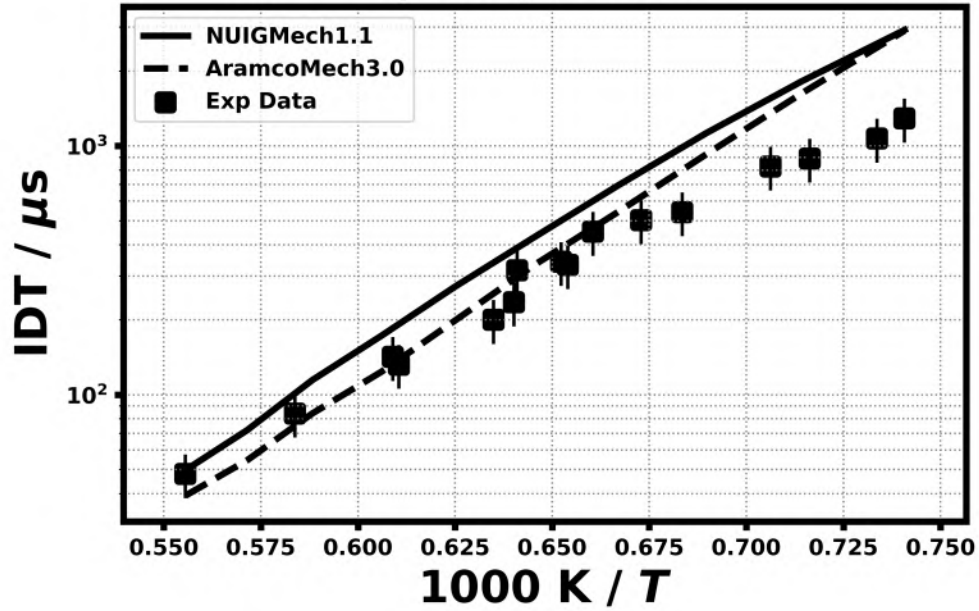
1.0% C₃H₄-A
2.0% O₂, 97.0% Ar
 $\phi = 2.0$, 3.53 atm



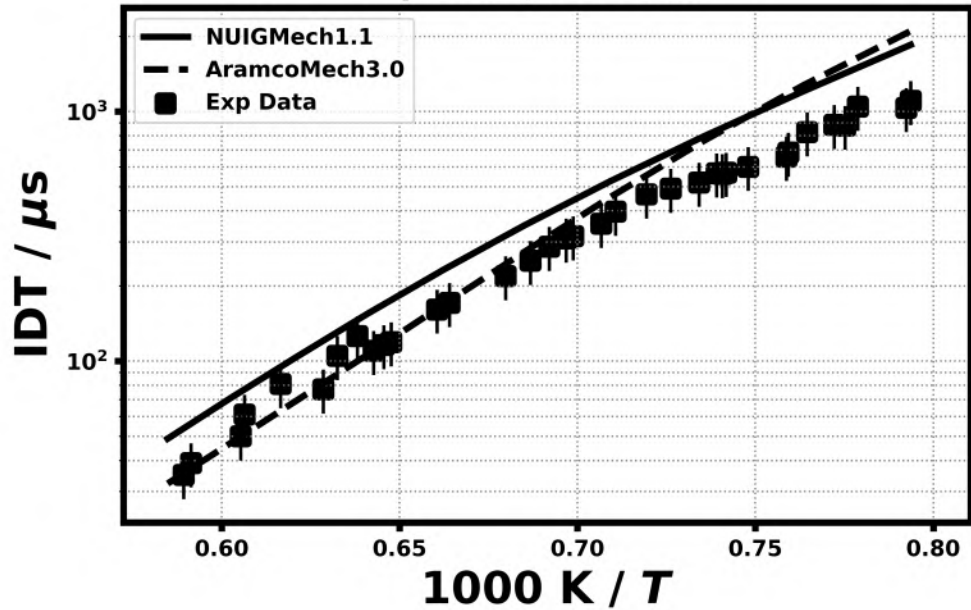
2.0% C₃H₄-A
4.0% O₂, 94.0% Ar
 $\phi = 2.0$, 3.51 atm



1.0% C₃H₄-A
2.0% O₂, 97.0% Ar
 $\phi = 2.0$, 4.98 atm

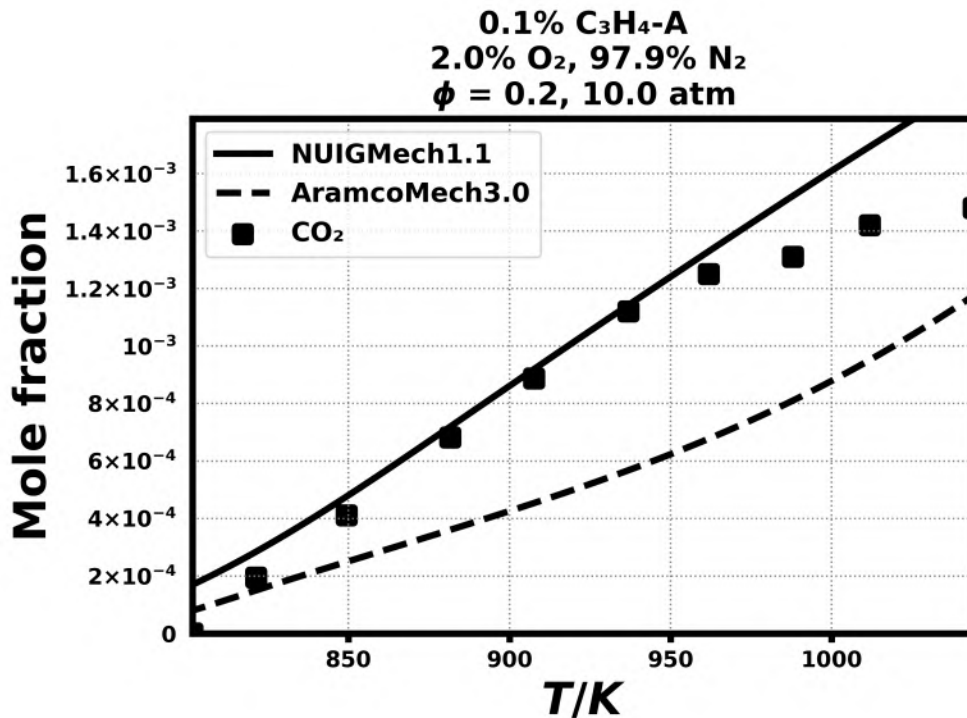
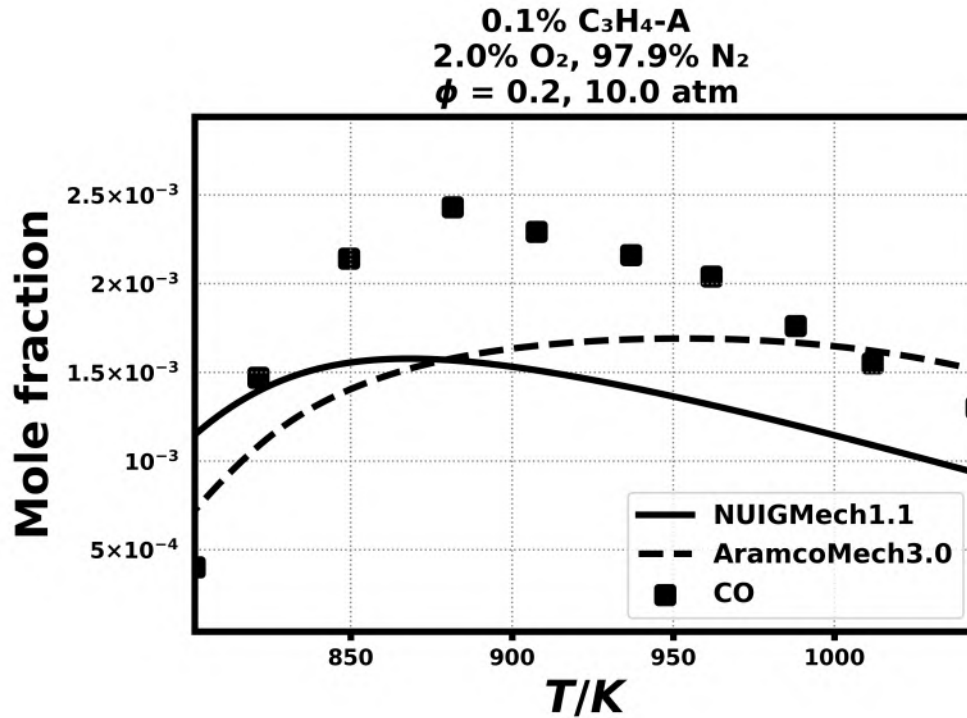


2.0% C₃H₄-A
4.0% O₂, 94.0% Ar
 $\phi = 2.0$, 5.09 atm

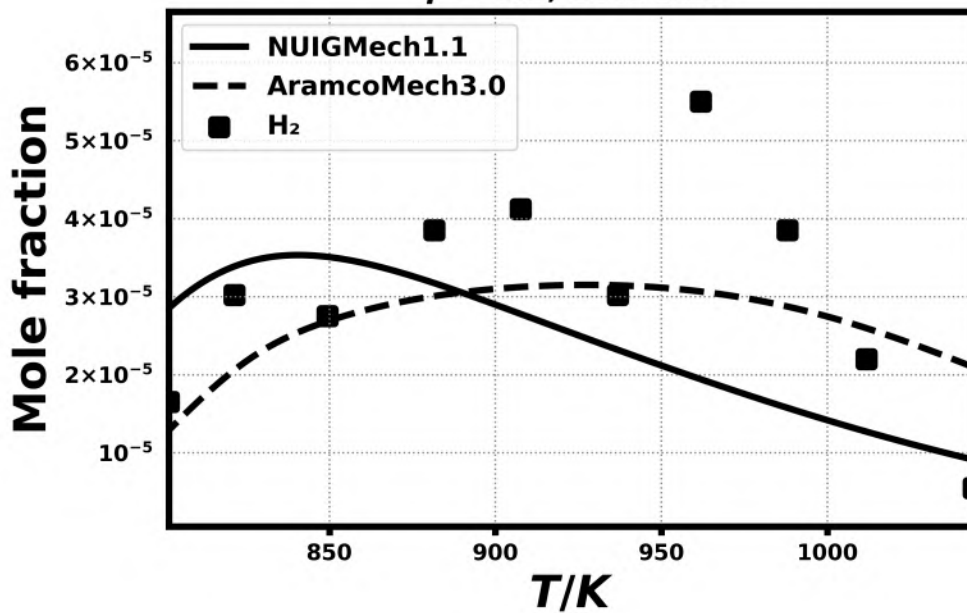


Speciation in Jet-stirred reactor

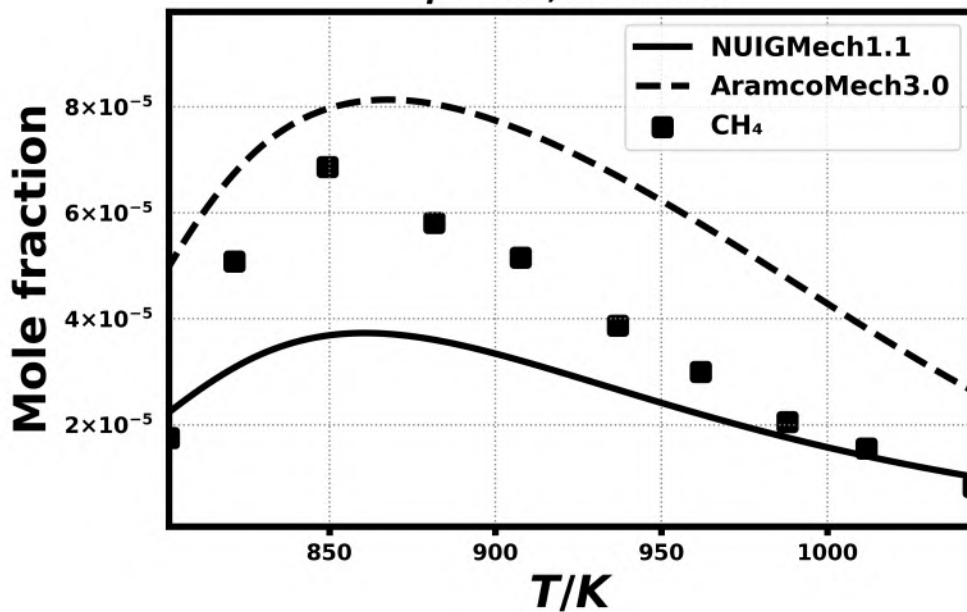
18.2) DAGAUT, P., CATHONNET, M., & BOETTNER, J. C. (1990), *Combustion Science and Technology*, 71(1-3), 111-128.



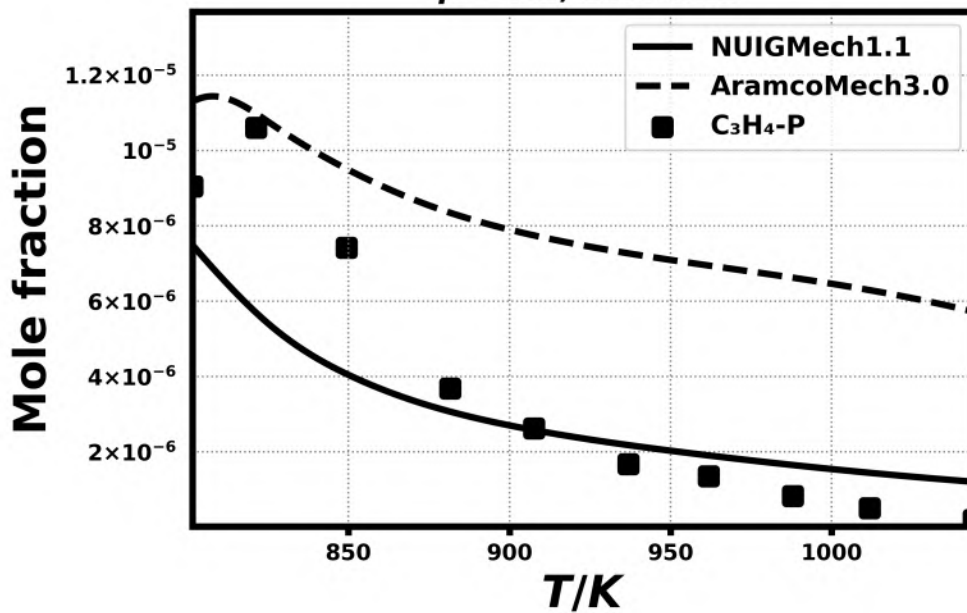
0.1% C₃H₄-A
2.0% O₂, 97.9% N₂
 $\phi = 0.2, 10.0 \text{ atm}$



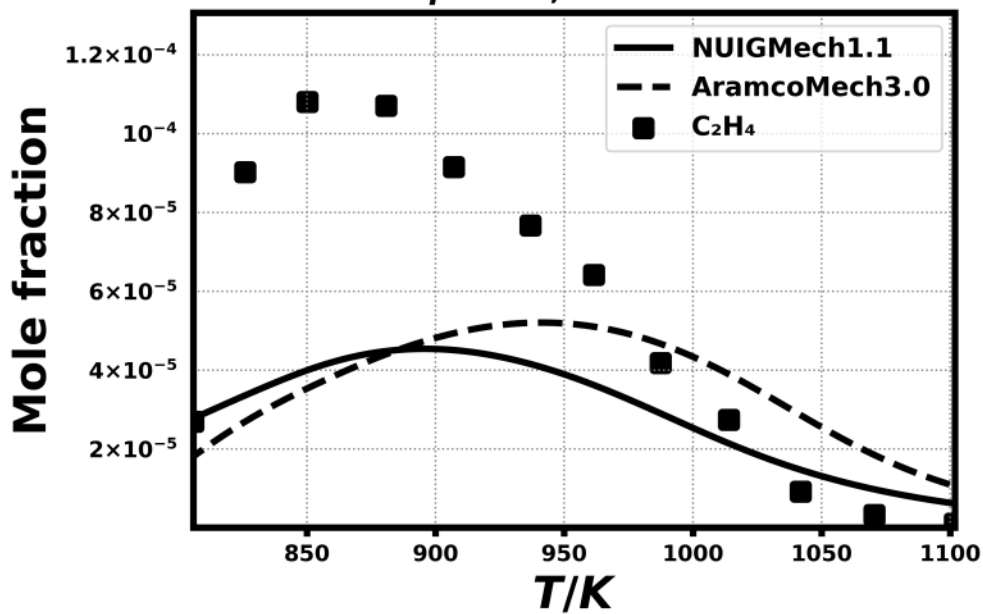
0.1% C₃H₄-A
2.0% O₂, 97.9% N₂
 $\phi = 0.2, 10.0 \text{ atm}$



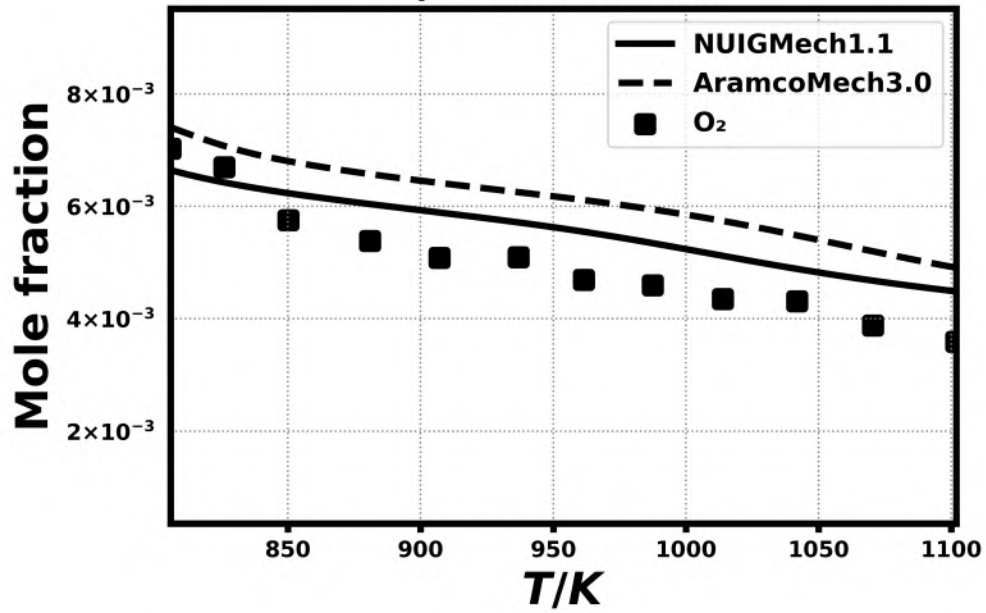
0.1% C₃H₄-A
2.0% O₂, 97.9% N₂
 $\phi = 0.2, 10.0 \text{ atm}$



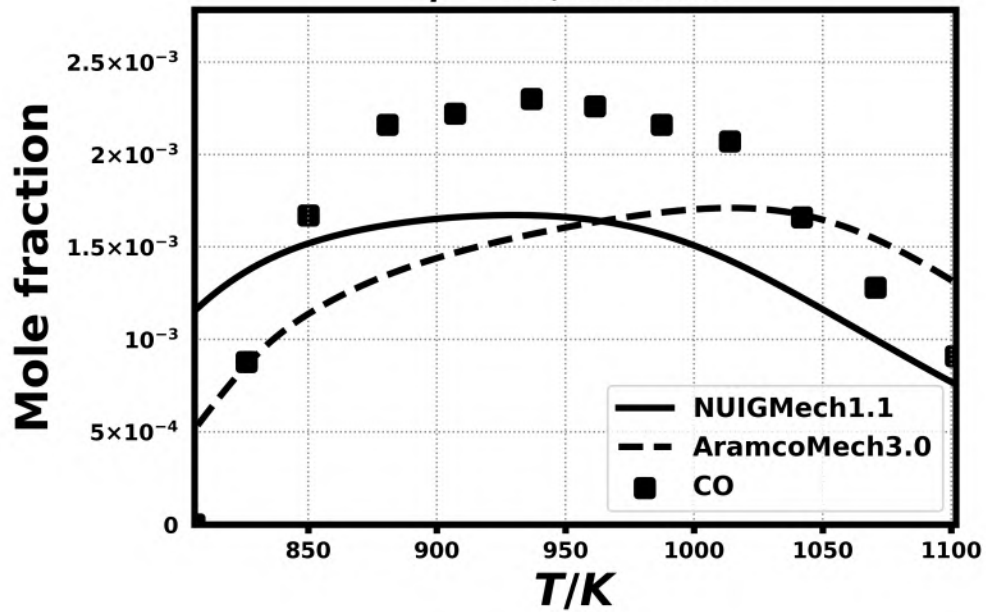
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0 \text{ atm}$



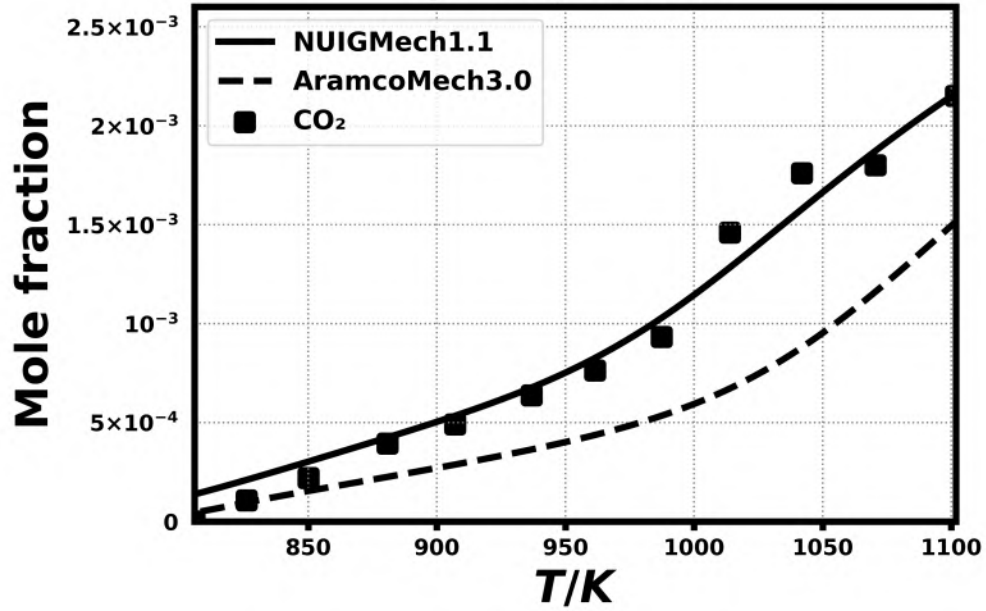
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5$, 10.0 atm



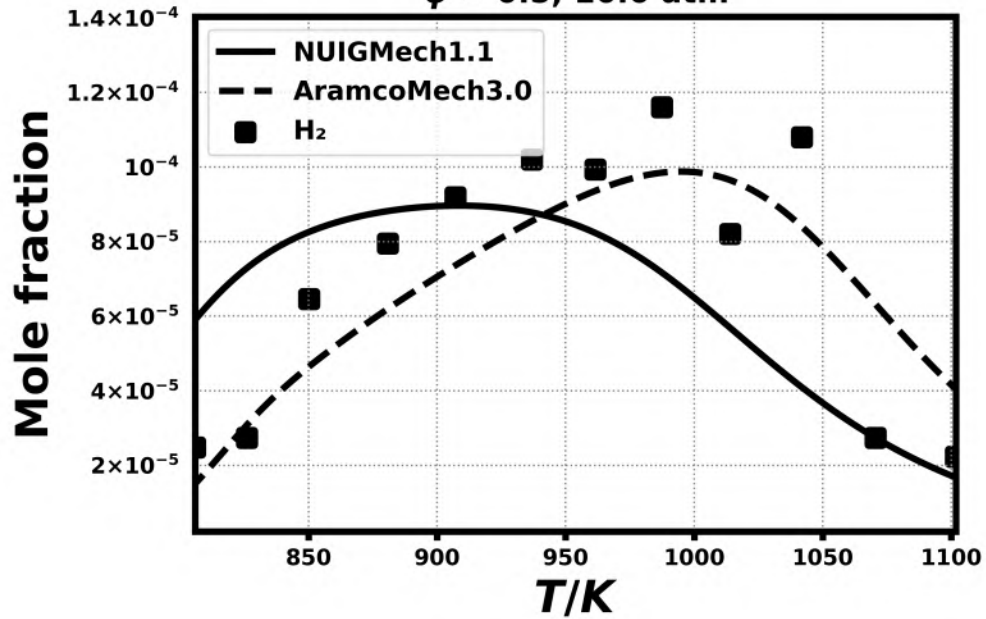
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5$, 10.0 atm



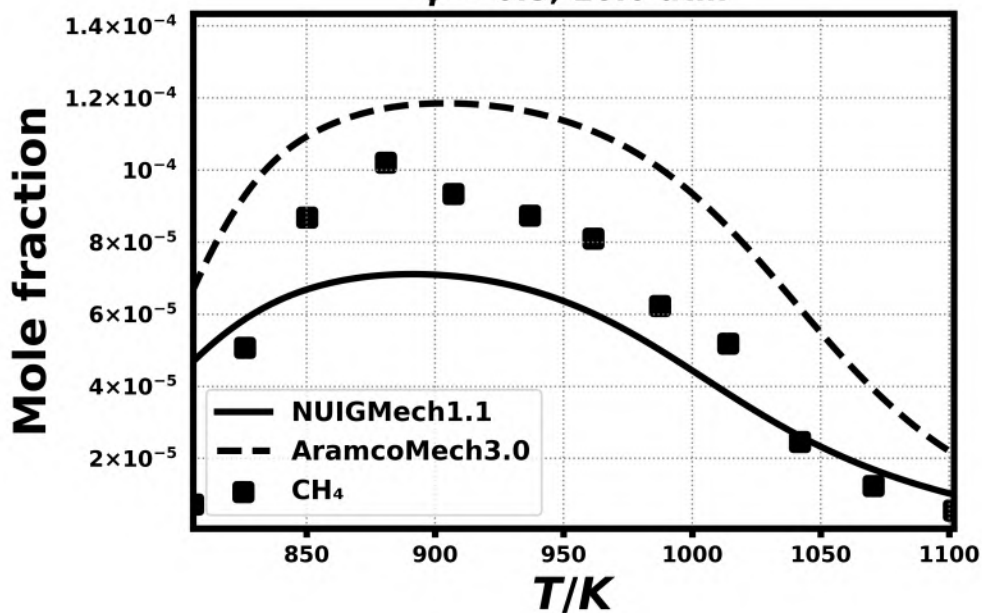
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0$ atm



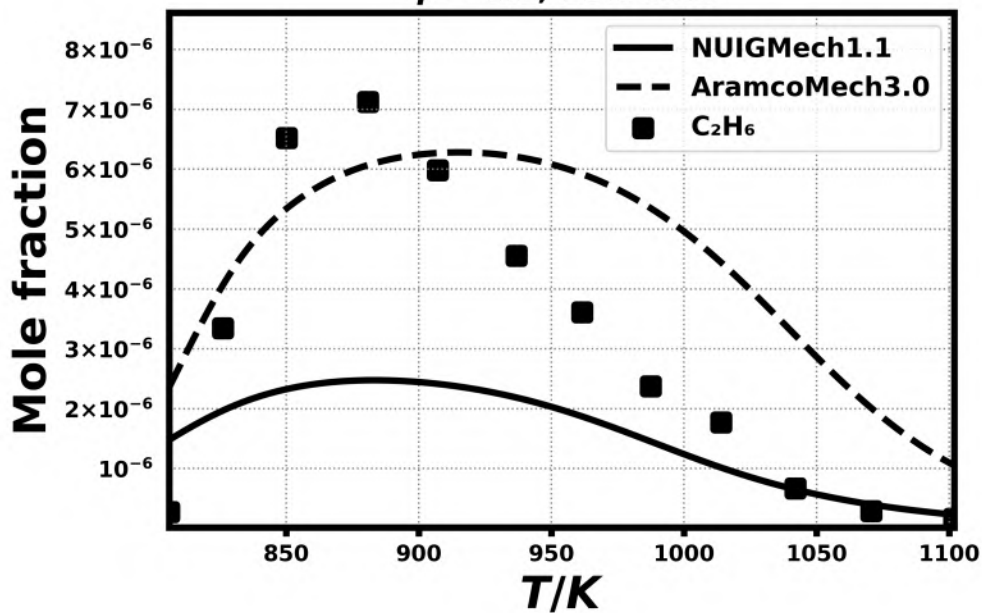
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0$ atm



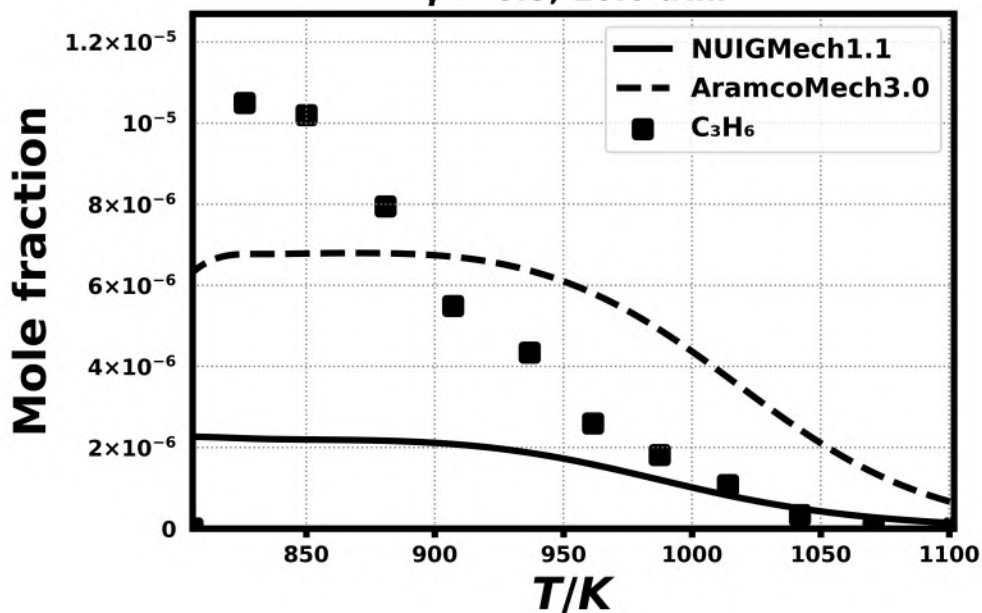
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0 \text{ atm}$



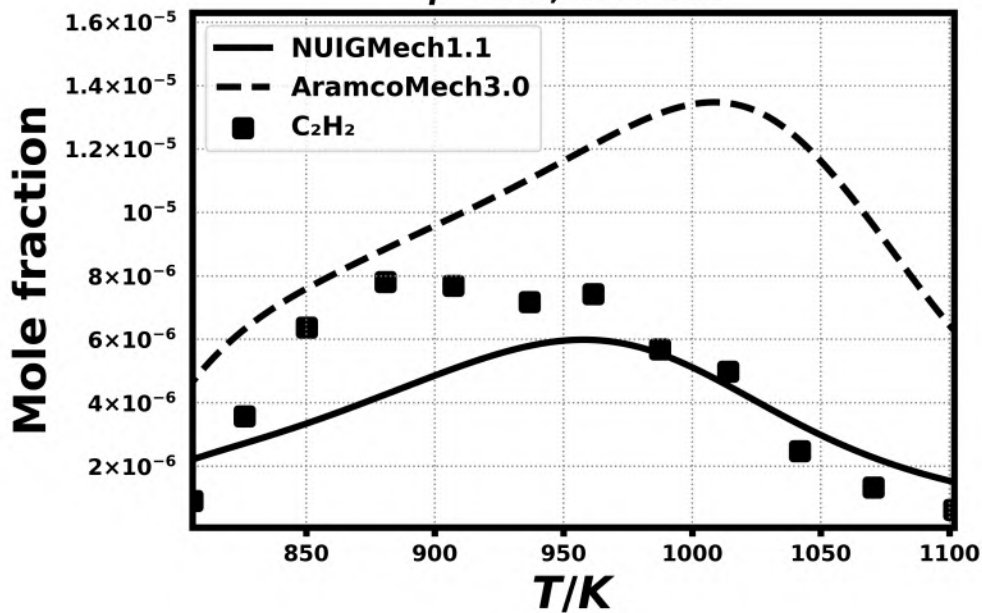
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0 \text{ atm}$



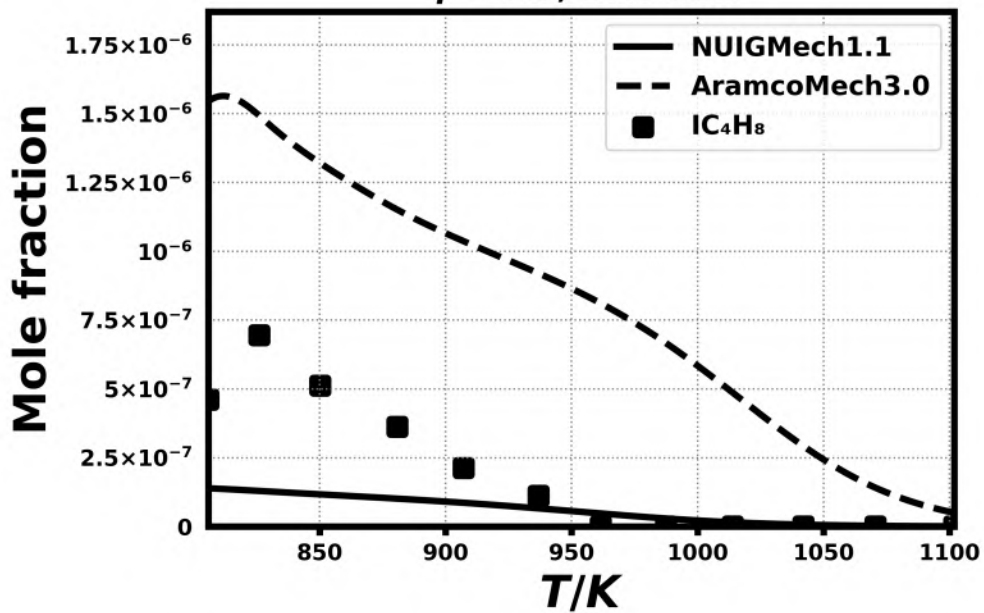
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0 \text{ atm}$



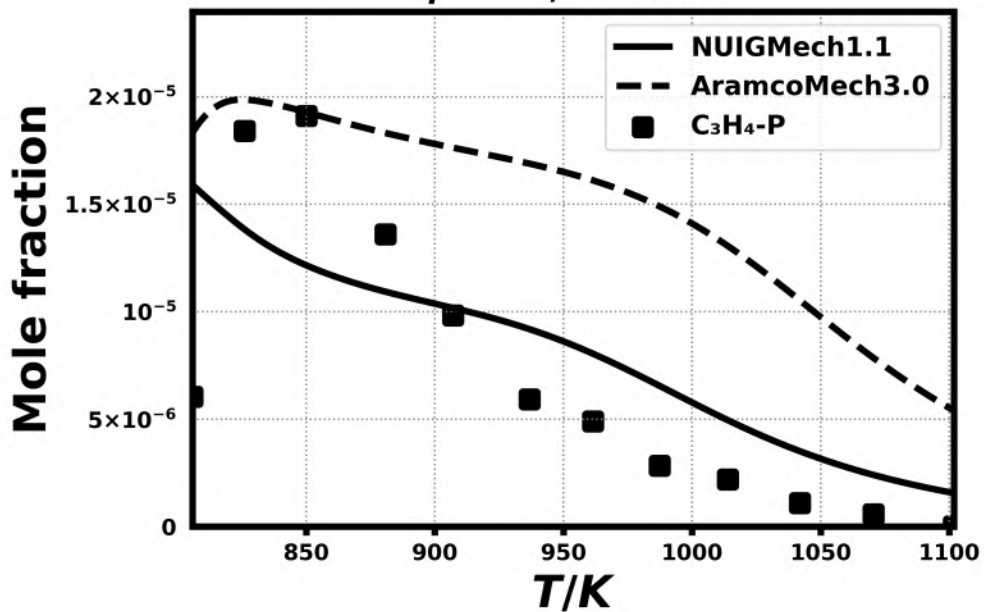
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0 \text{ atm}$



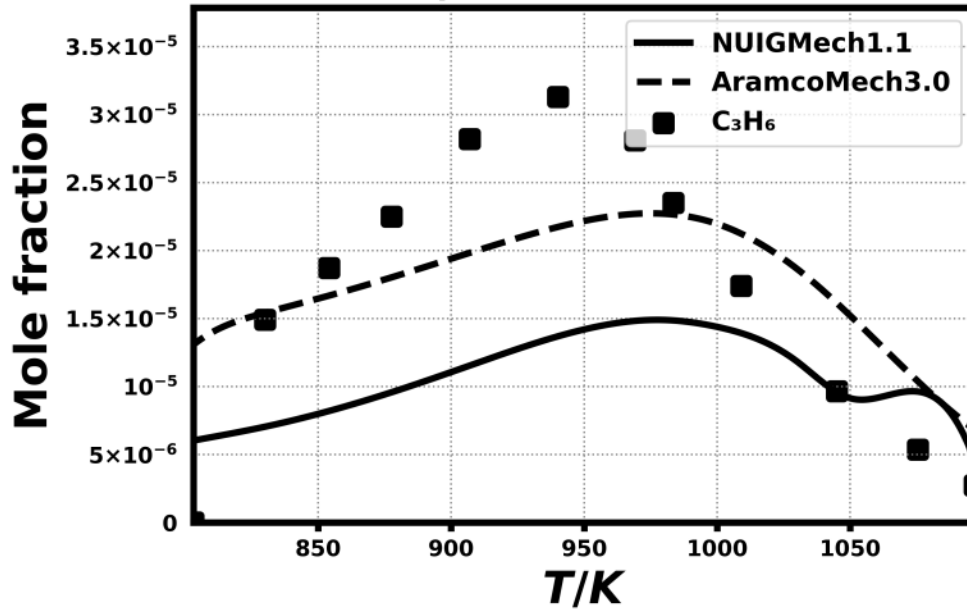
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0 \text{ atm}$



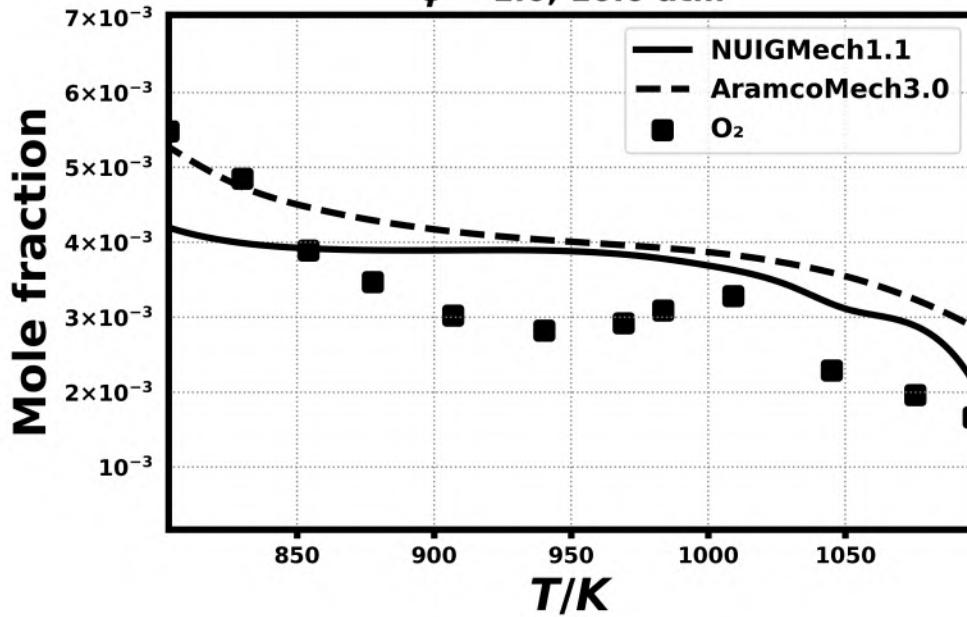
0.1% C₃H₄-A
0.8% O₂, 99.1% N₂
 $\phi = 0.5, 10.0 \text{ atm}$



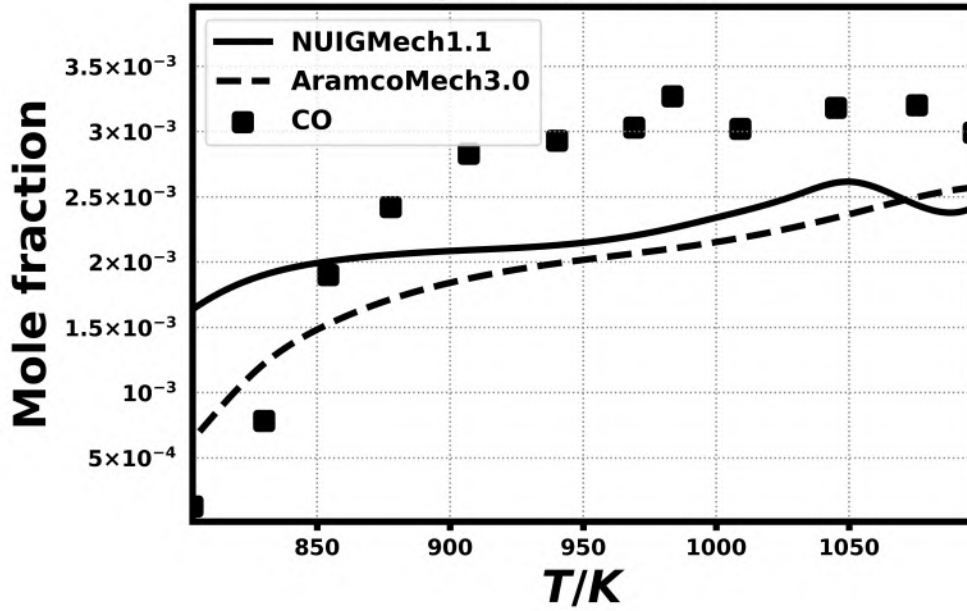
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0$, 10.0 atm



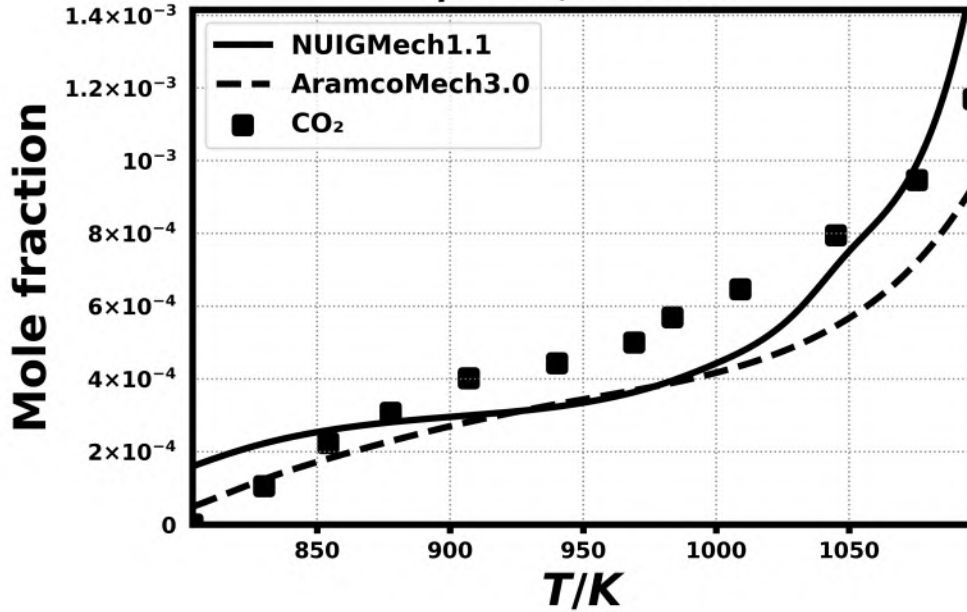
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0$, 10.0 atm



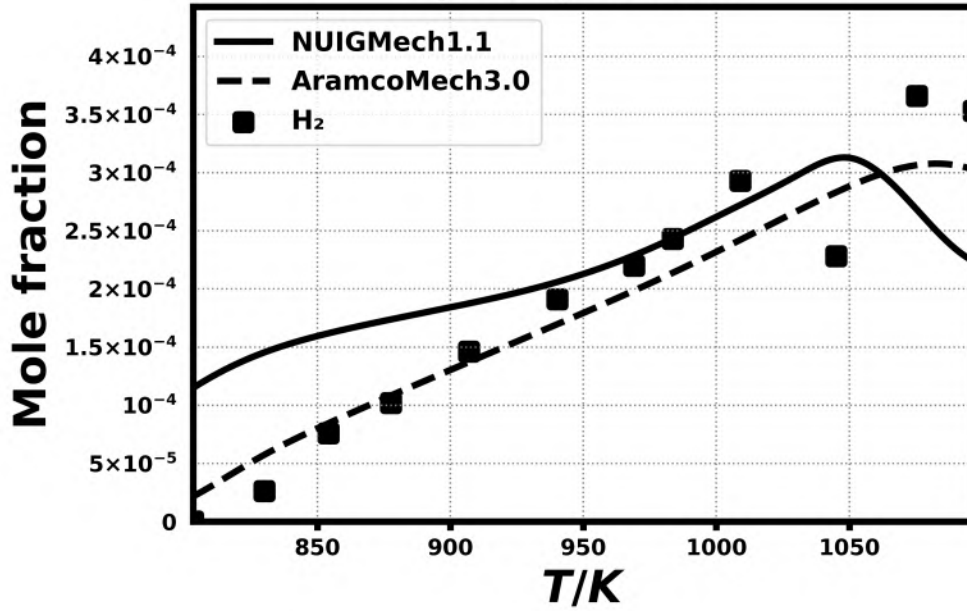
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0, 10.0 \text{ atm}$



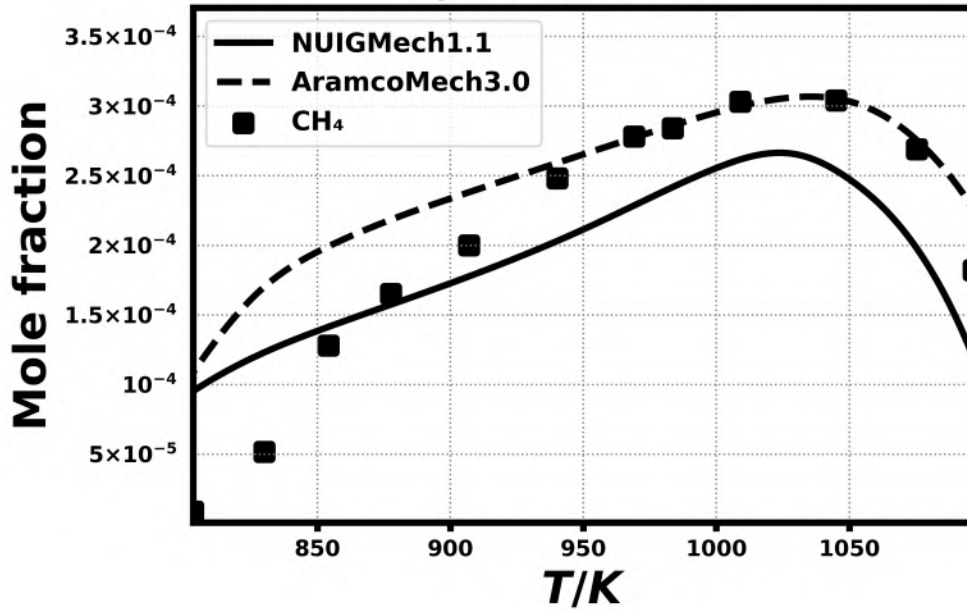
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0, 10.0 \text{ atm}$



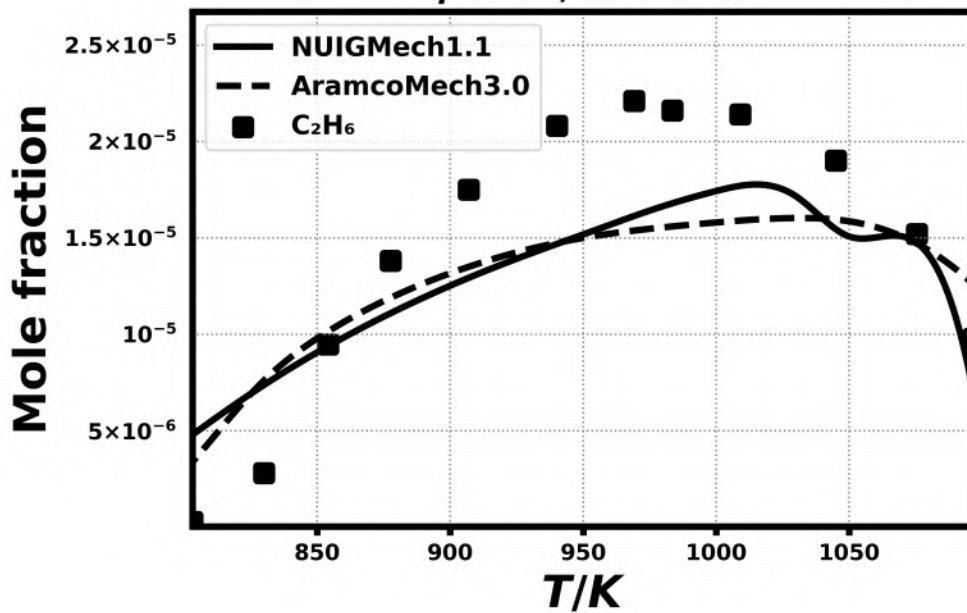
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0, 10.0 \text{ atm}$



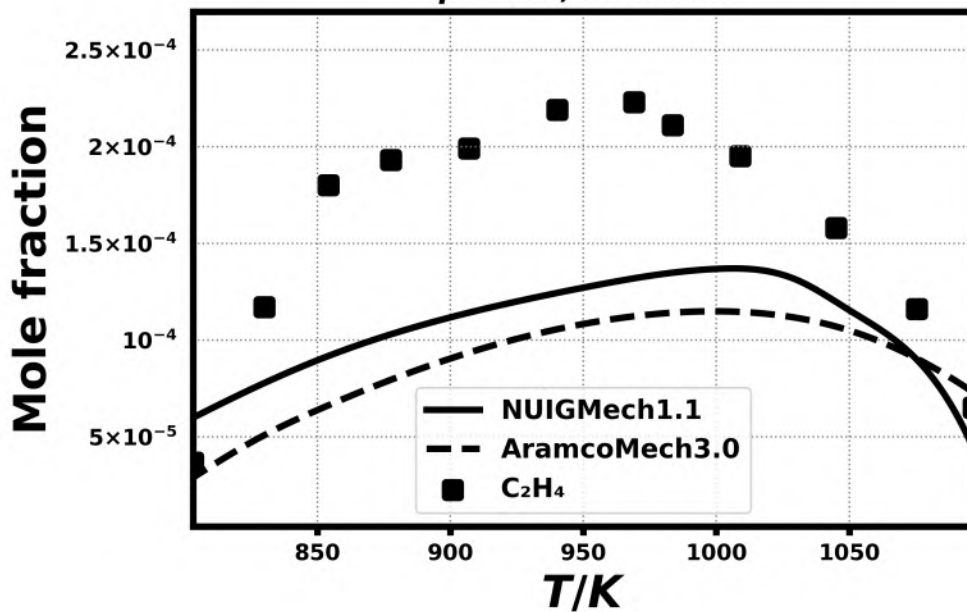
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0, 10.0 \text{ atm}$



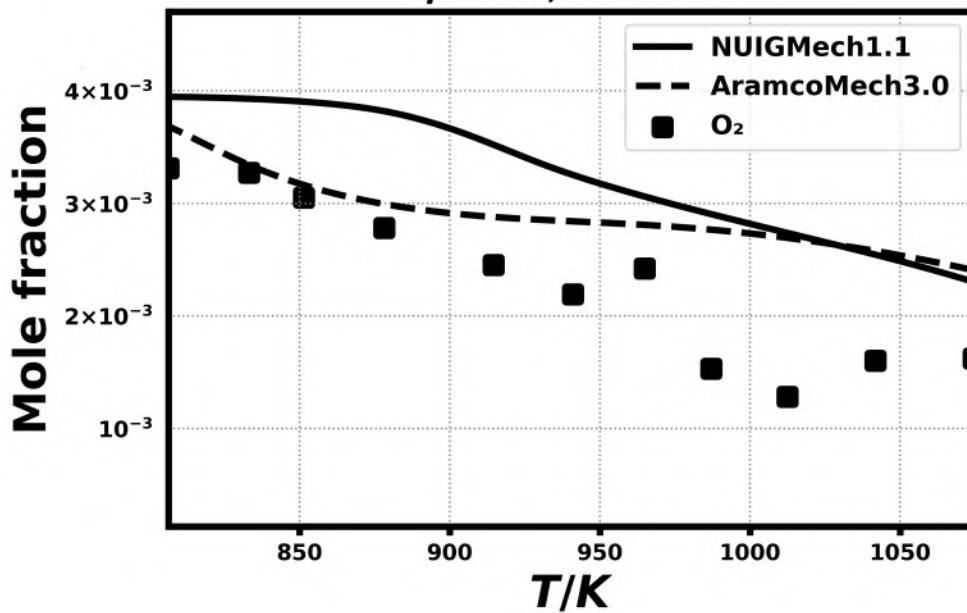
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0, 10.0 \text{ atm}$



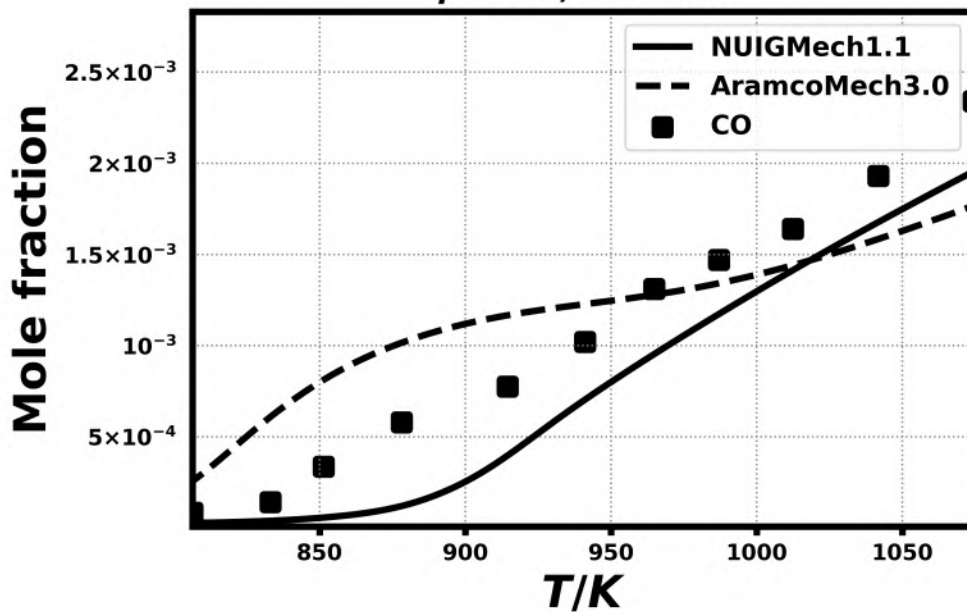
0.15% C₃H₄-A
0.6% O₂, 99.3% N₂
 $\phi = 1.0, 10.0 \text{ atm}$



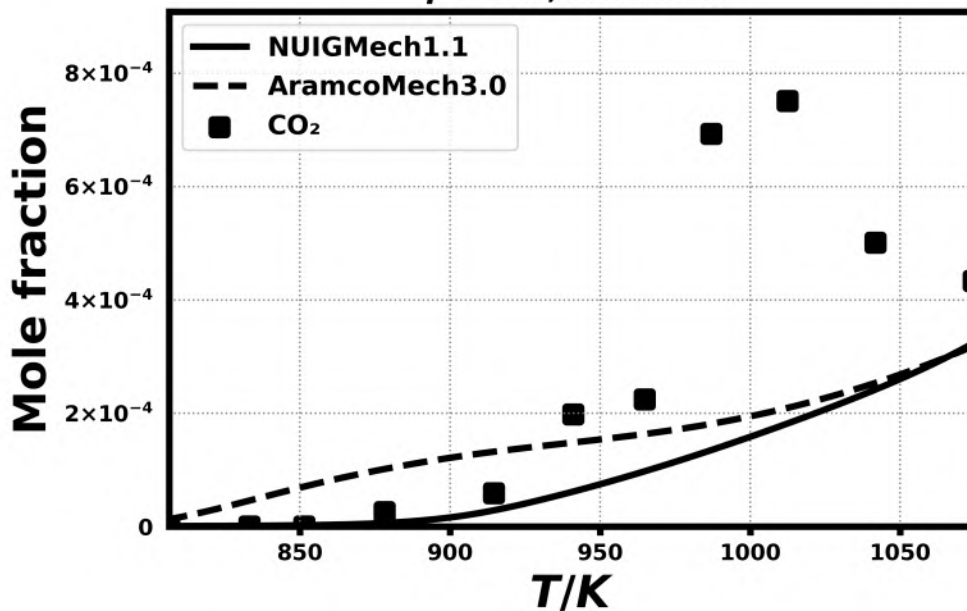
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



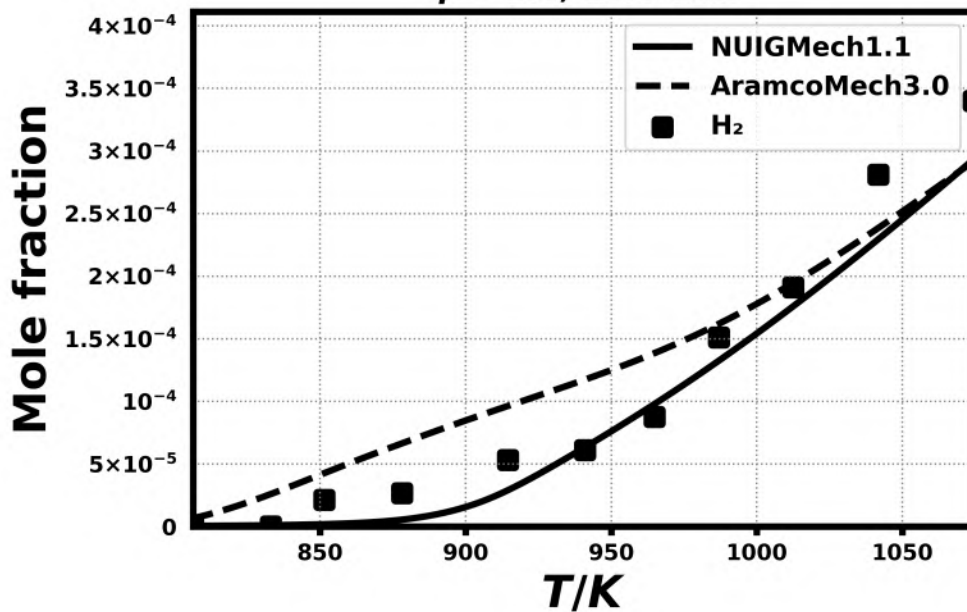
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



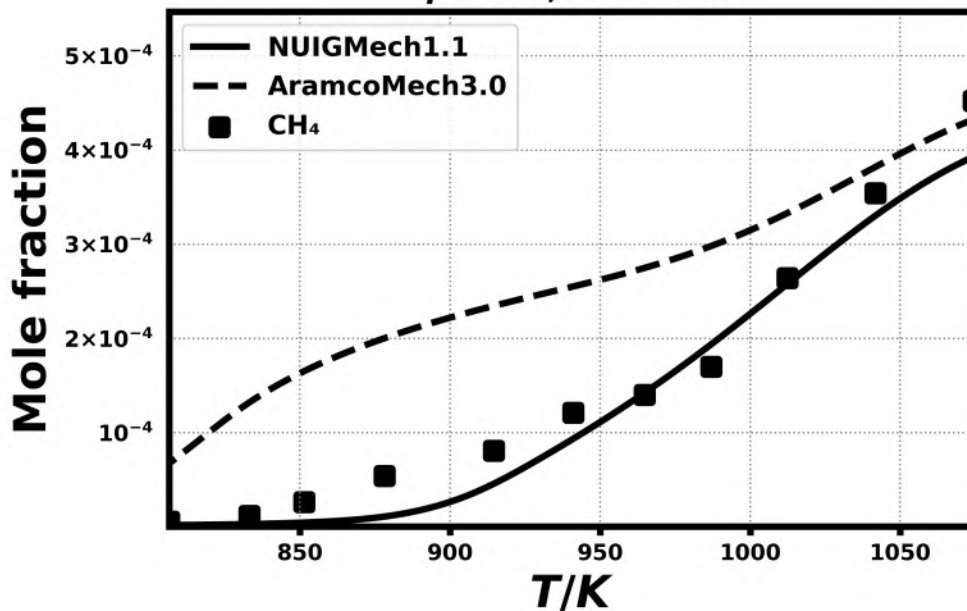
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0$ atm



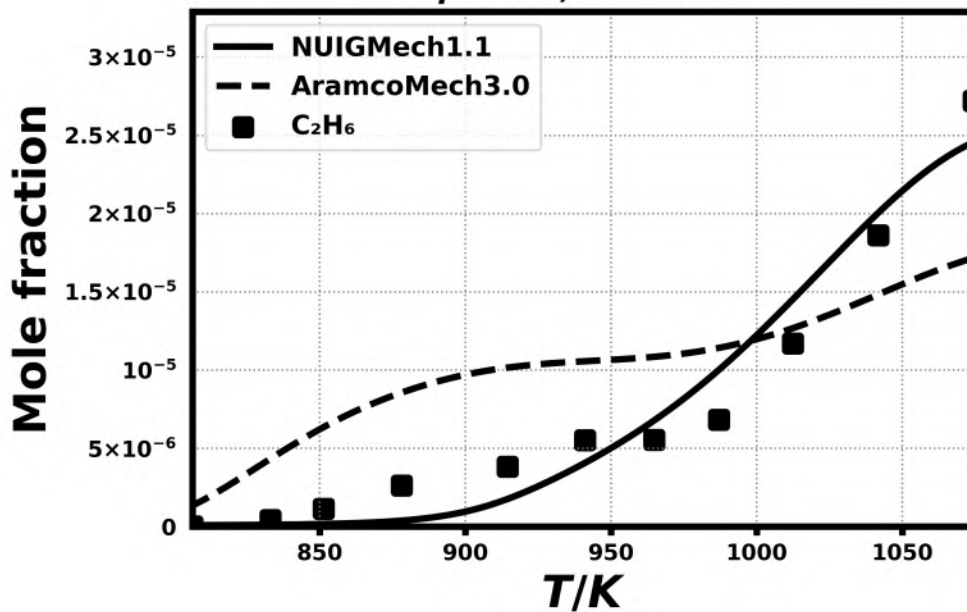
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0$ atm



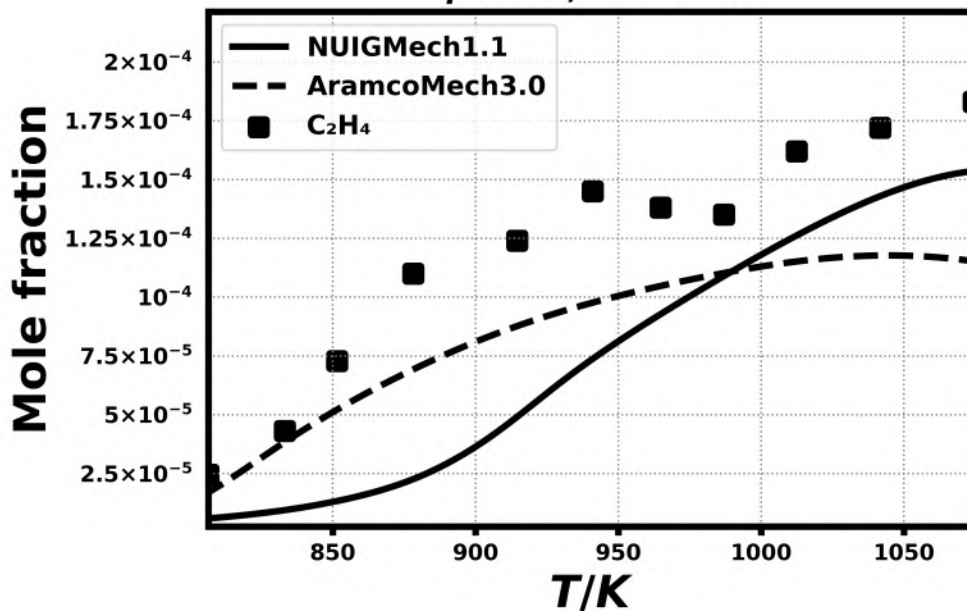
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0$ atm



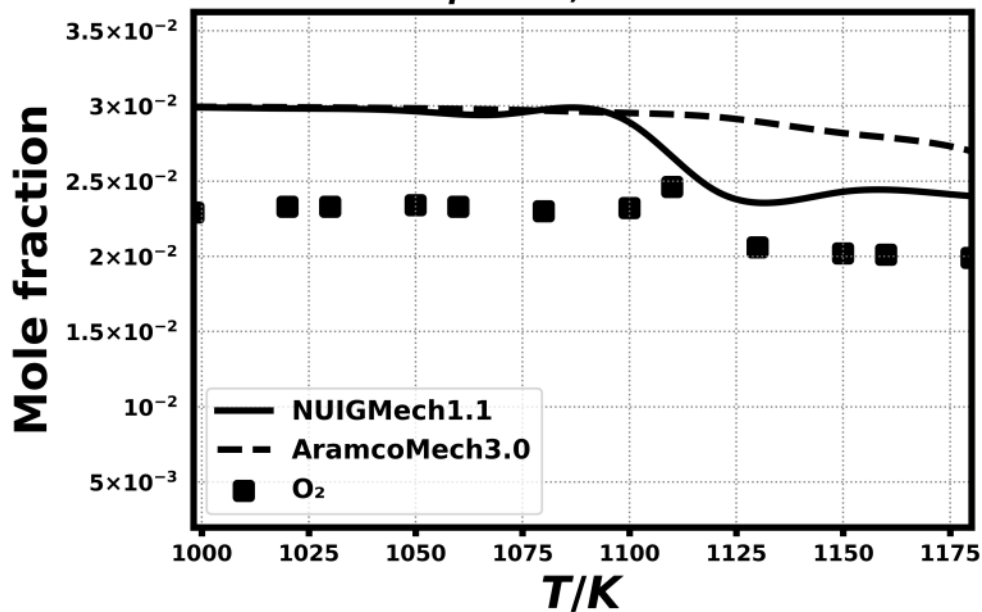
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0$ atm



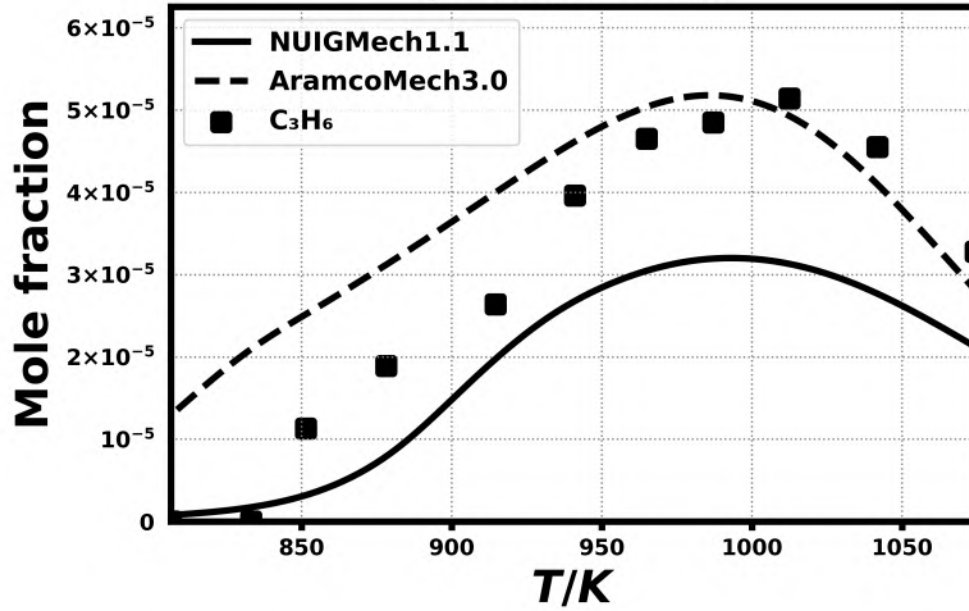
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



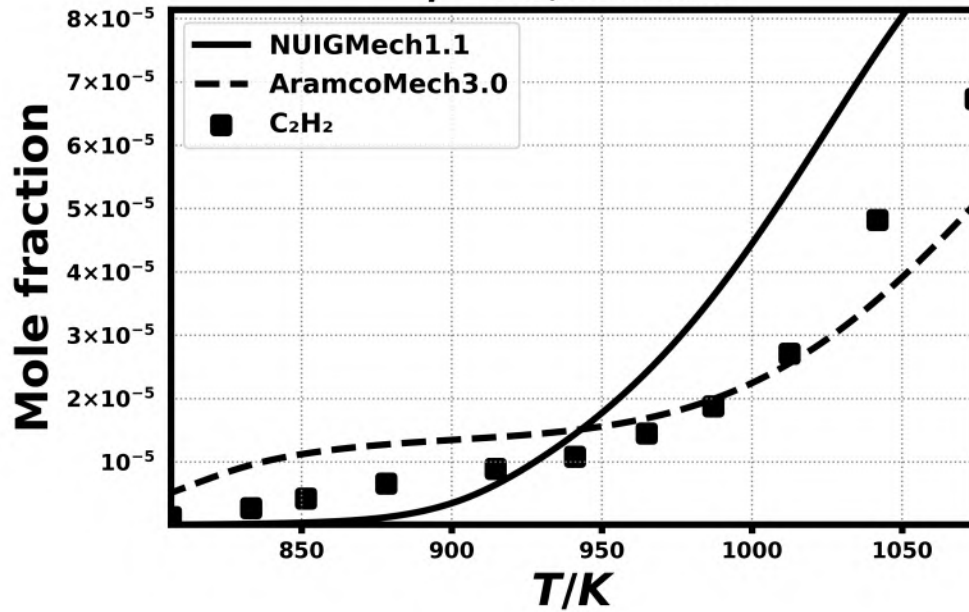
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



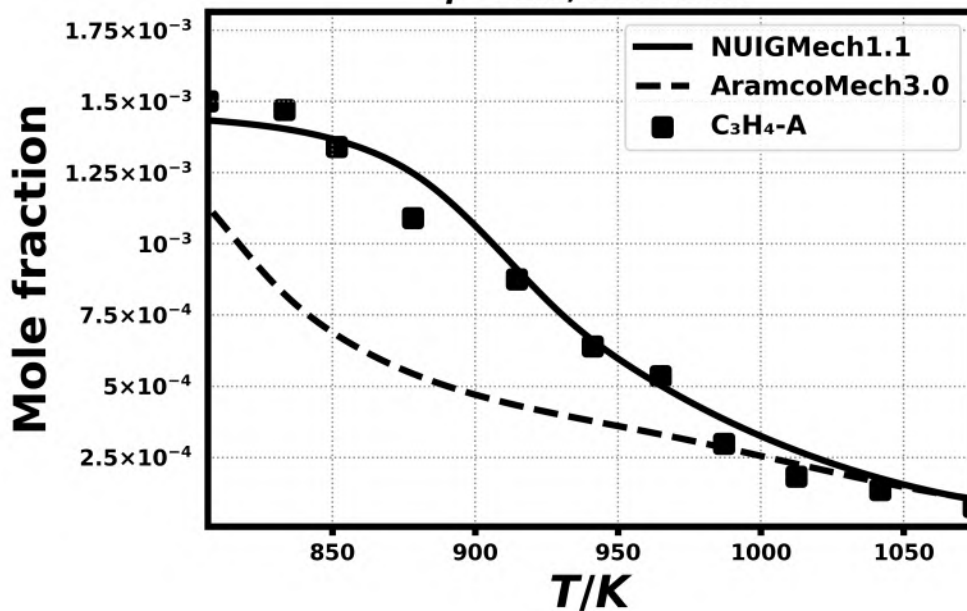
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



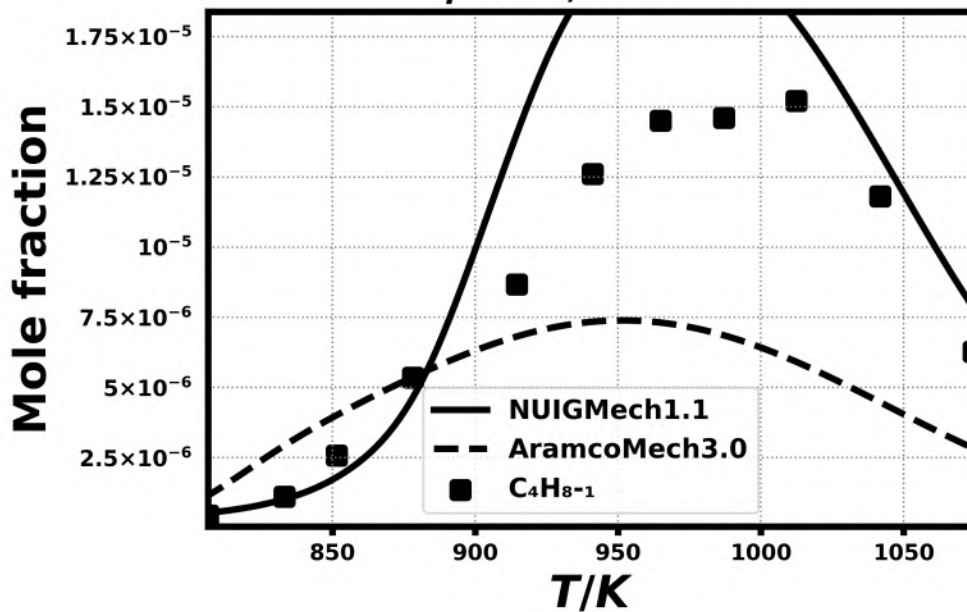
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



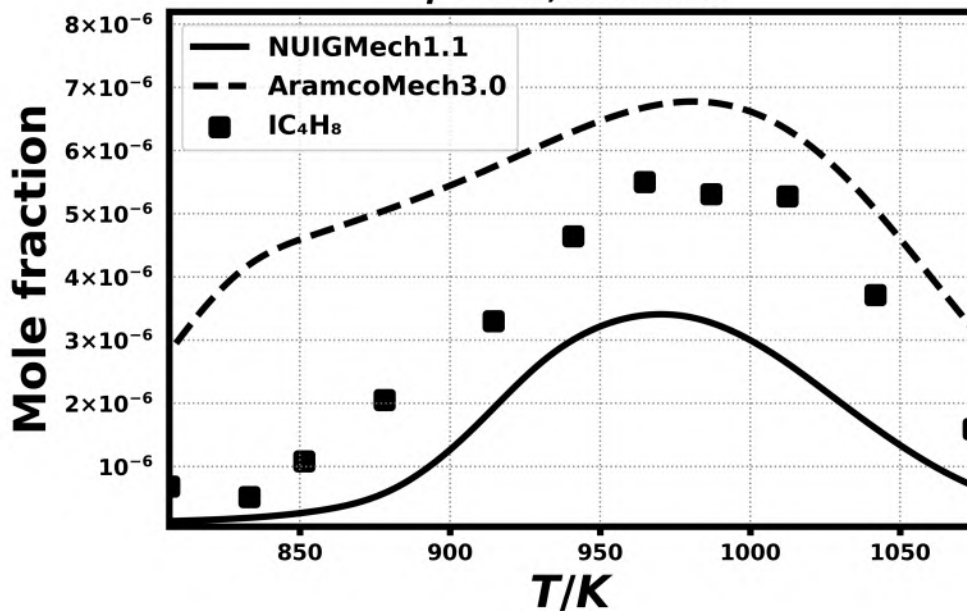
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



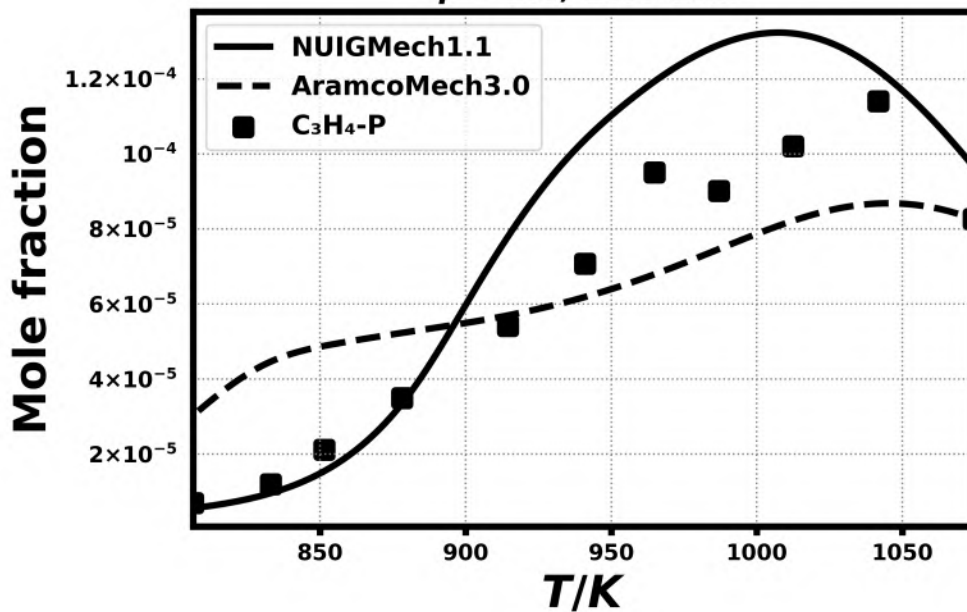
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



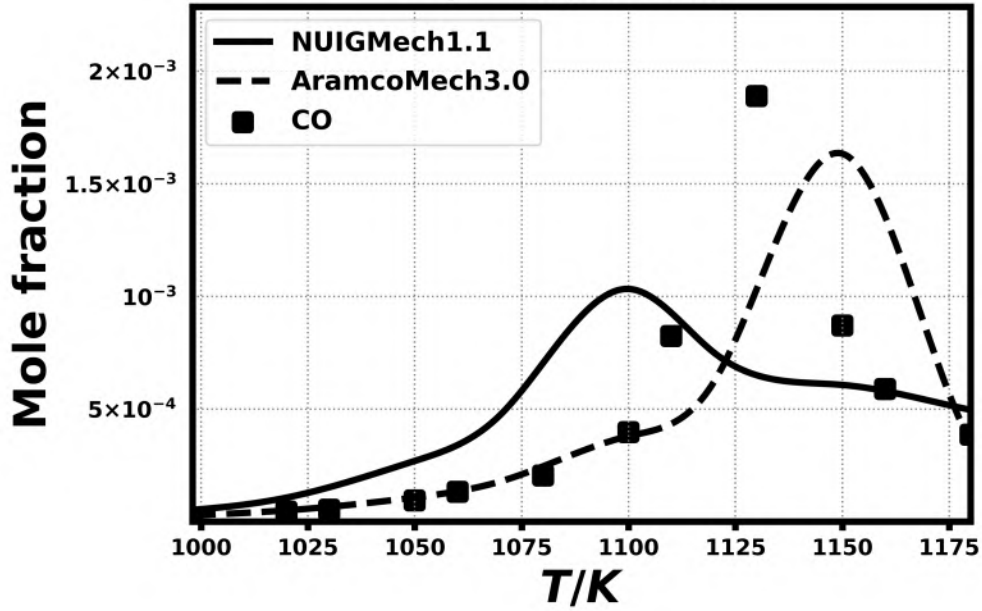
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0$ atm



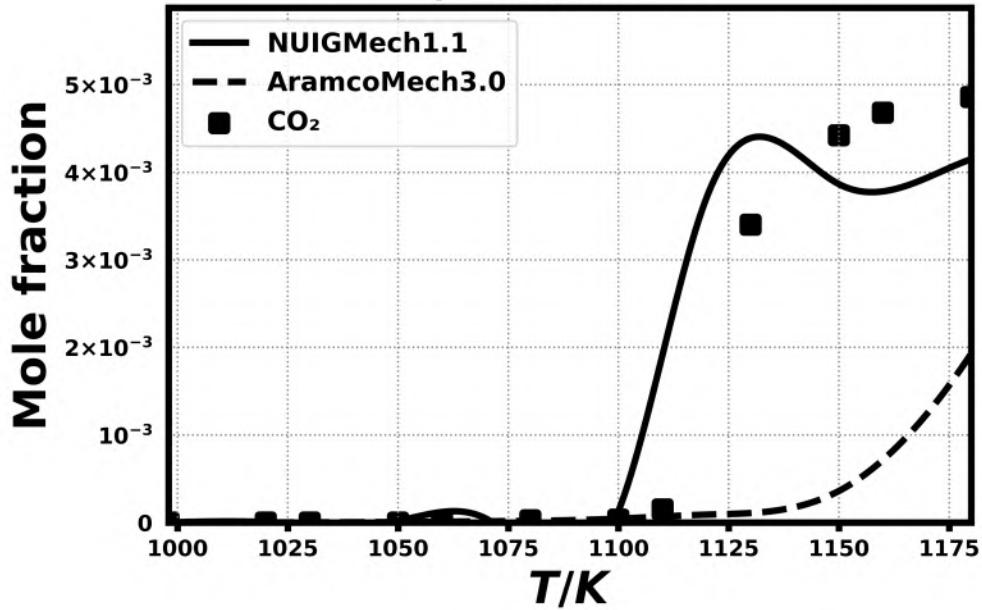
0.15% C₃H₄-A
0.4% O₂, 99.5% N₂
 $\phi = 1.5, 10.0$ atm



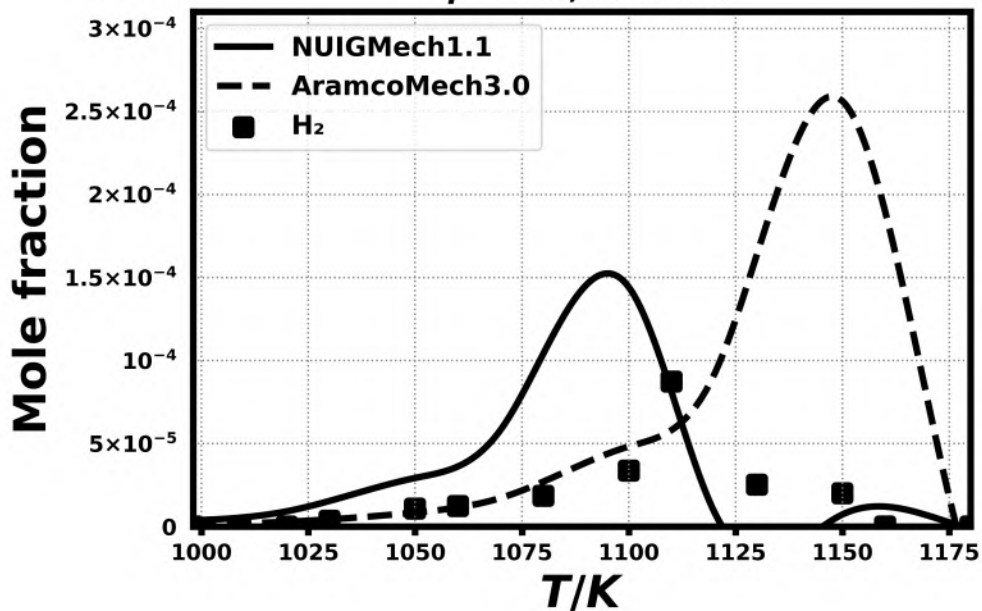
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



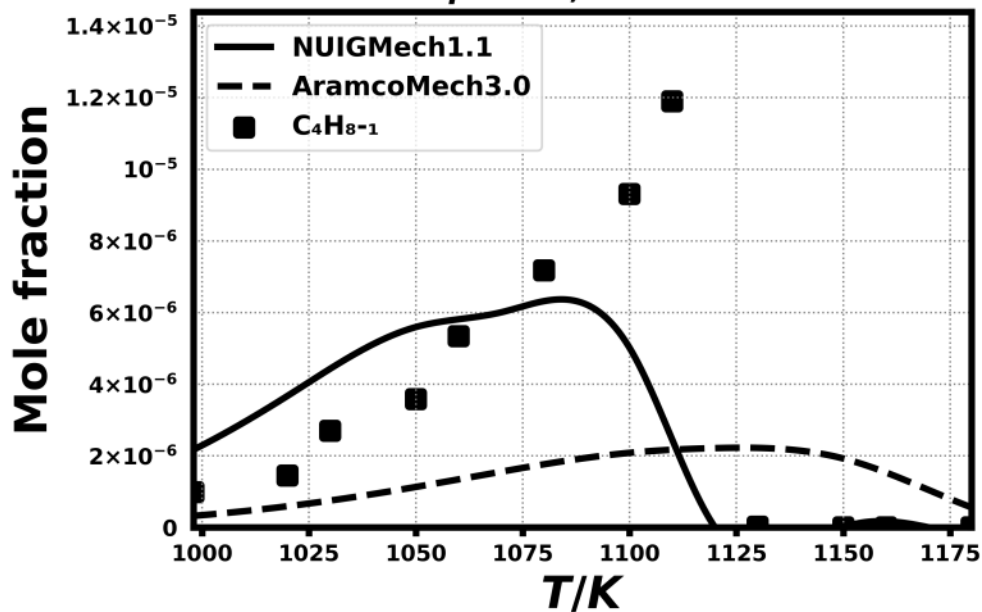
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



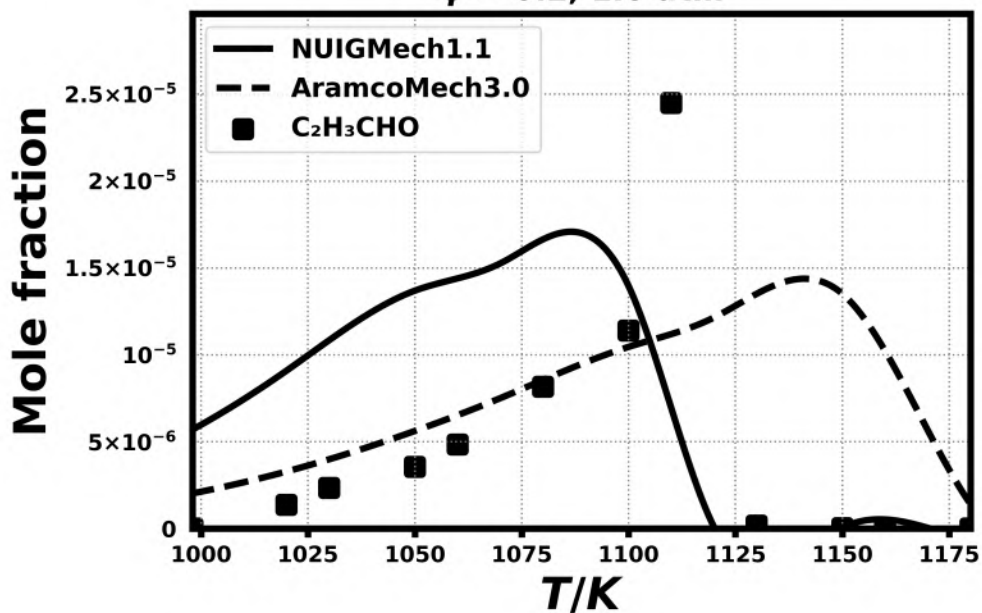
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2$, 1.0 atm



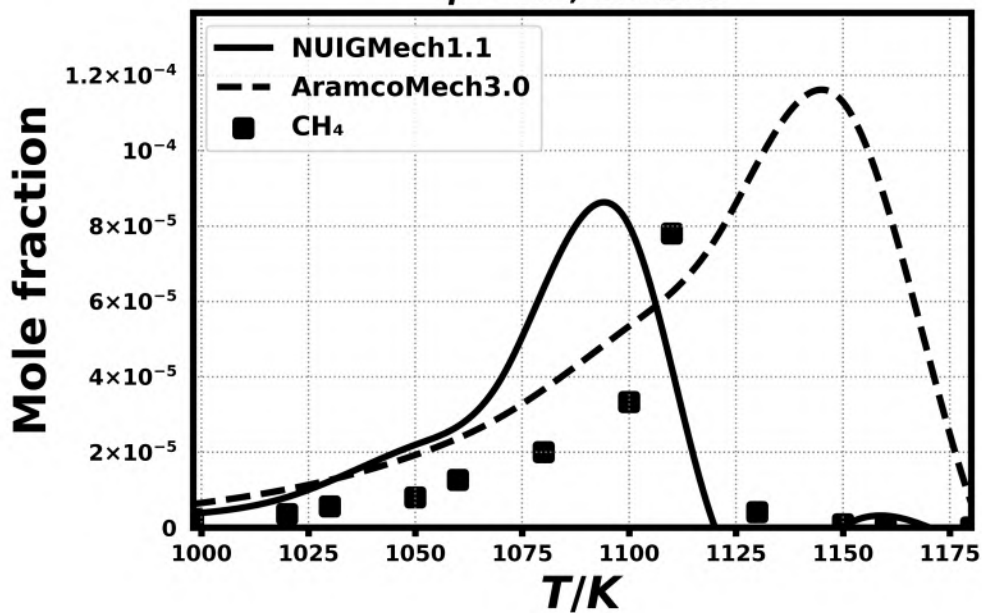
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2$, 1.0 atm



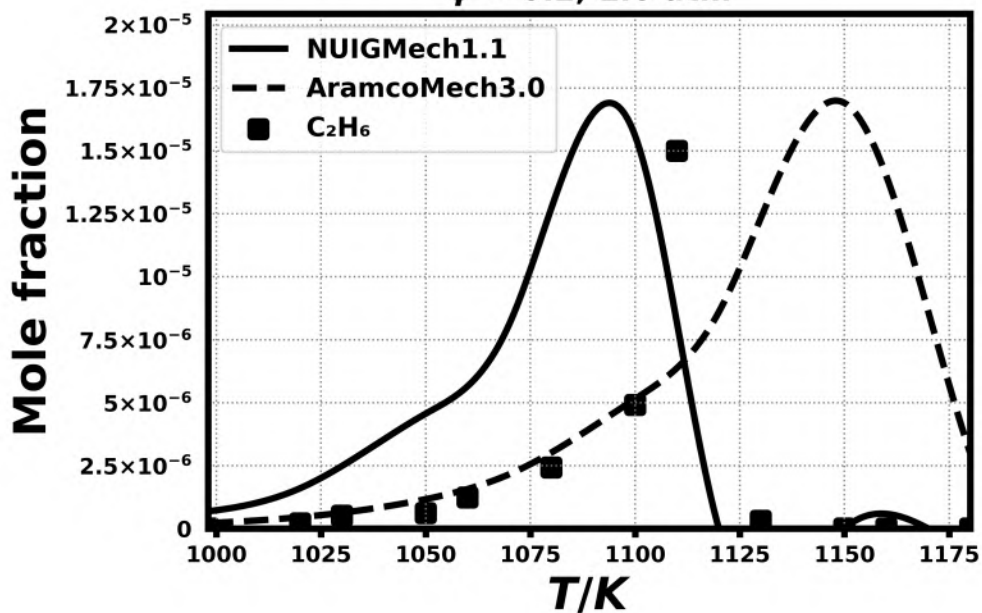
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



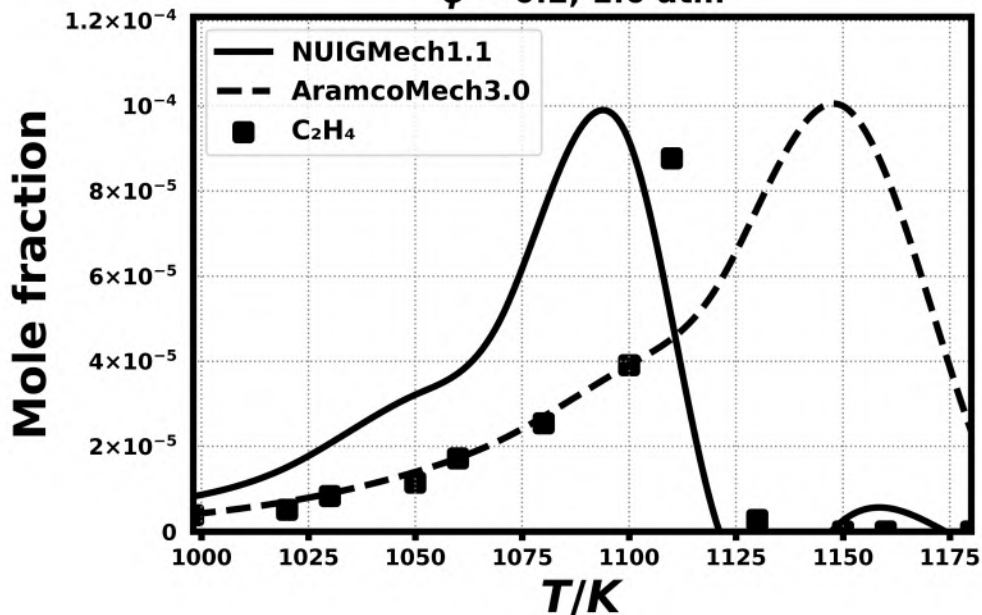
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



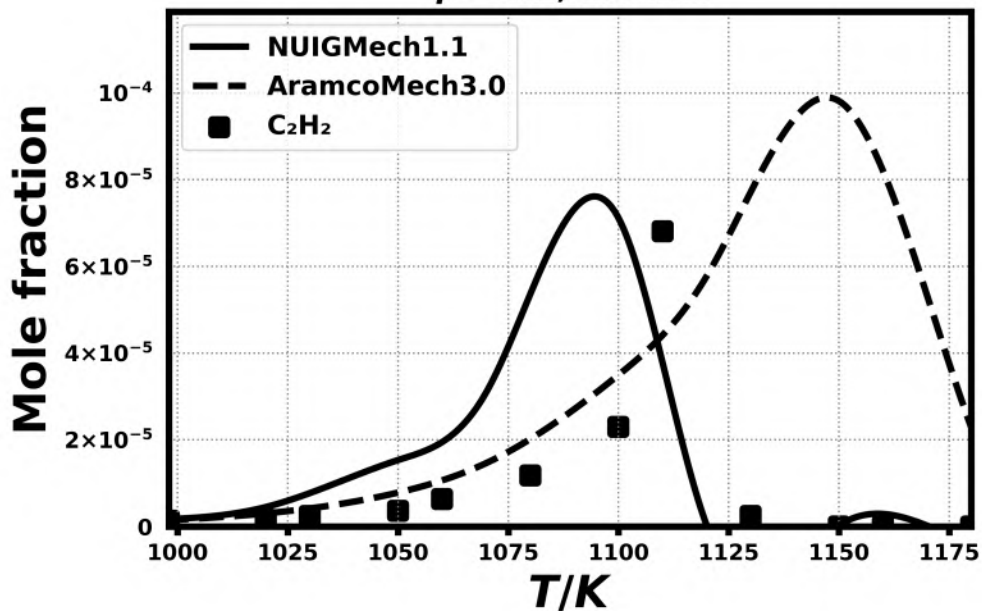
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



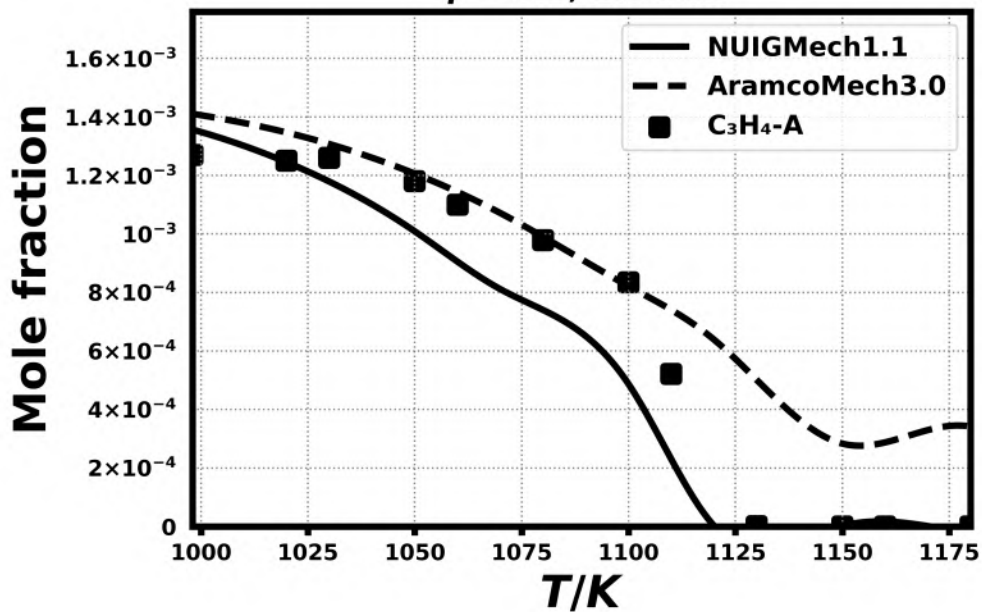
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



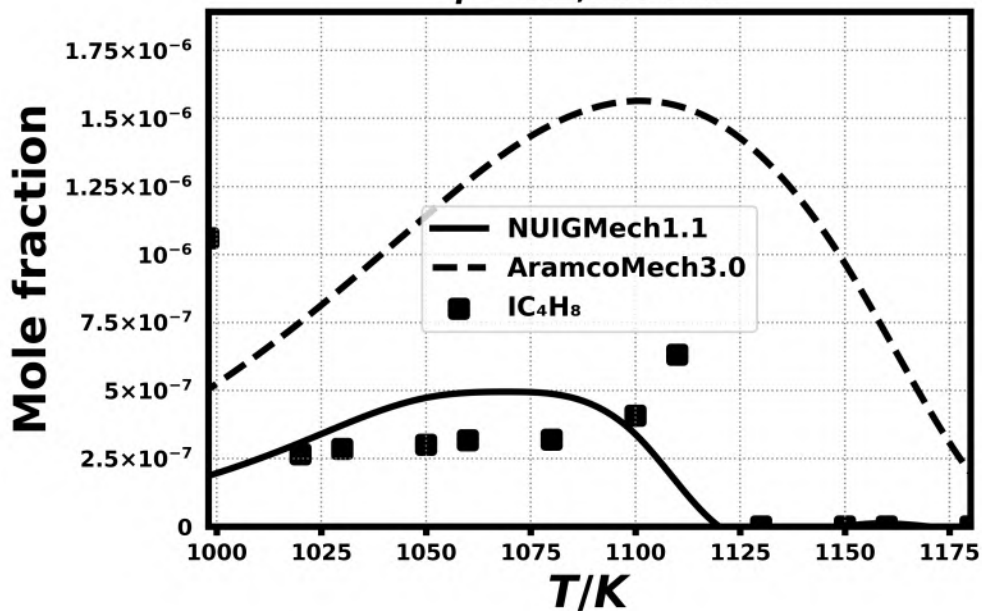
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



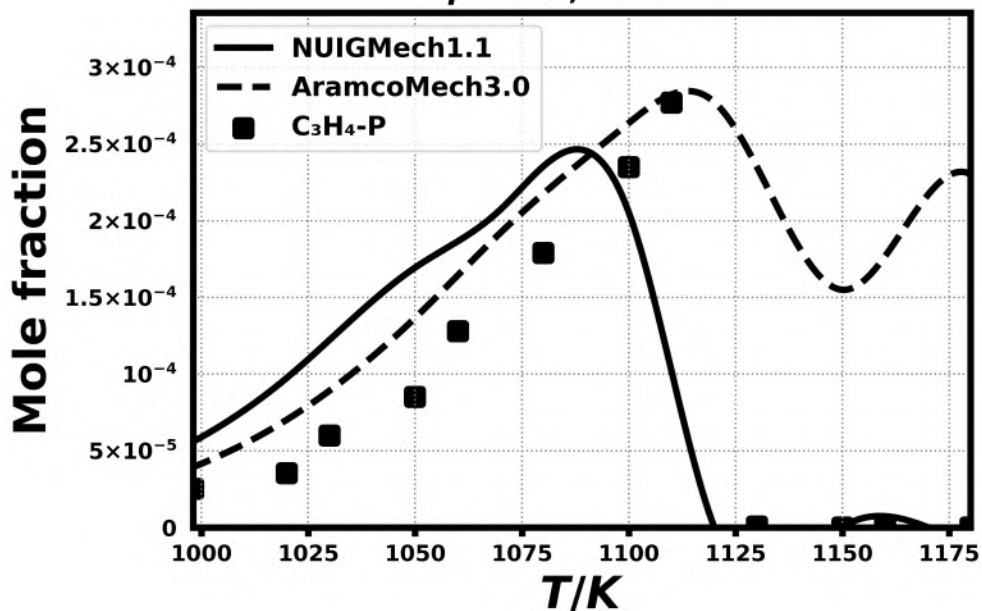
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



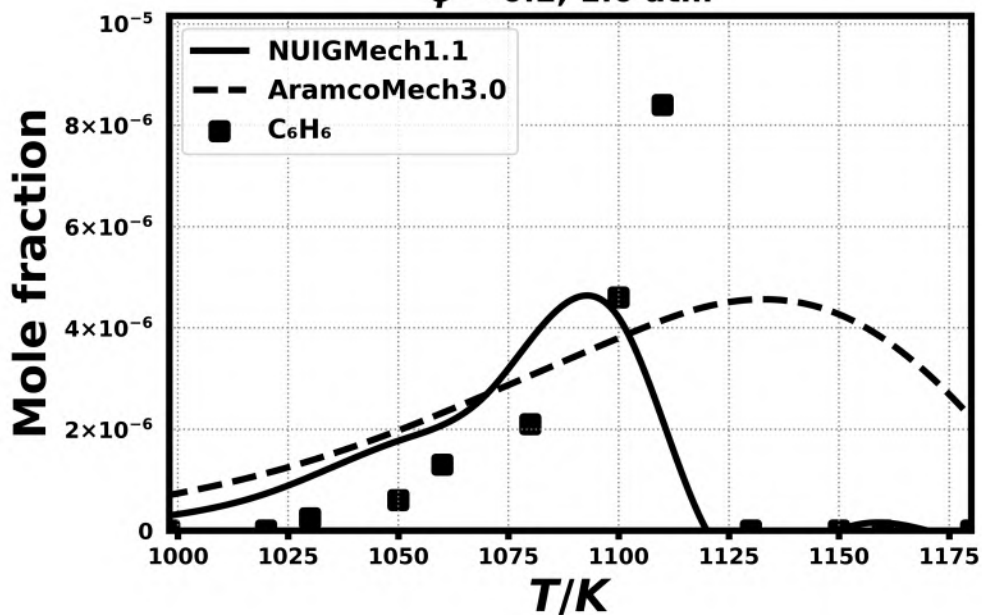
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



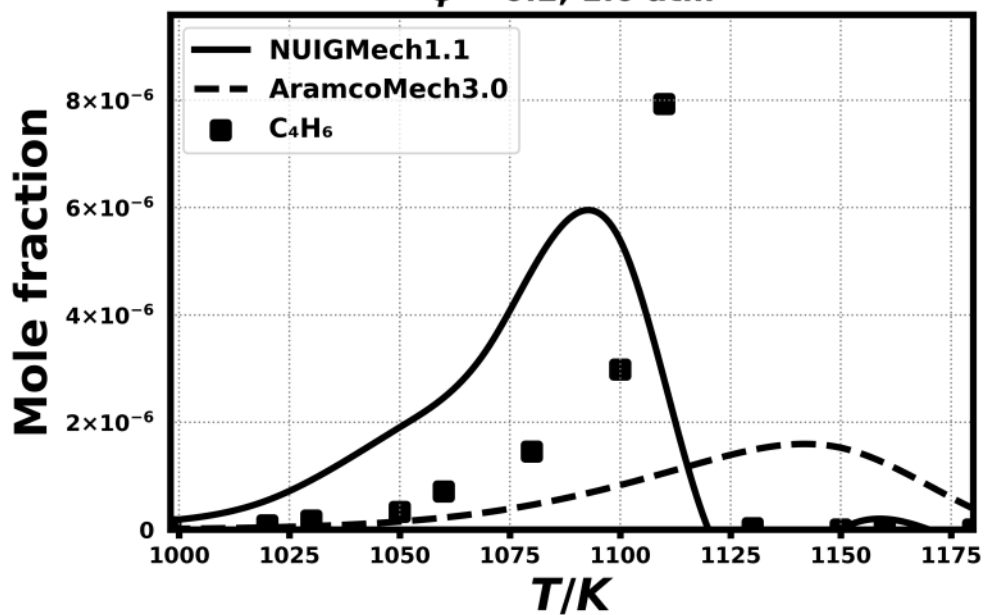
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



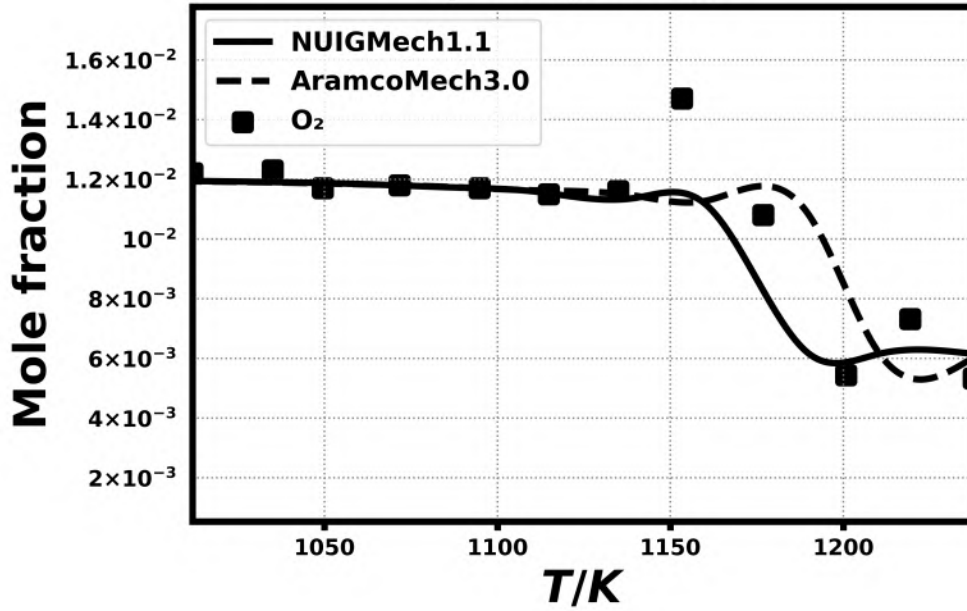
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



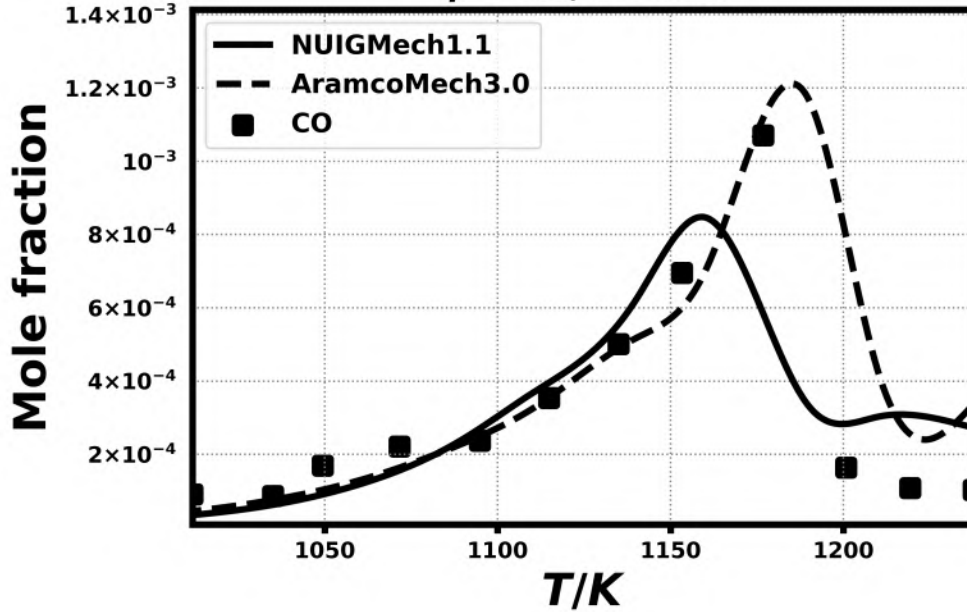
0.15% C₃H₄-A
3.0% O₂, 96.9% N₂
 $\phi = 0.2, 1.0 \text{ atm}$



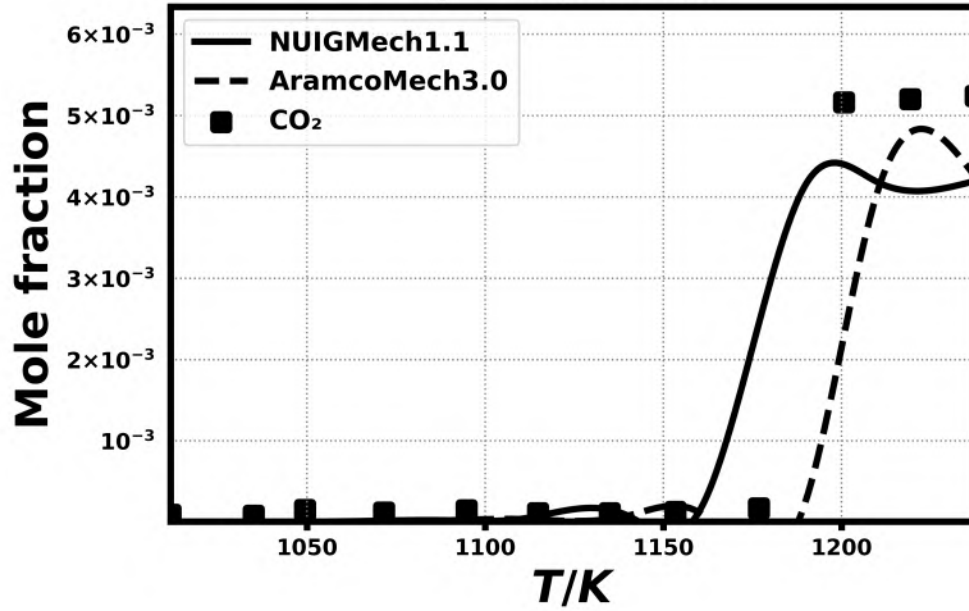
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



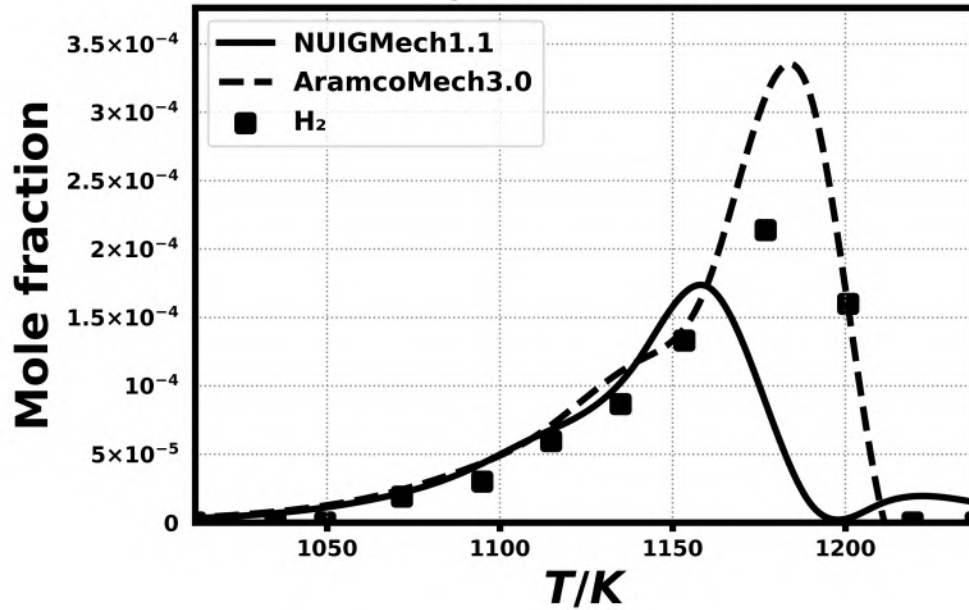
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



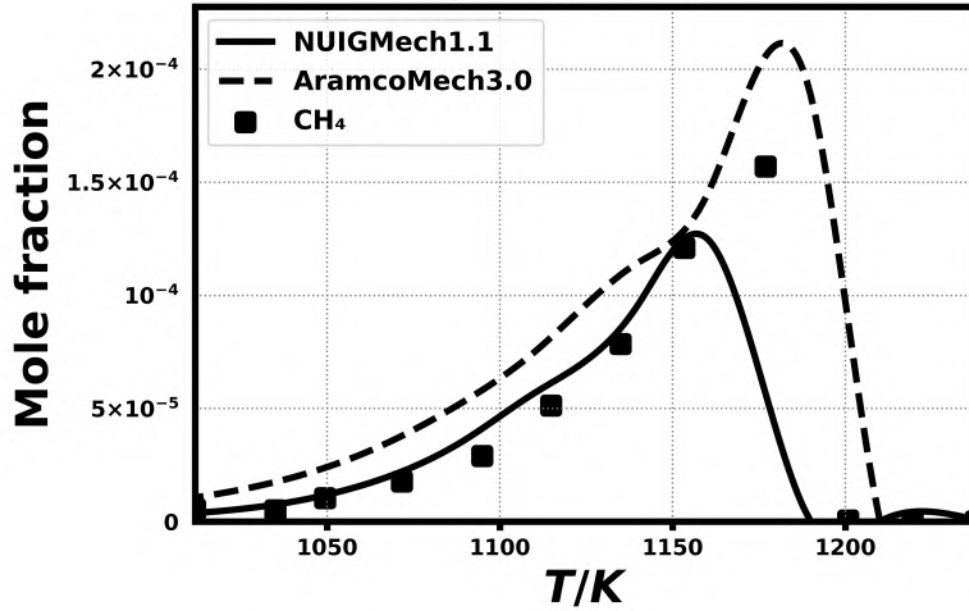
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



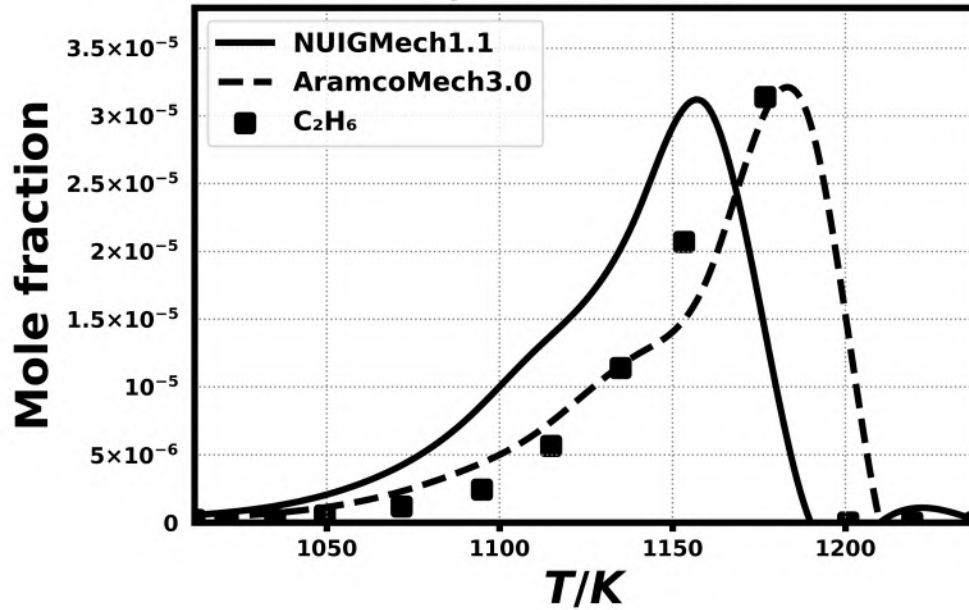
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



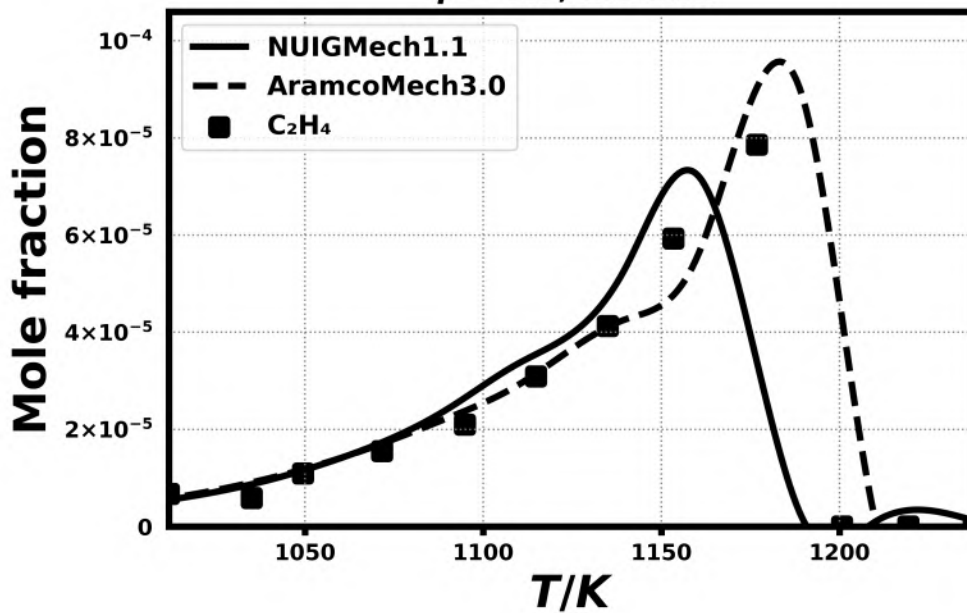
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



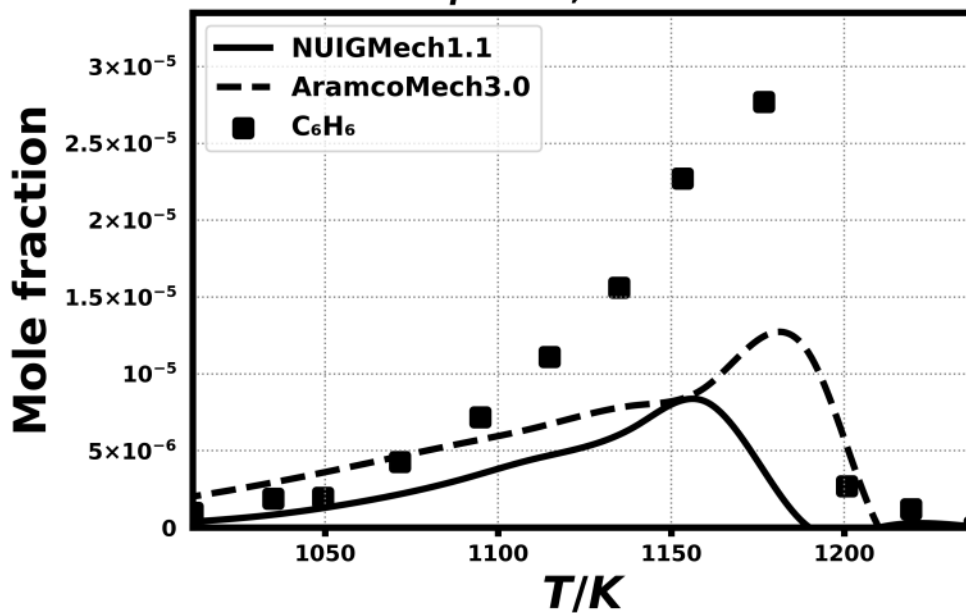
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



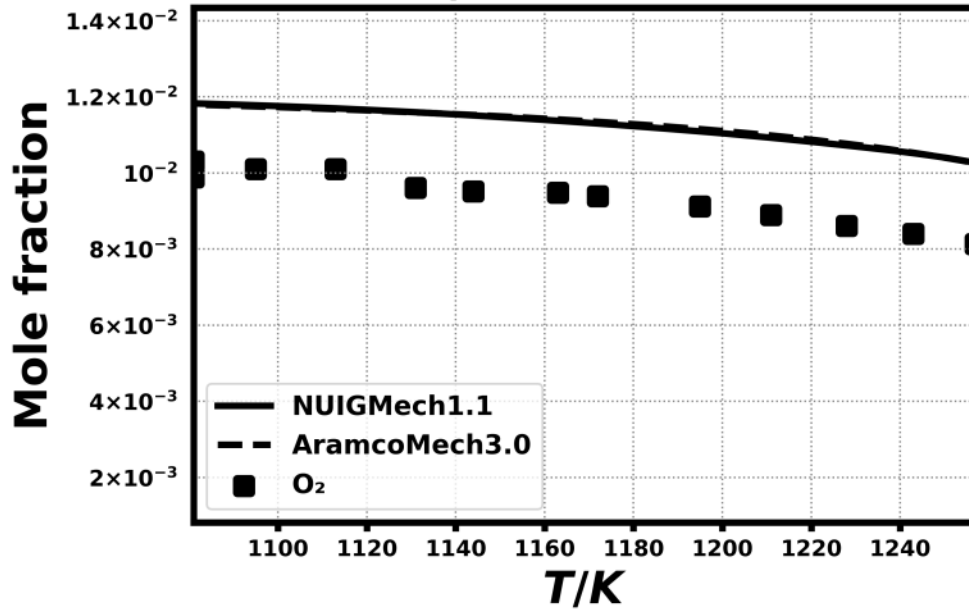
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



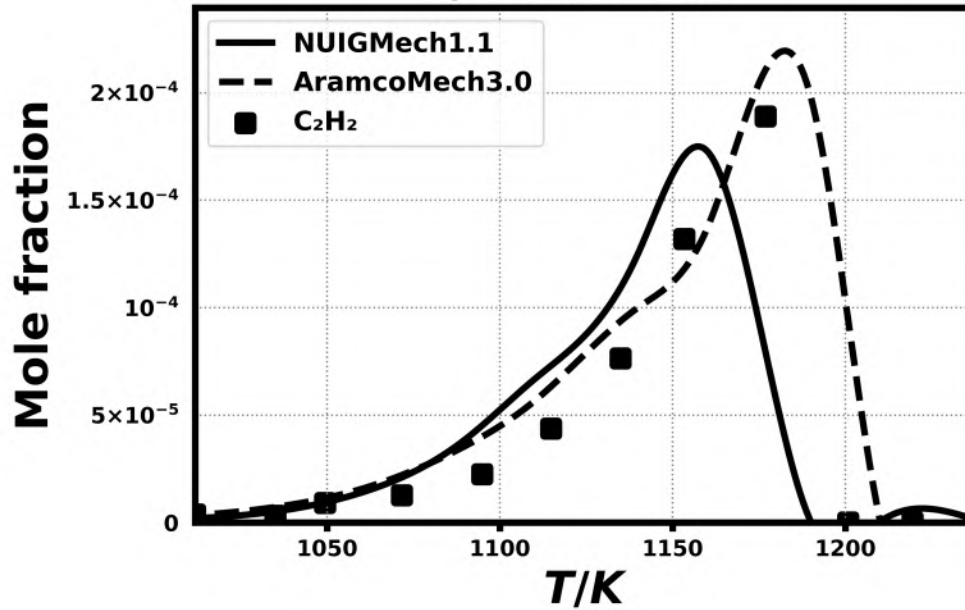
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



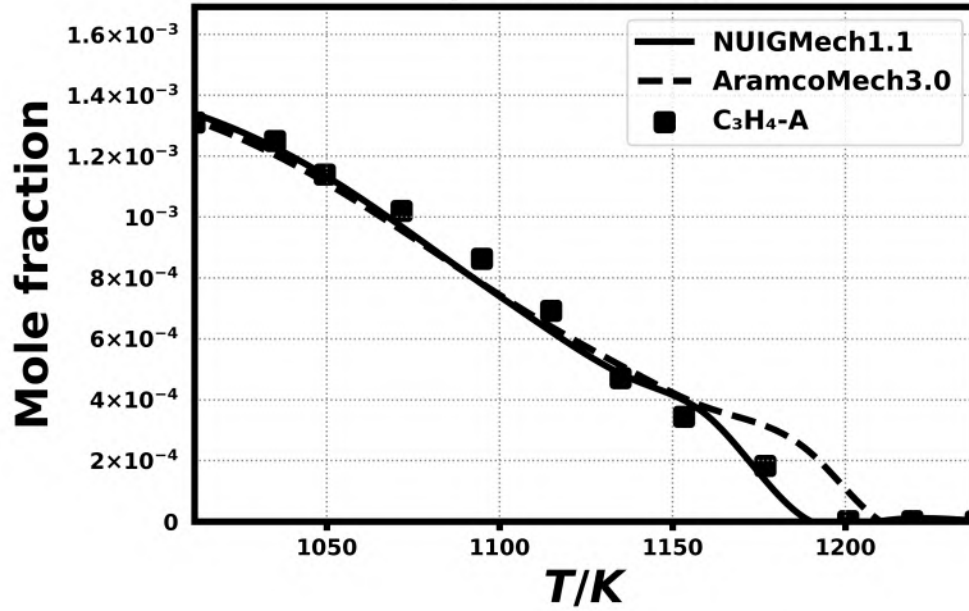
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0$, 1.0 atm



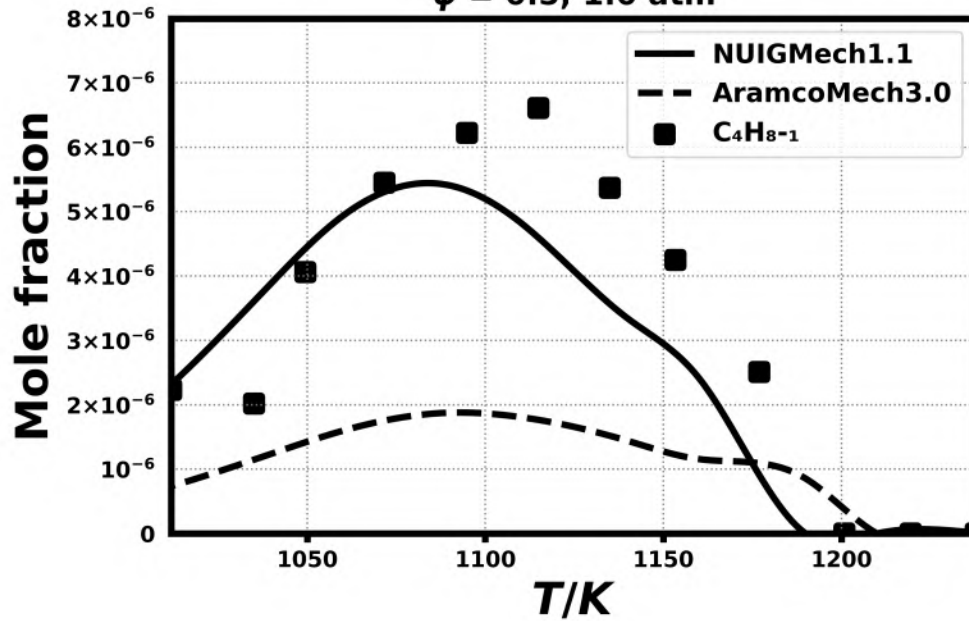
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5$, 1.0 atm



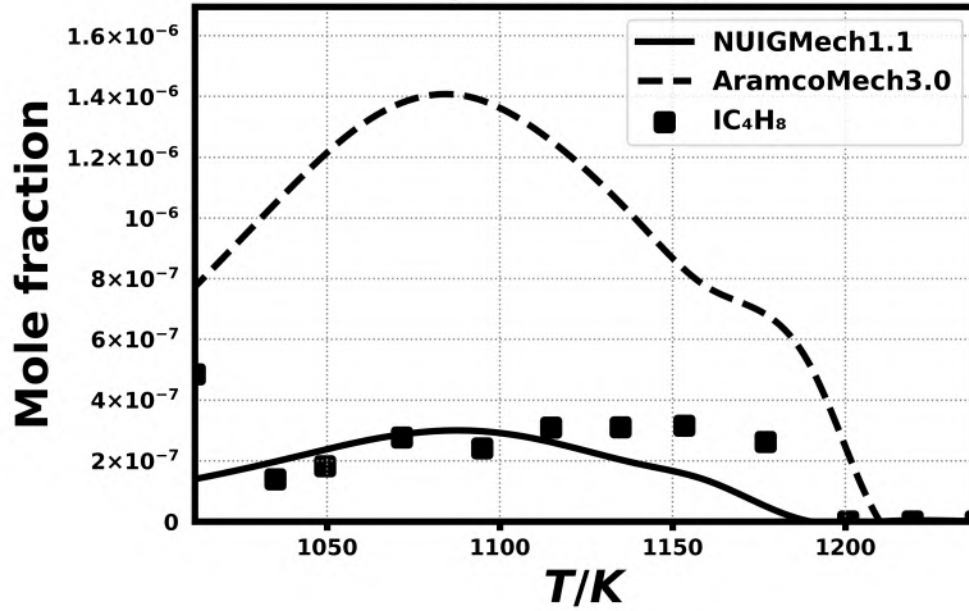
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



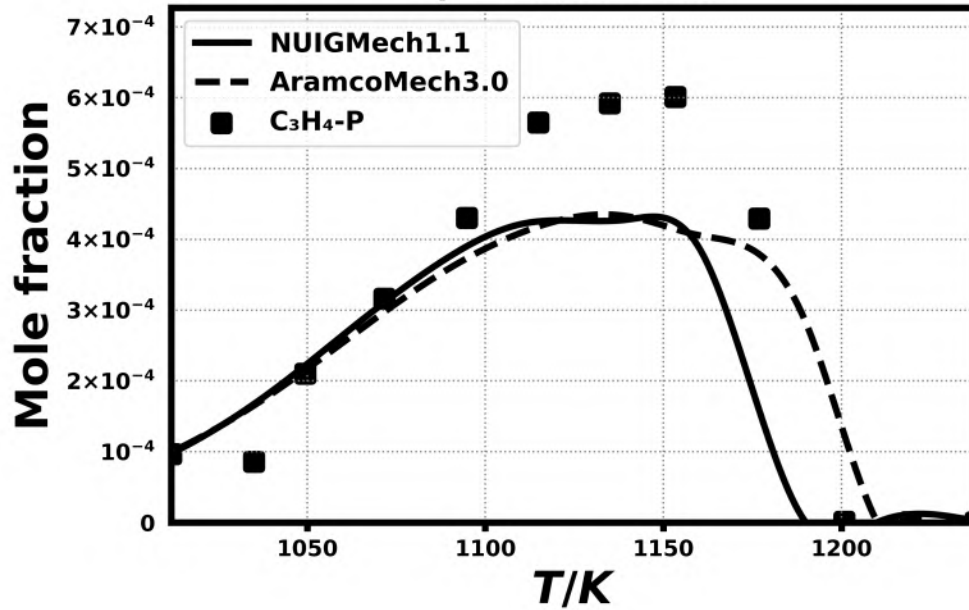
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



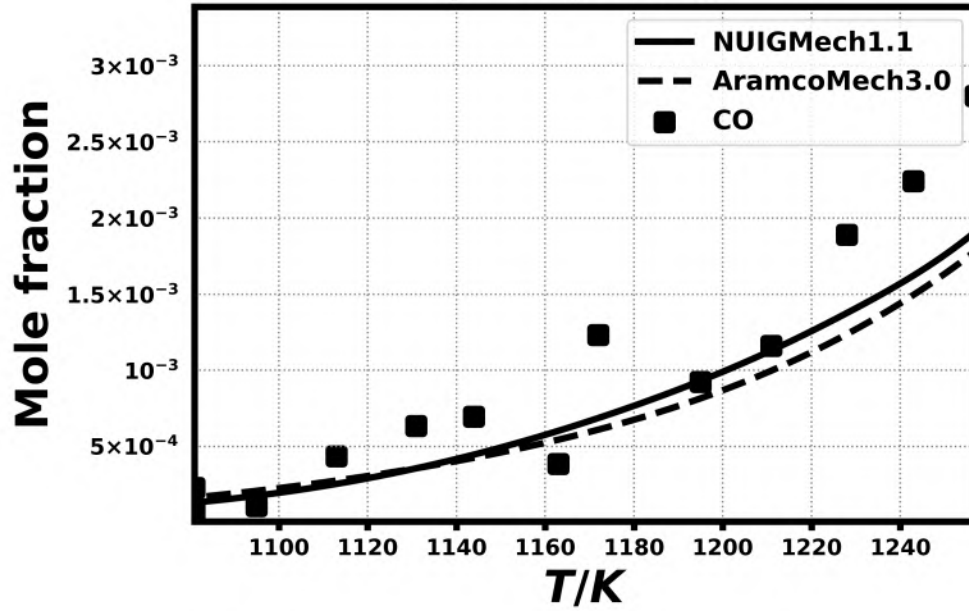
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



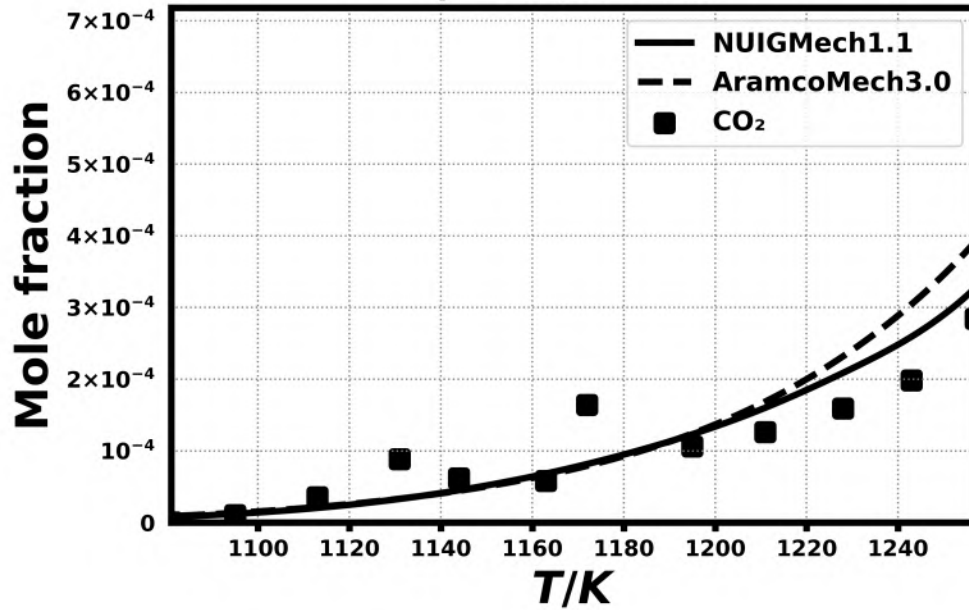
0.15% C₃H₄-A
1.2% O₂, 98.7% N₂
 $\phi = 0.5, 1.0 \text{ atm}$



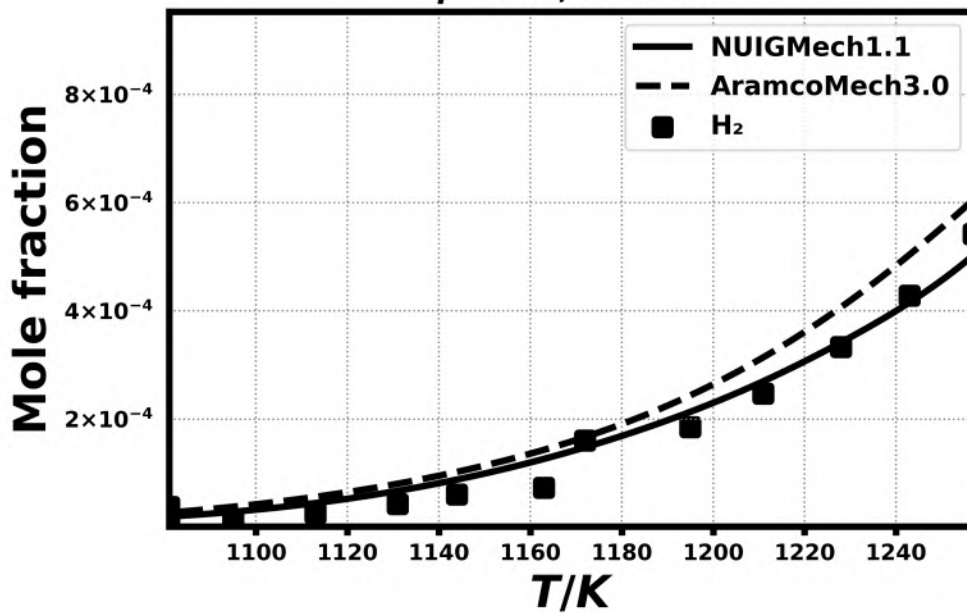
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



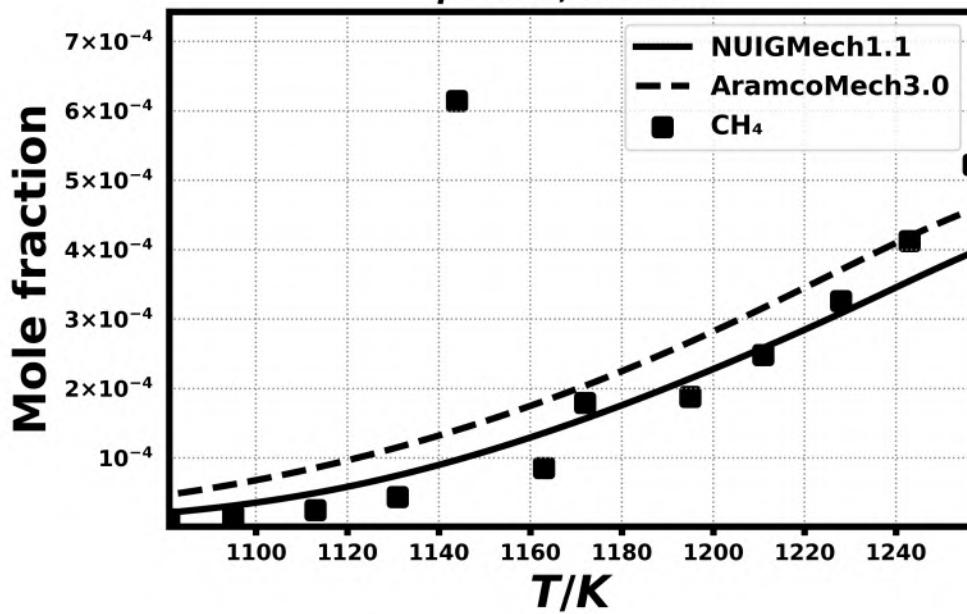
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



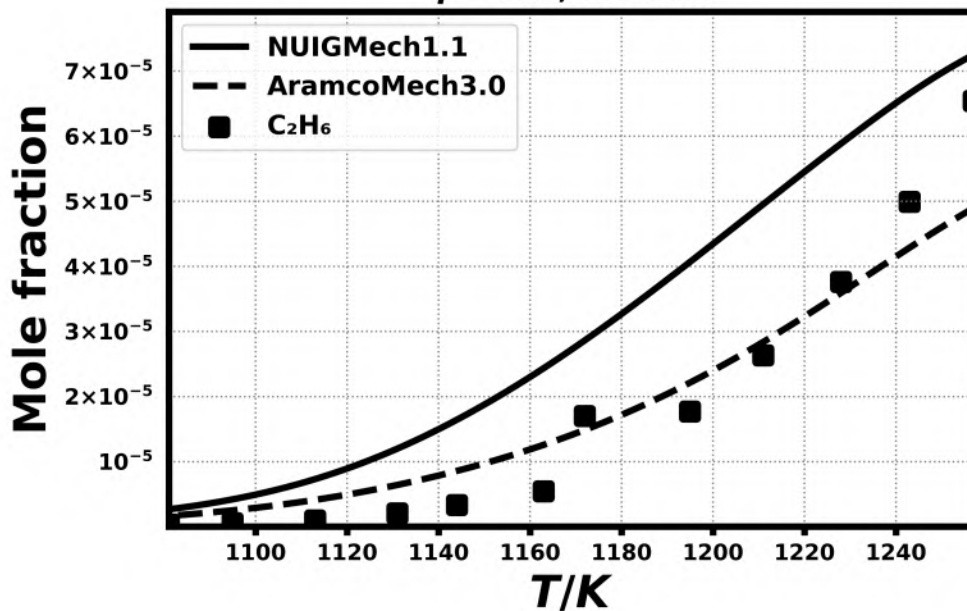
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



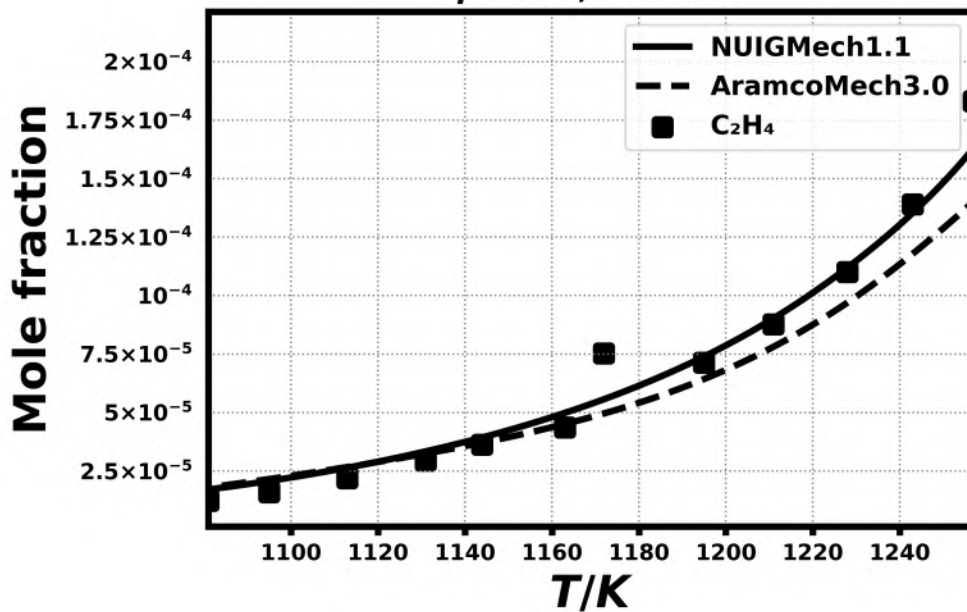
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



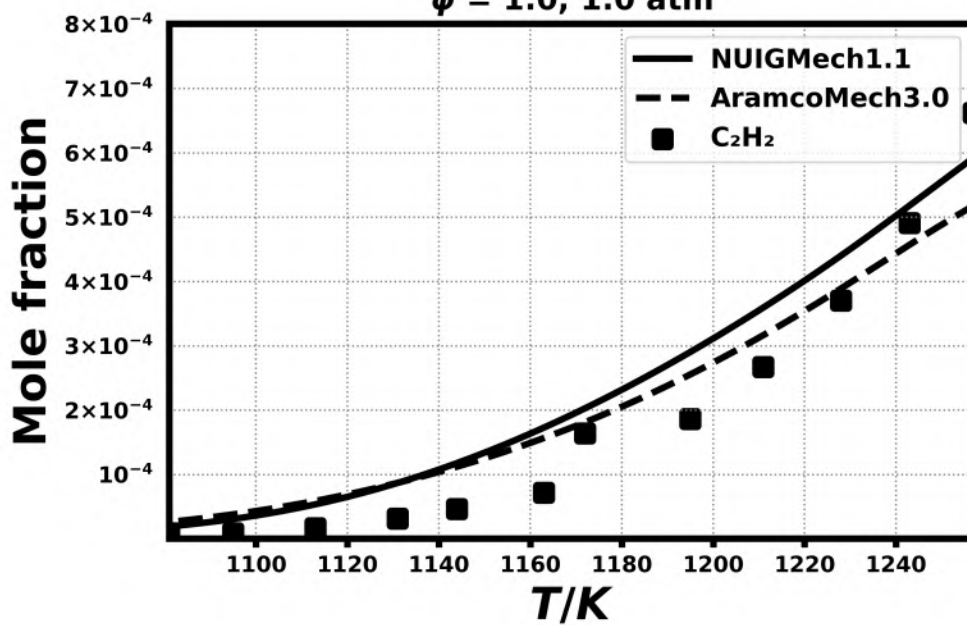
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



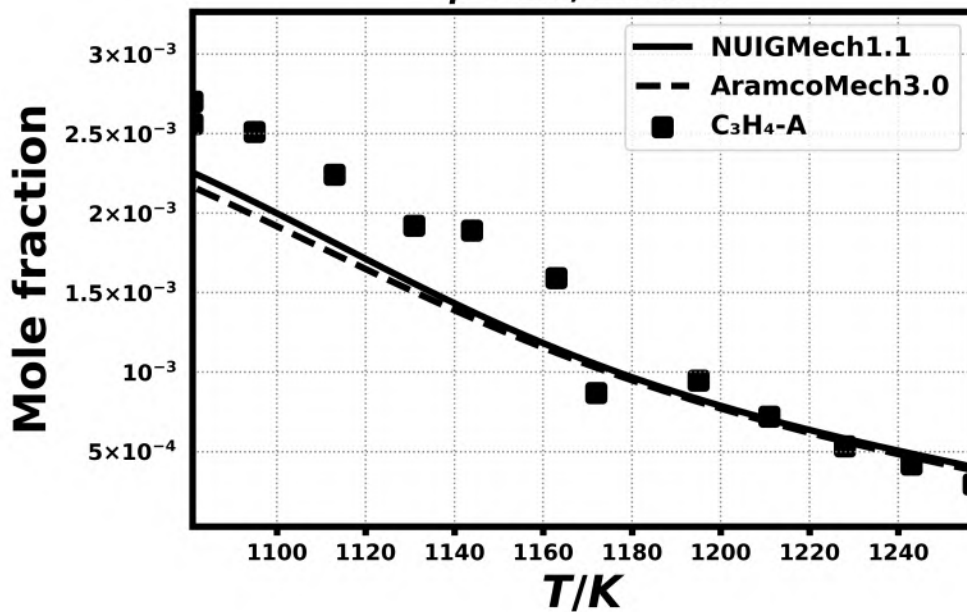
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



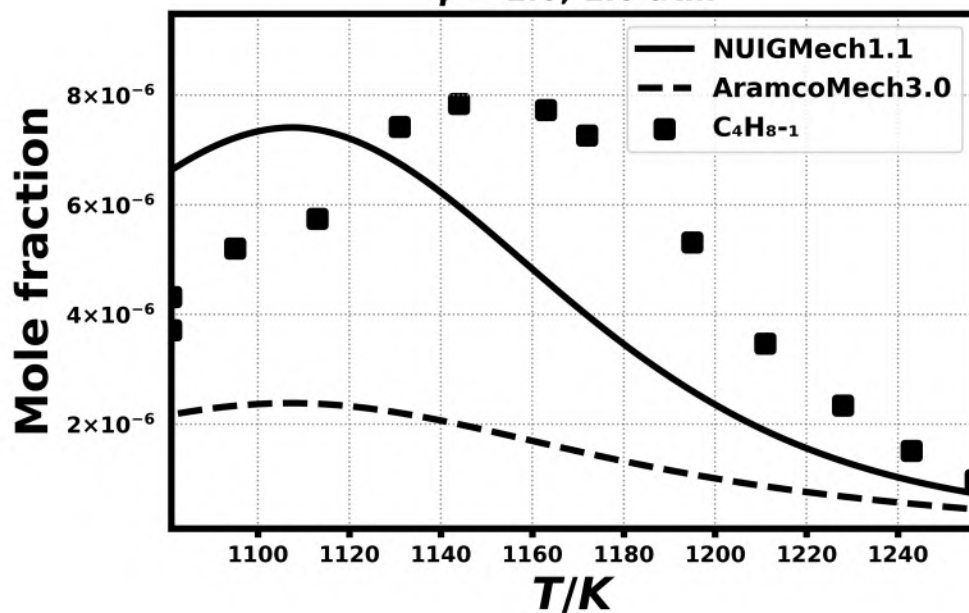
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



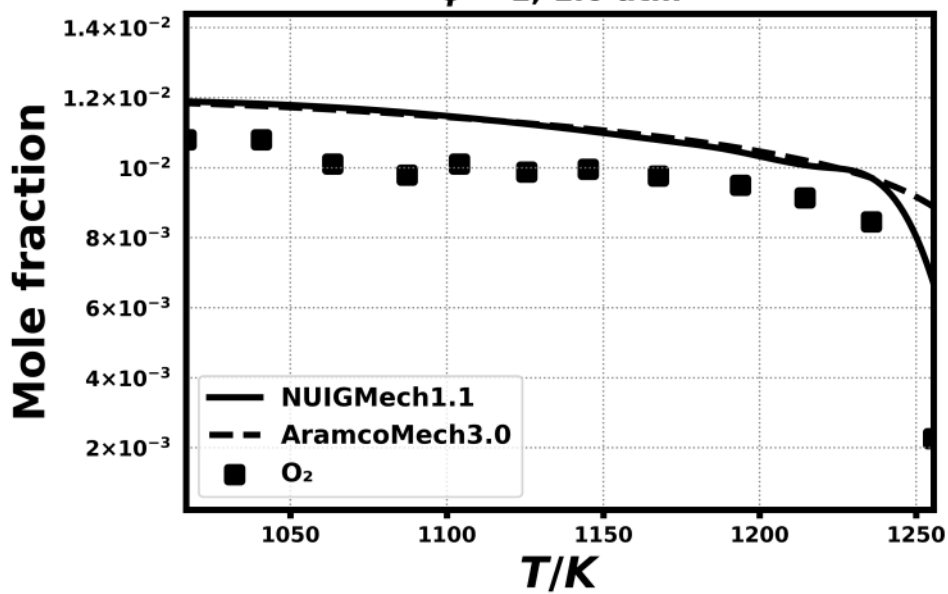
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



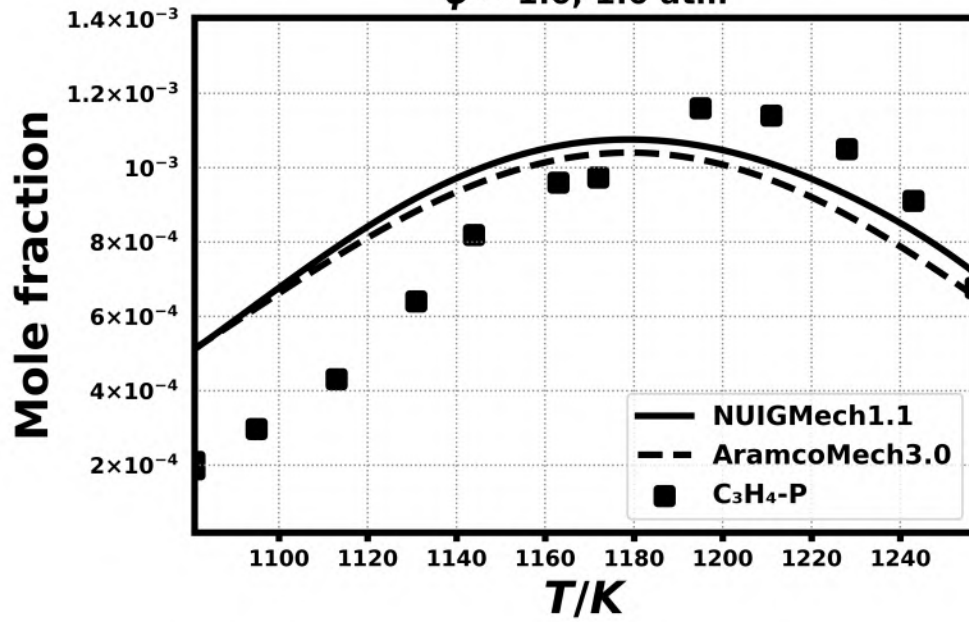
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



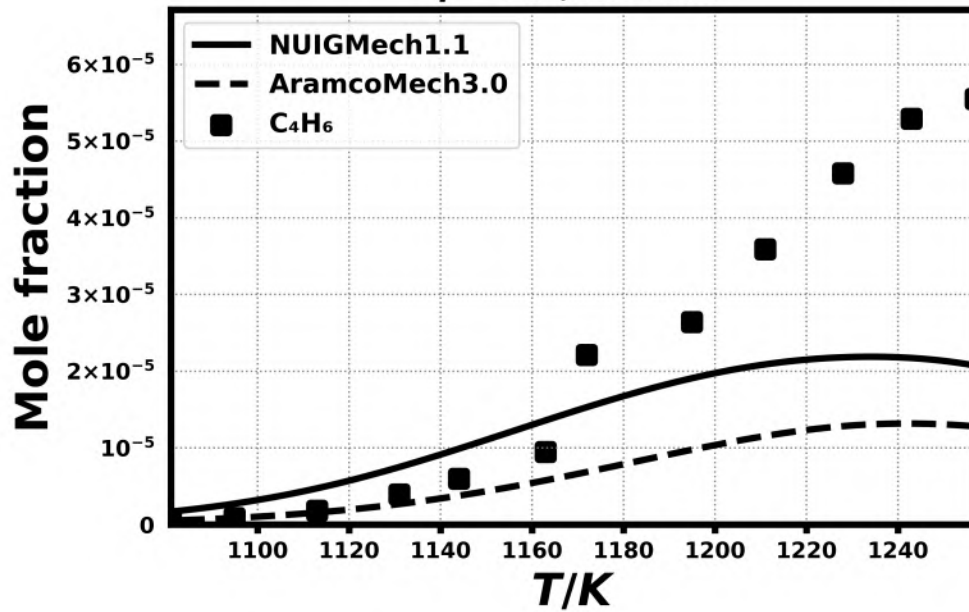
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



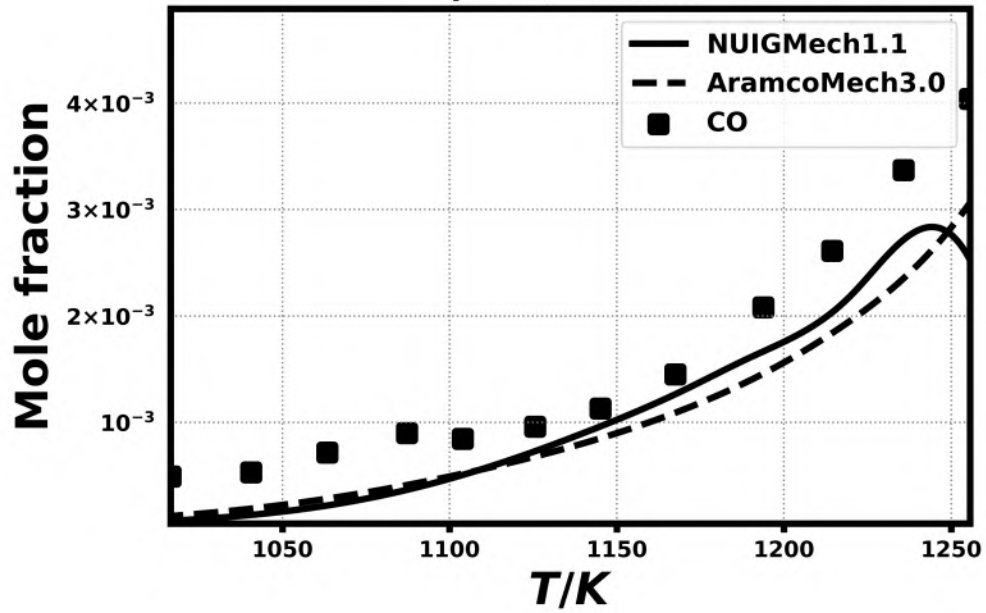
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



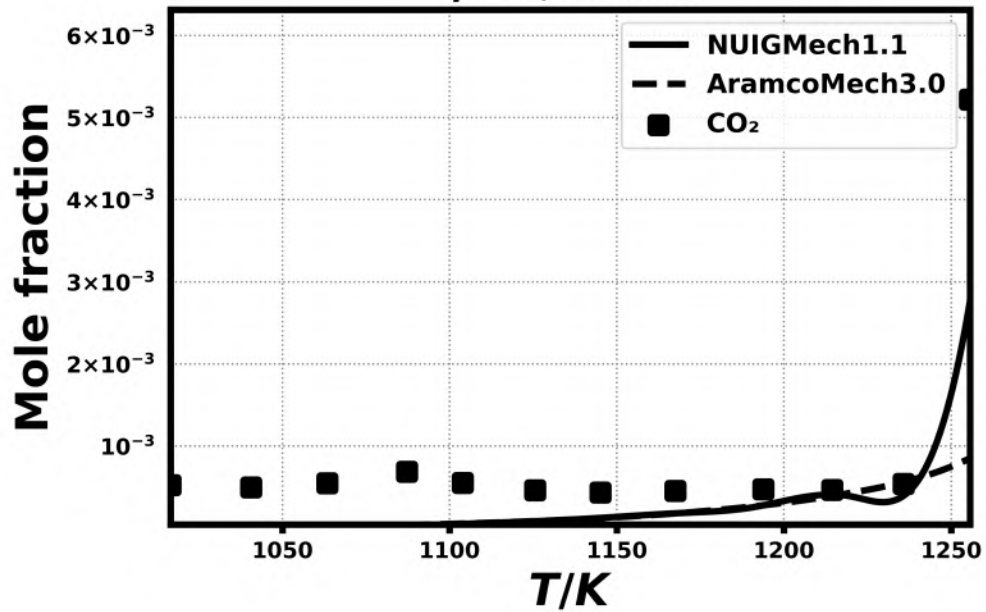
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1.0, 1.0 \text{ atm}$



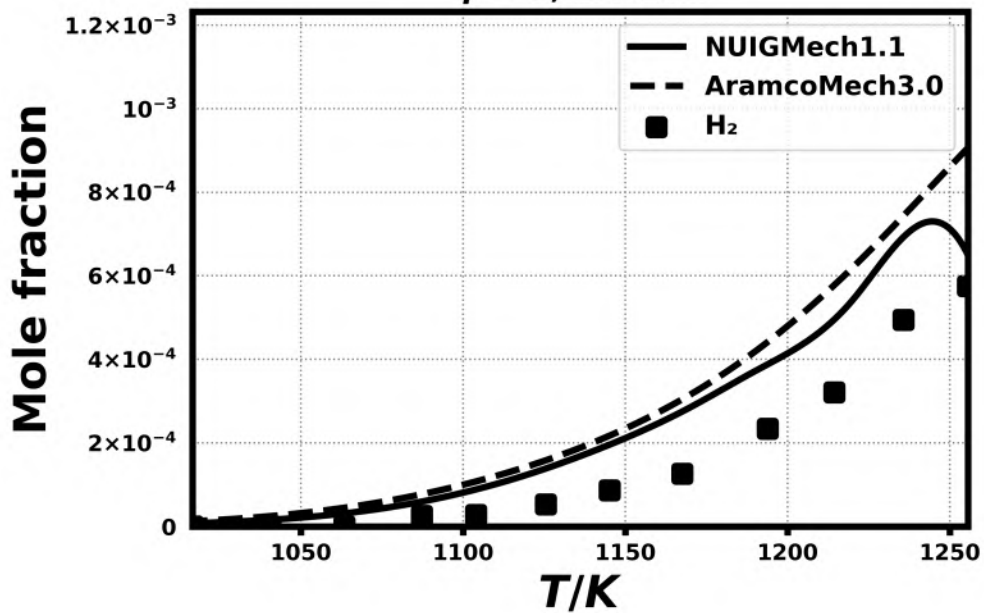
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



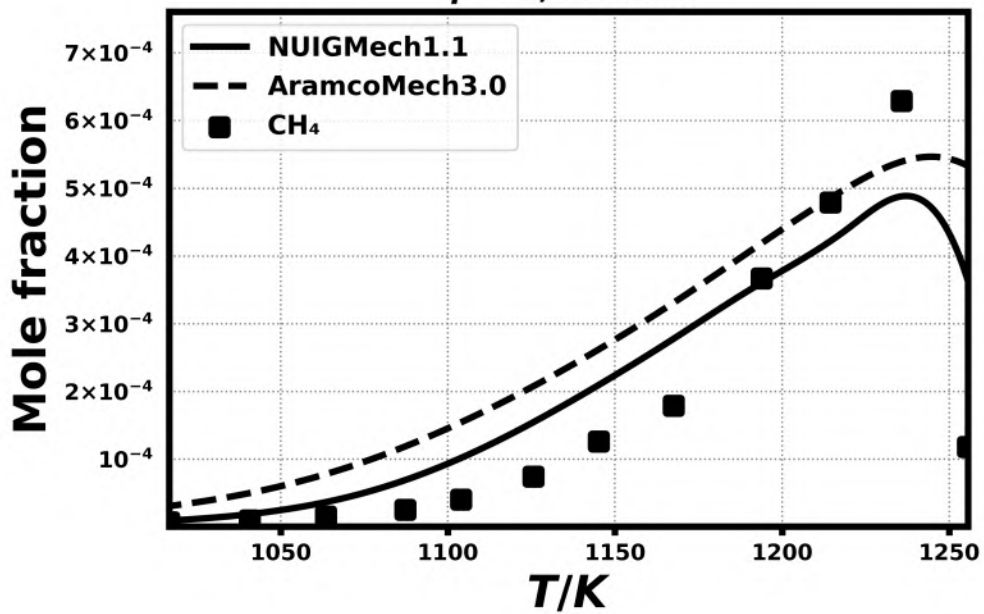
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



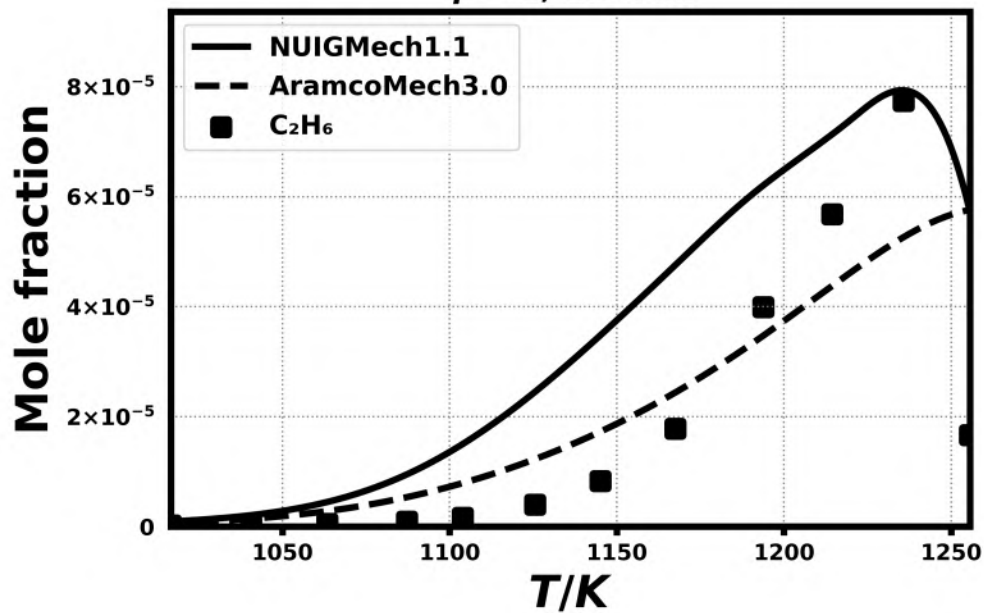
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



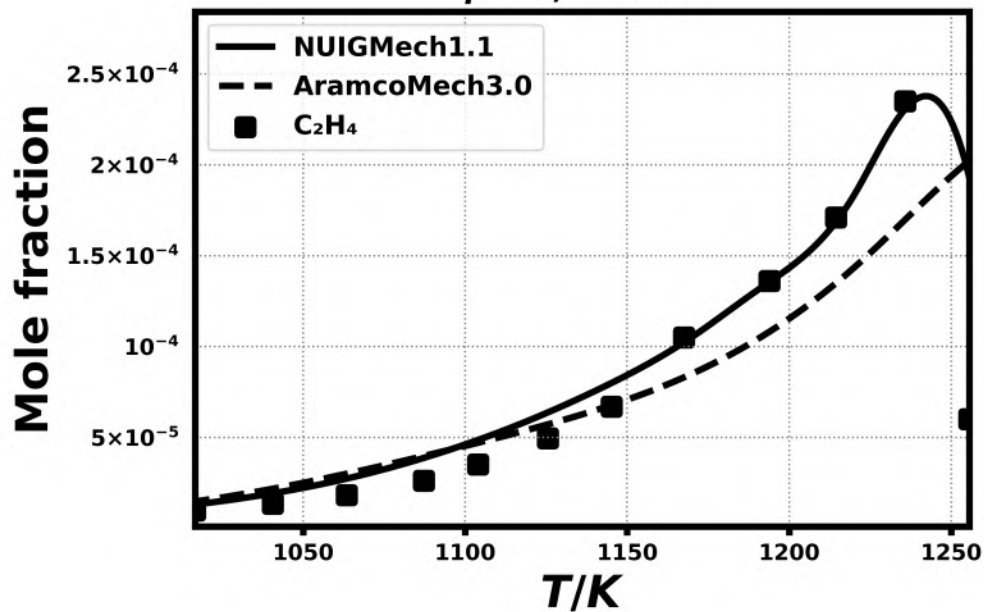
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



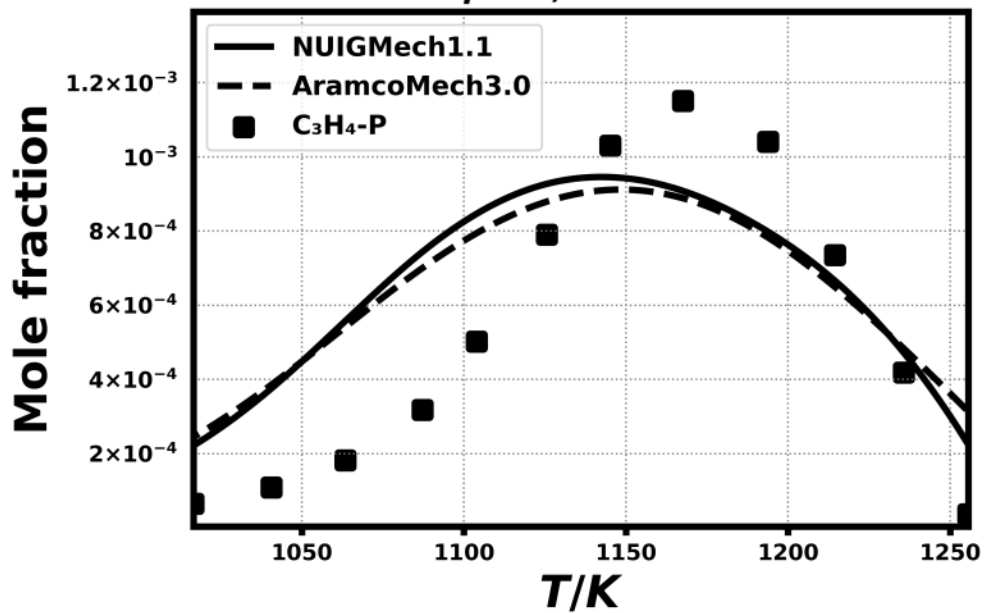
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



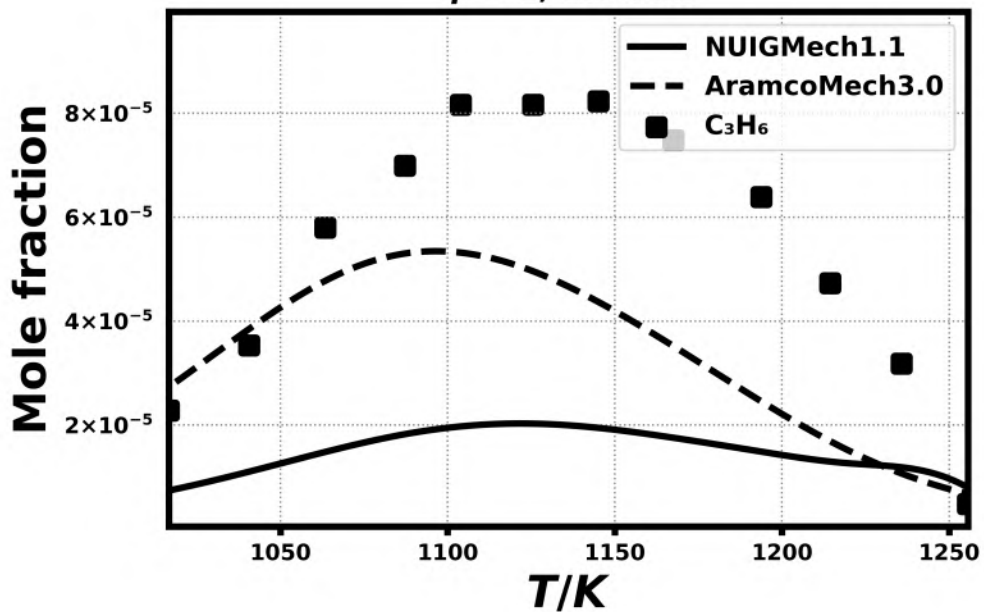
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



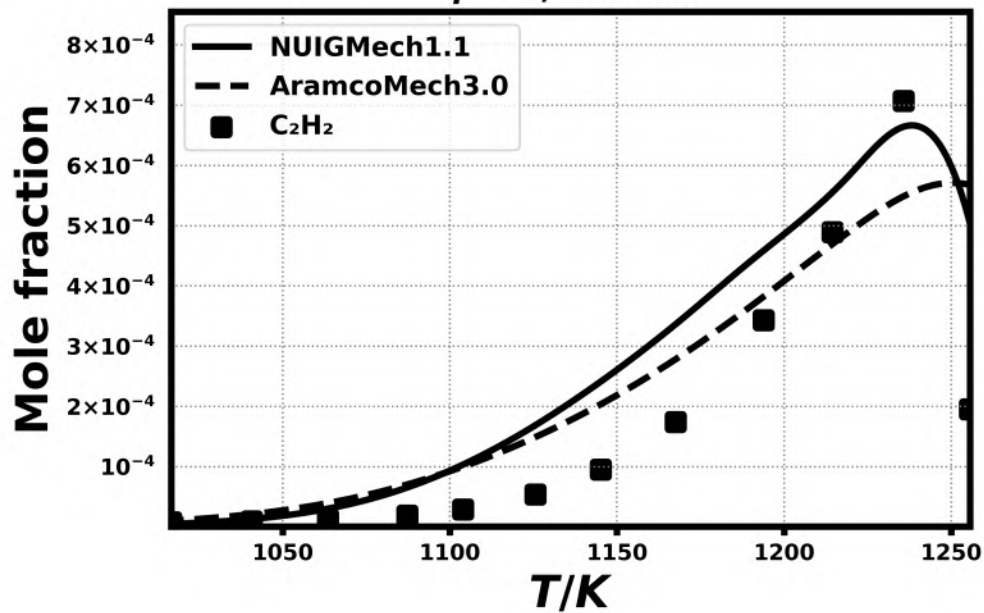
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



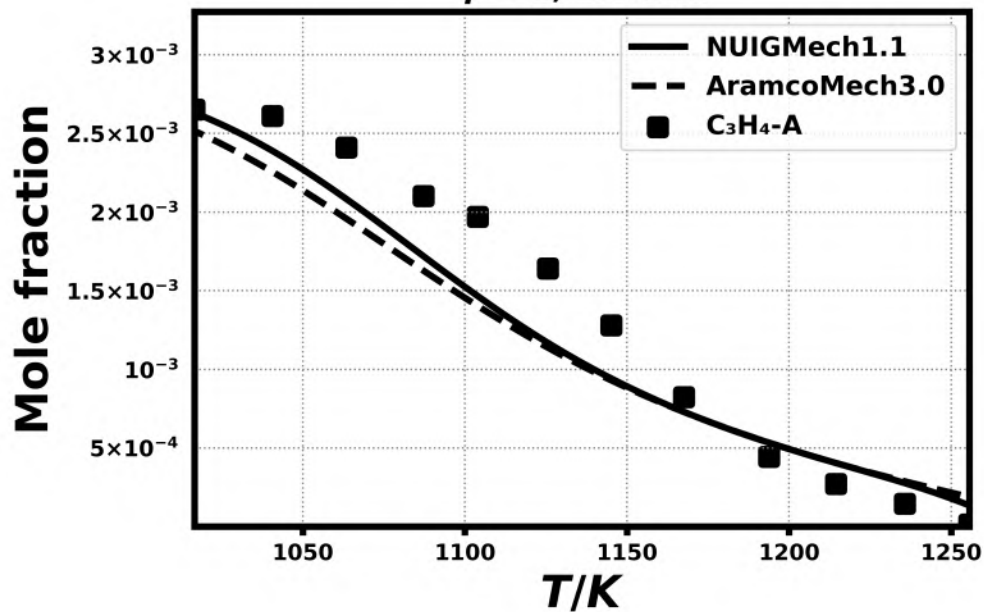
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



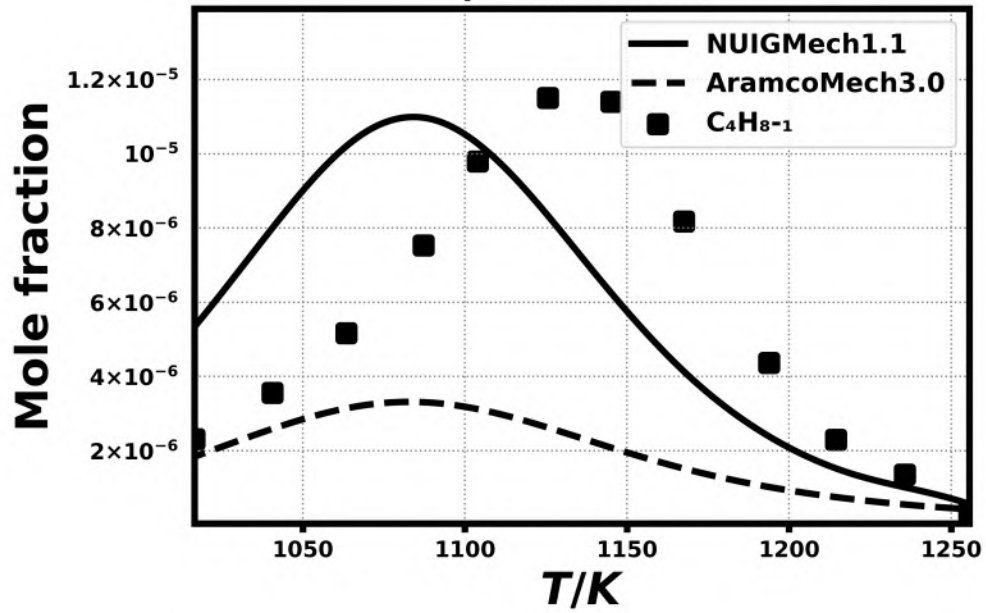
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



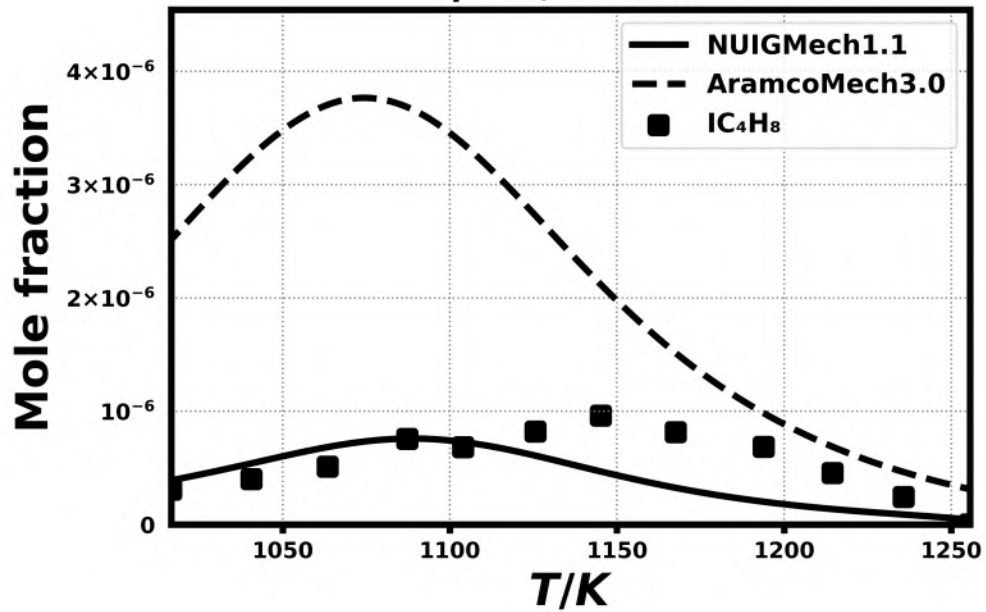
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



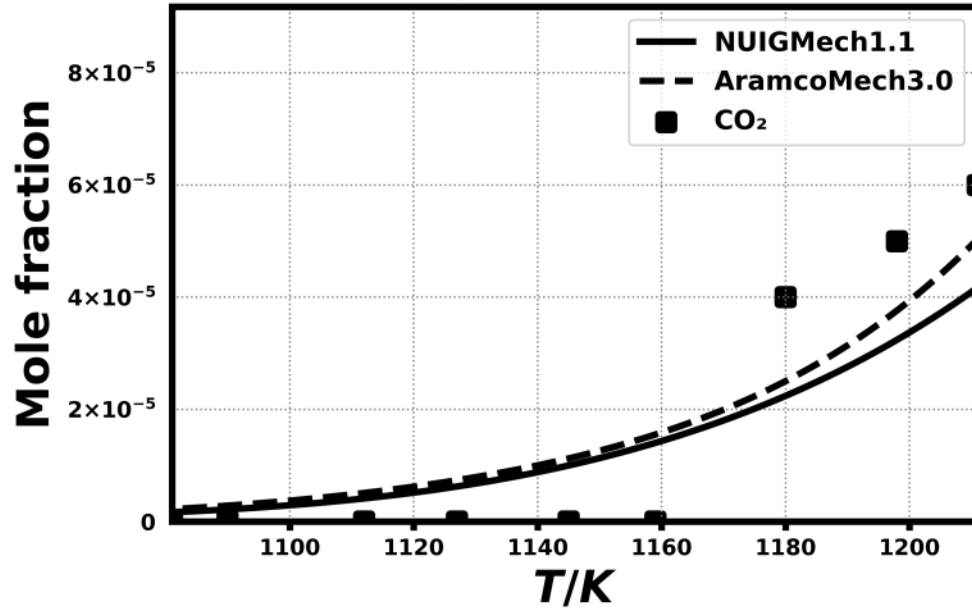
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



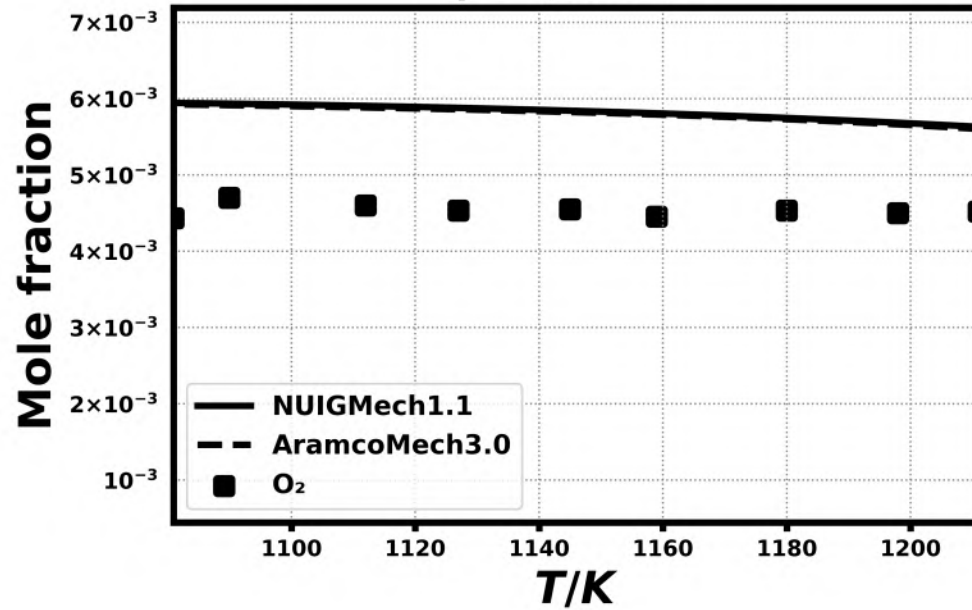
0.3% C₃H₄-A
1.2% O₂, 98.5% N₂
 $\phi = 1, 1.0 \text{ atm}$



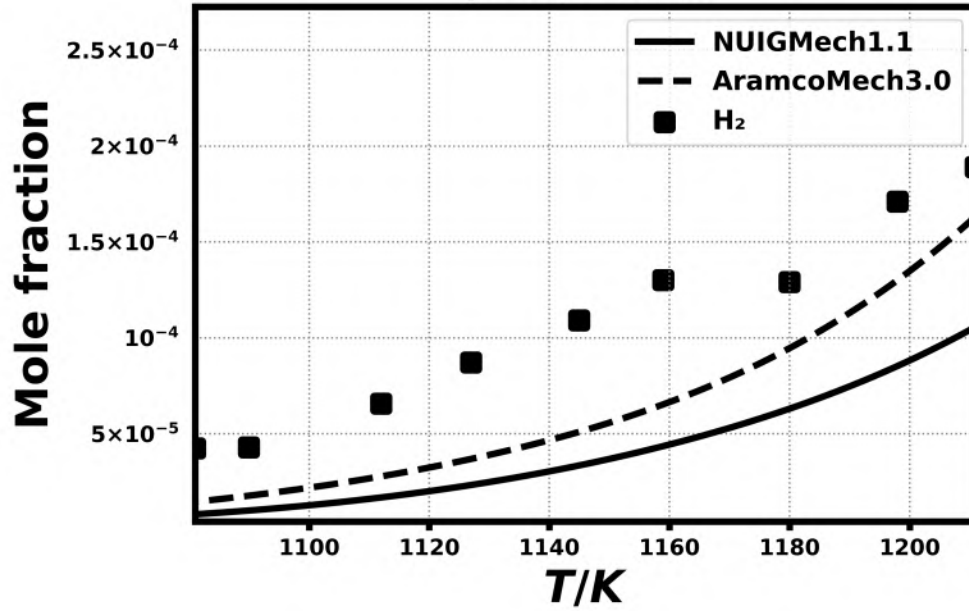
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



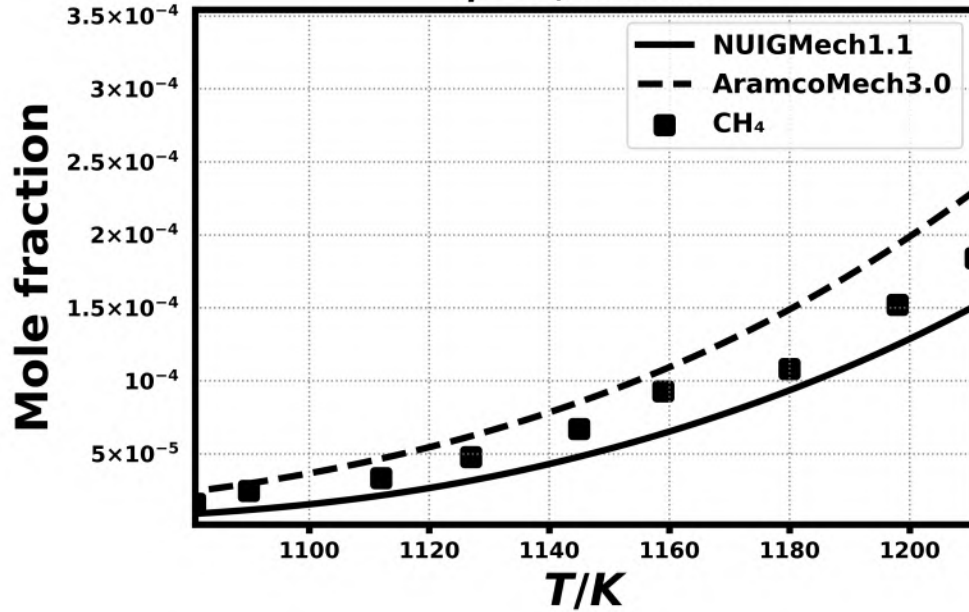
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



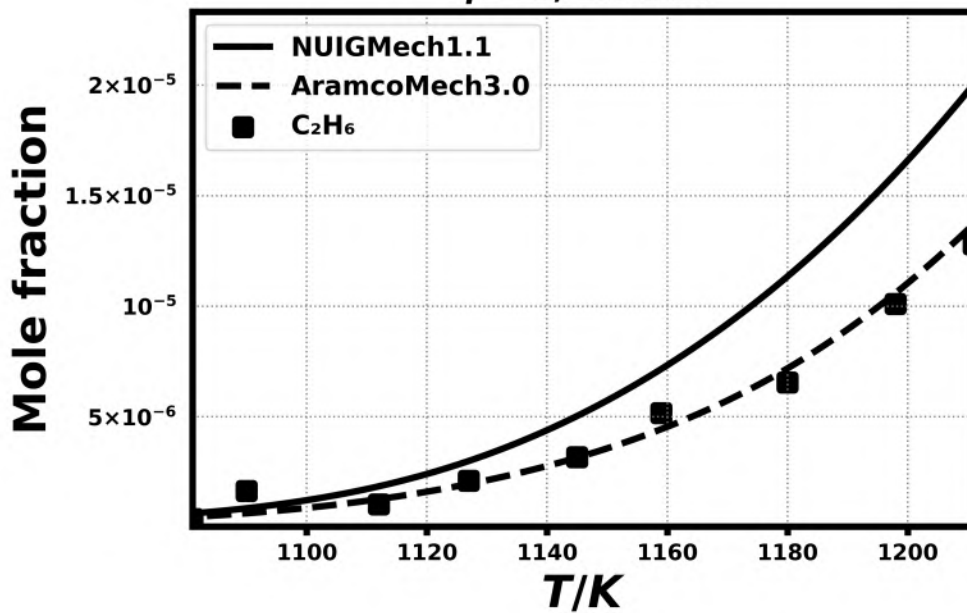
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



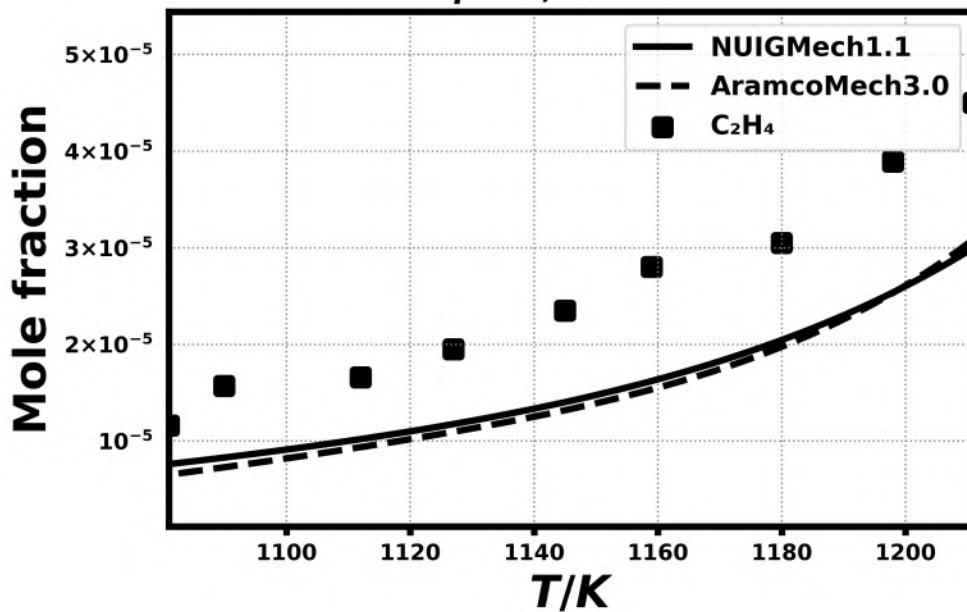
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



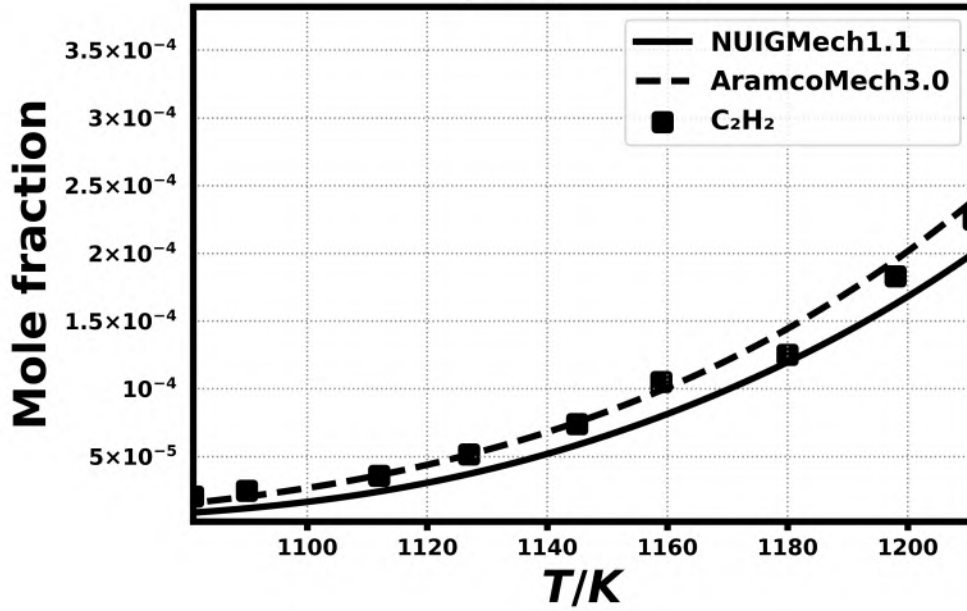
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



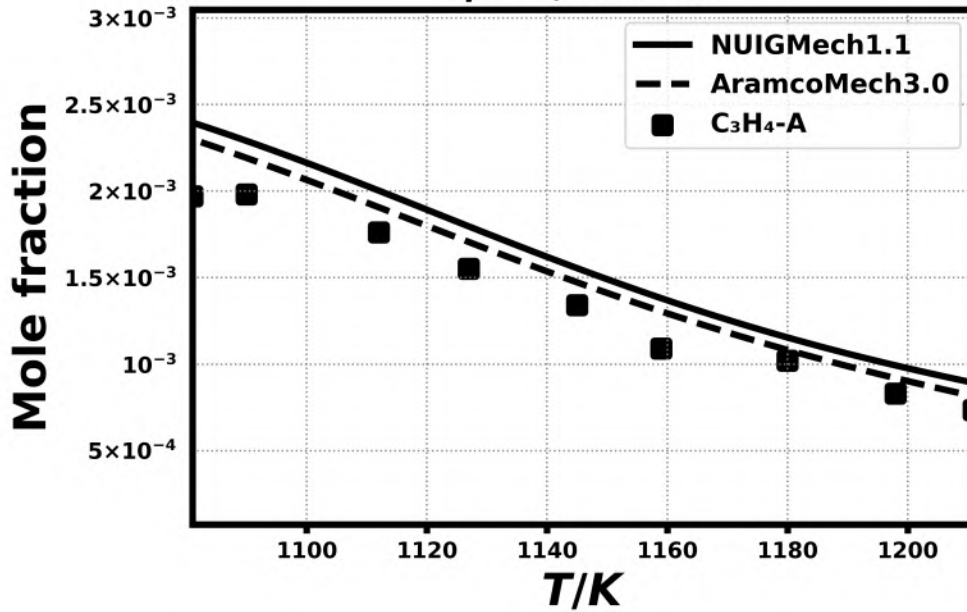
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



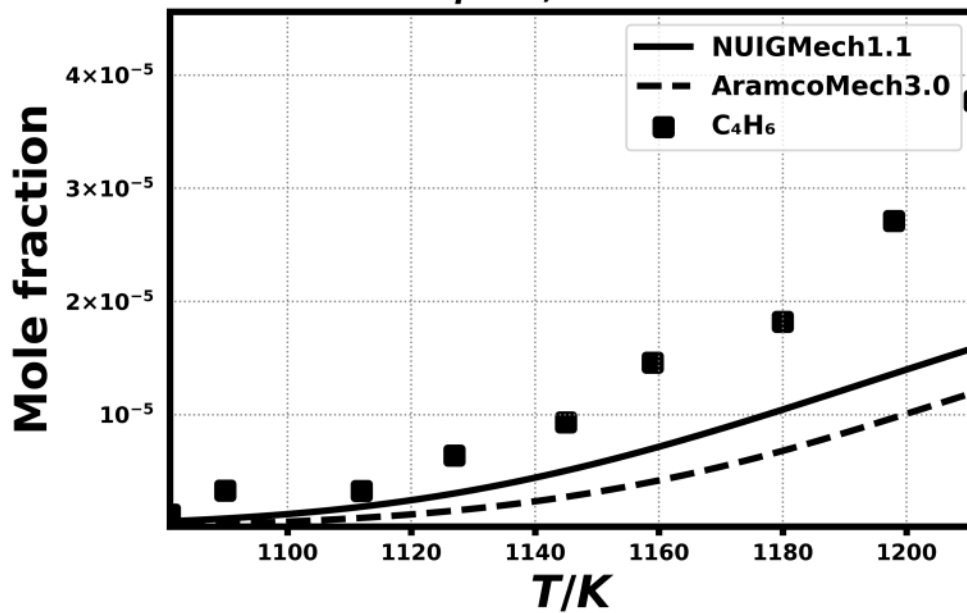
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



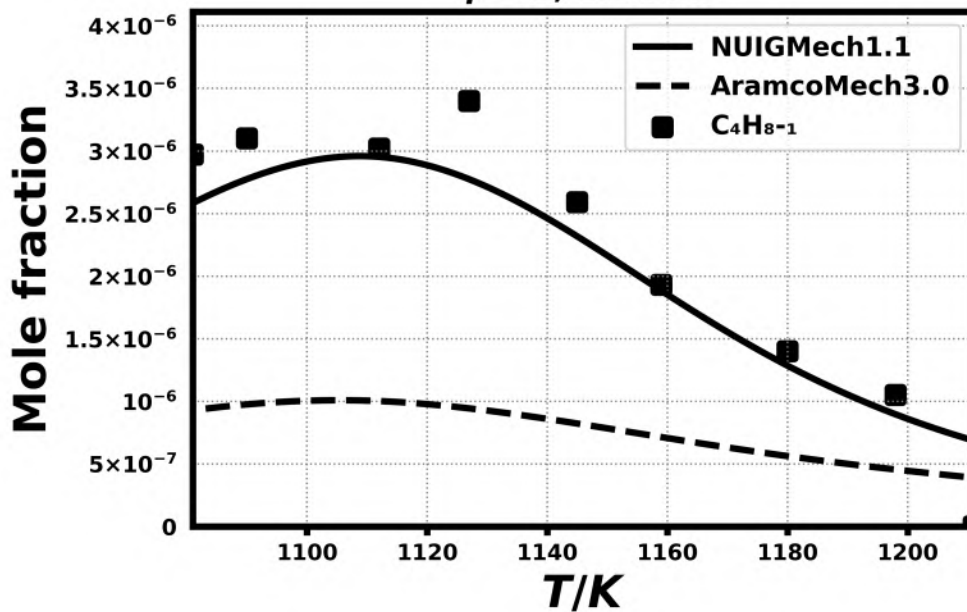
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



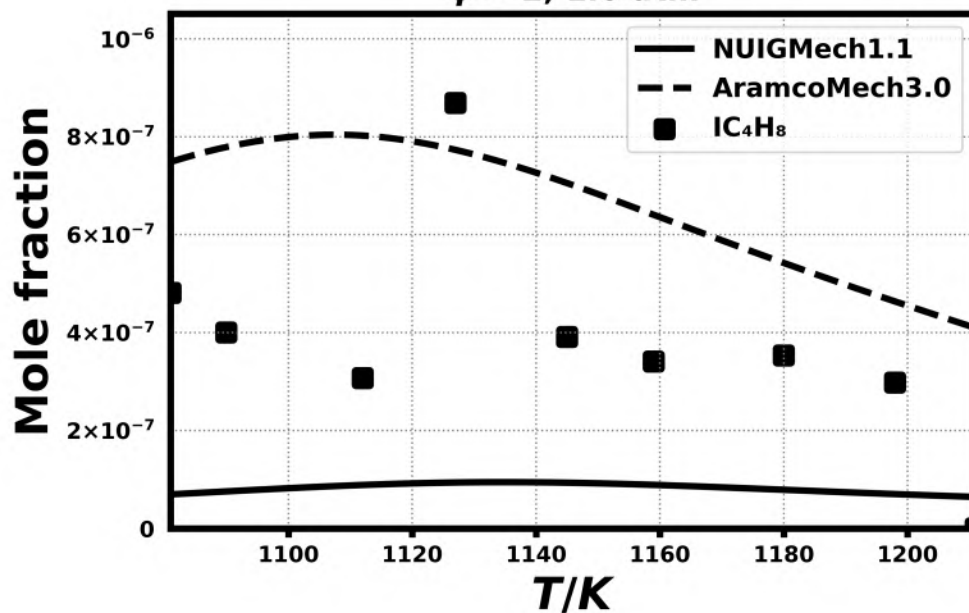
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



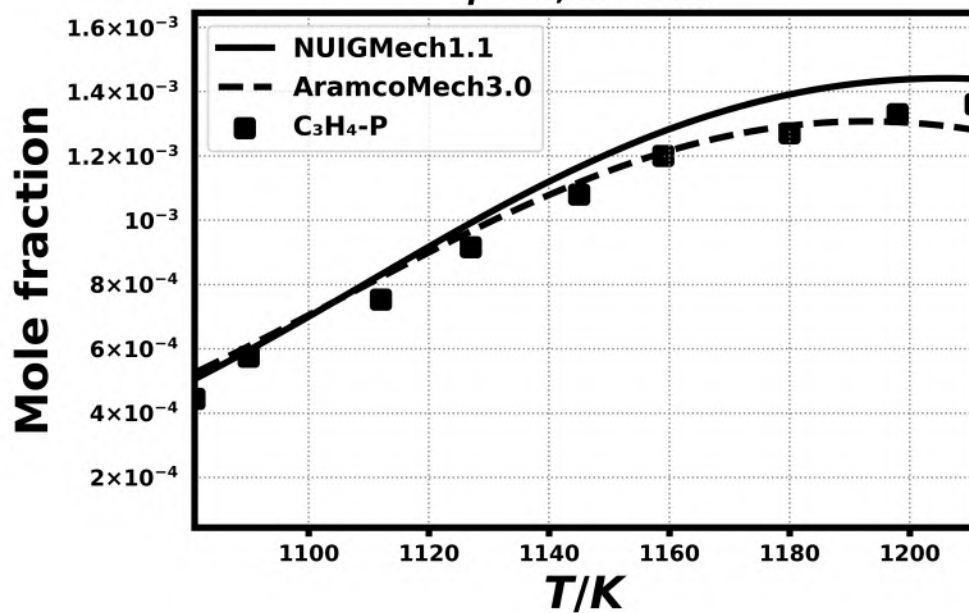
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



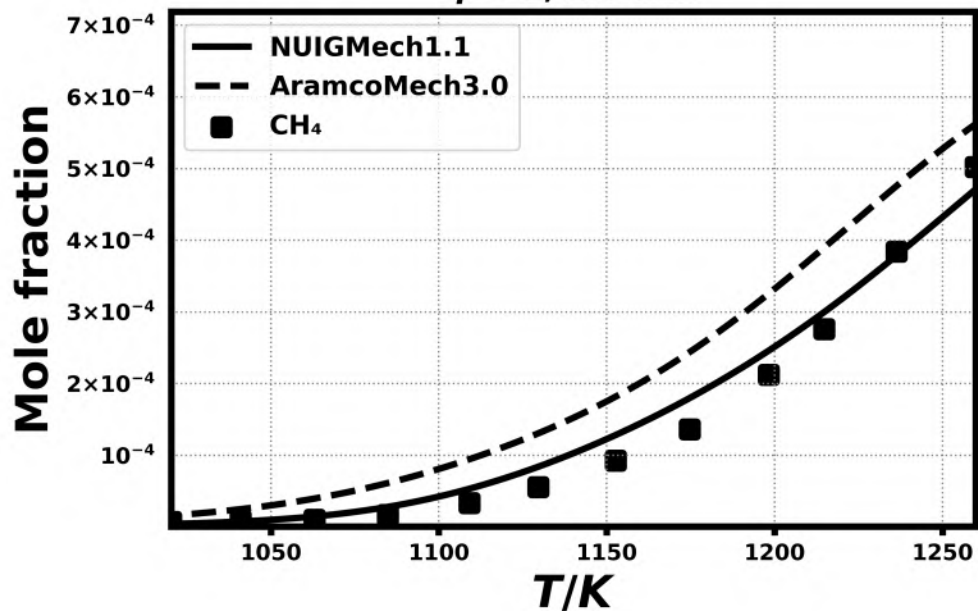
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



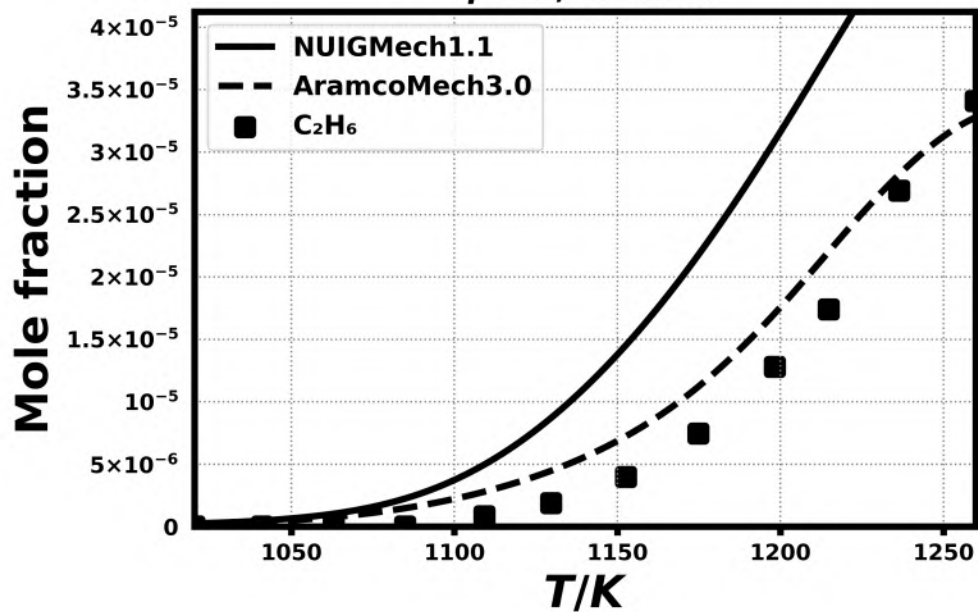
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



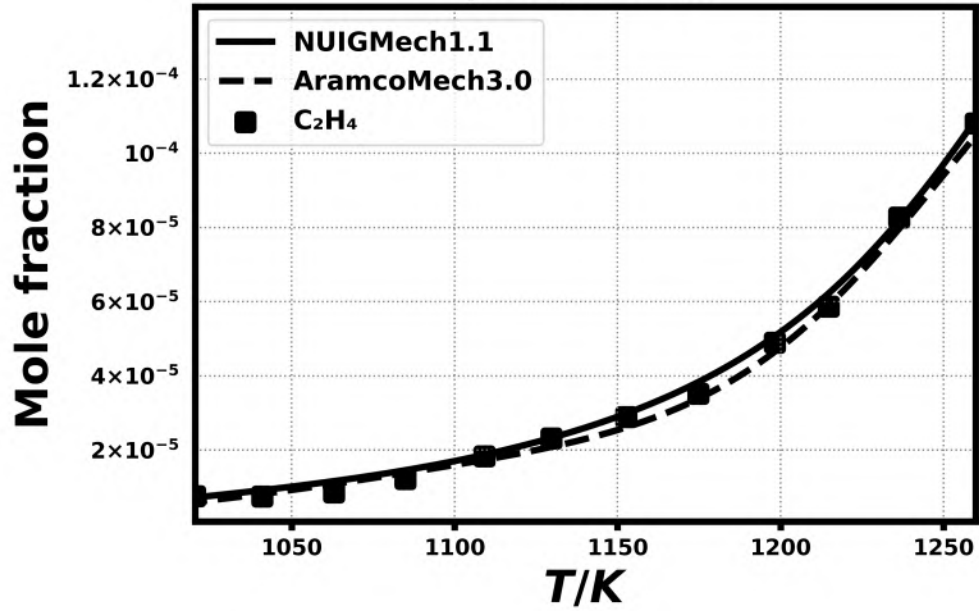
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



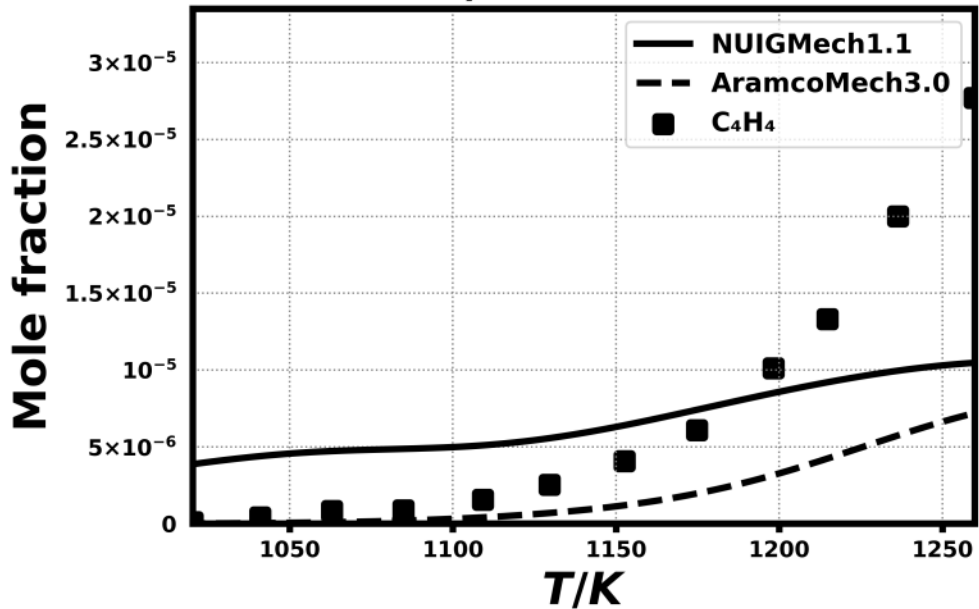
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



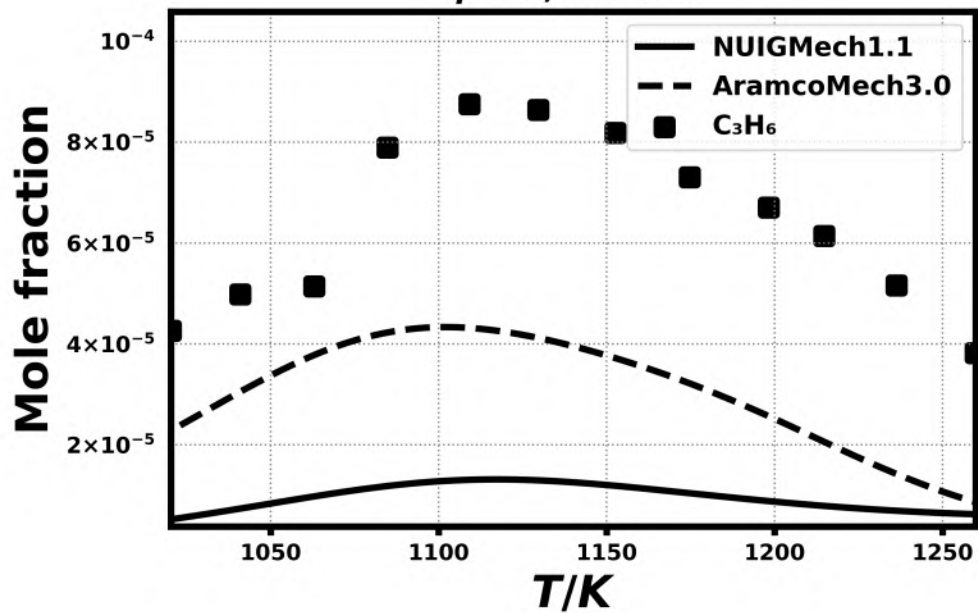
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



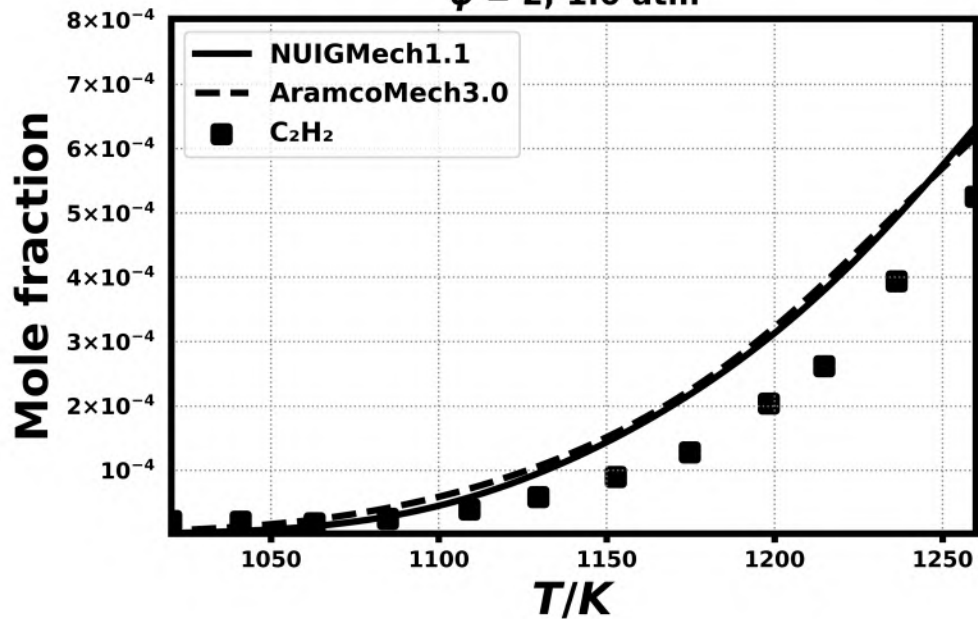
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



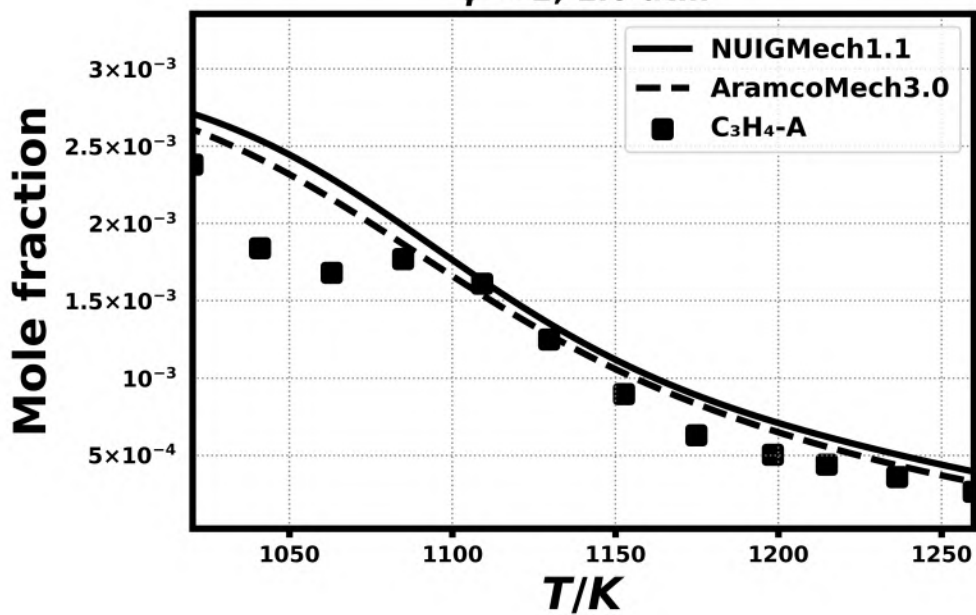
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



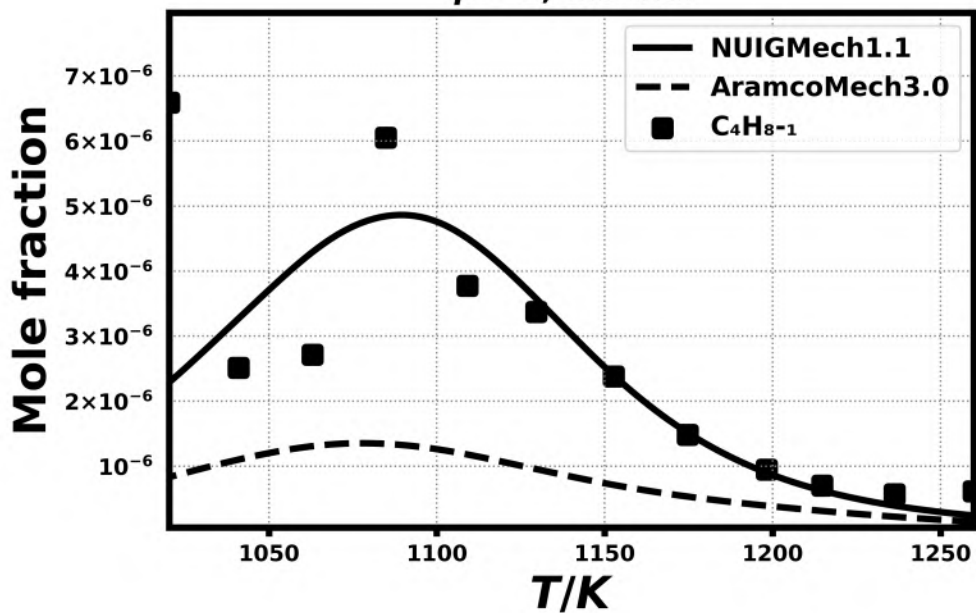
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



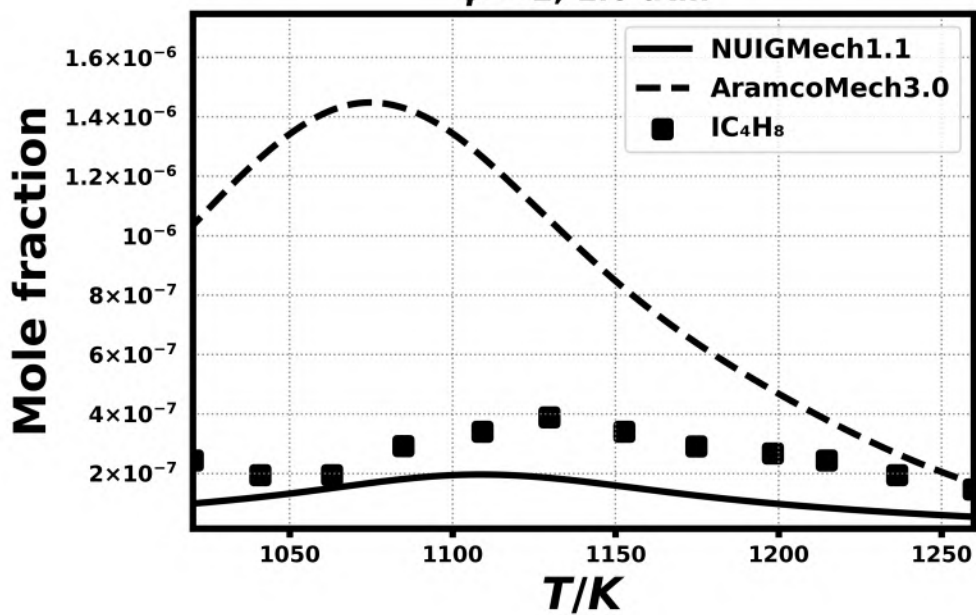
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



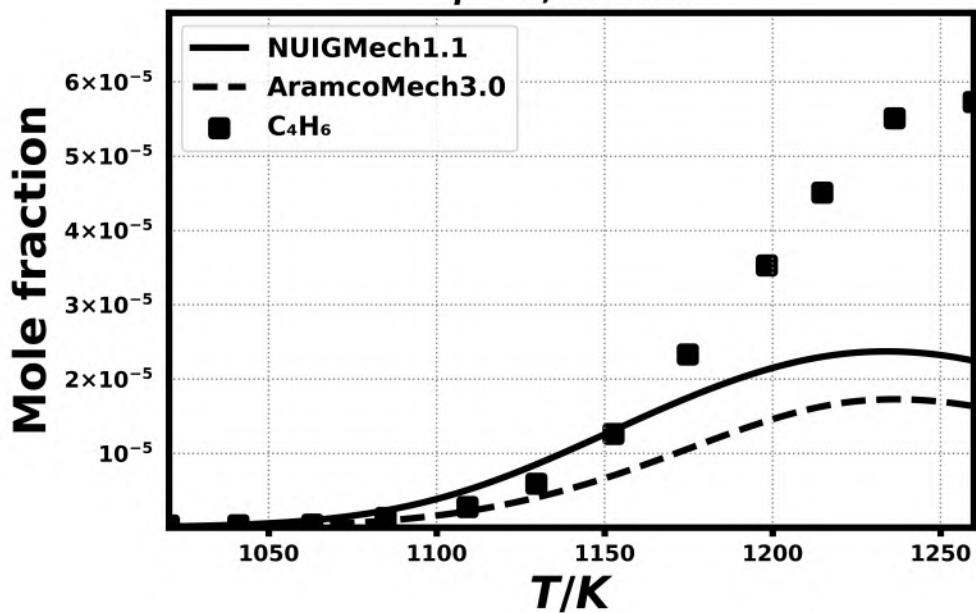
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



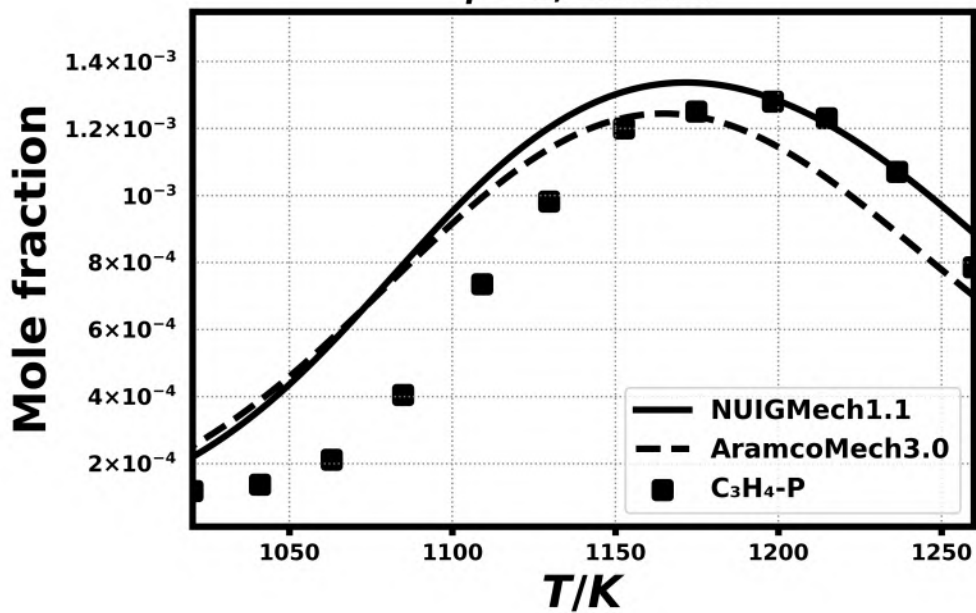
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



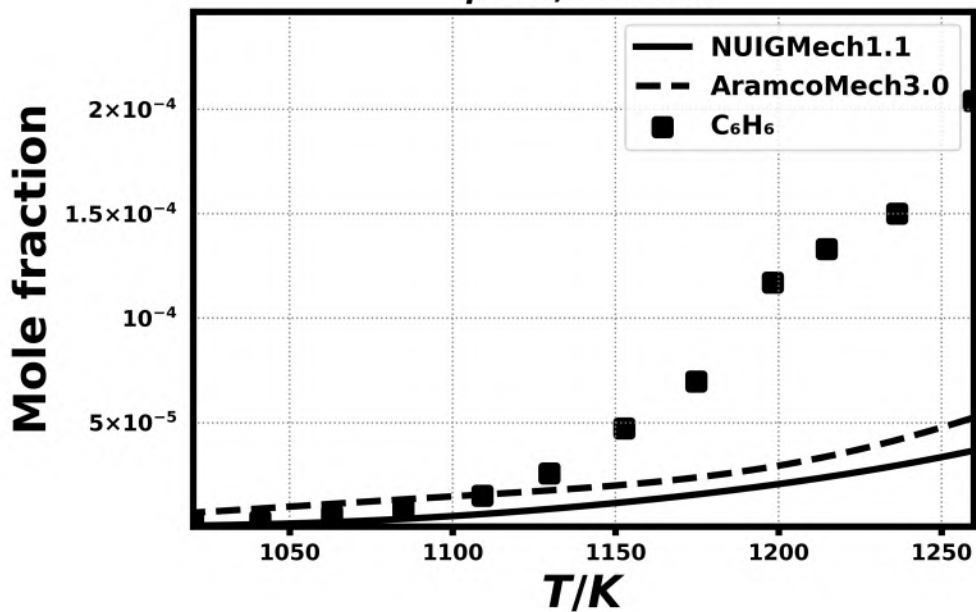
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



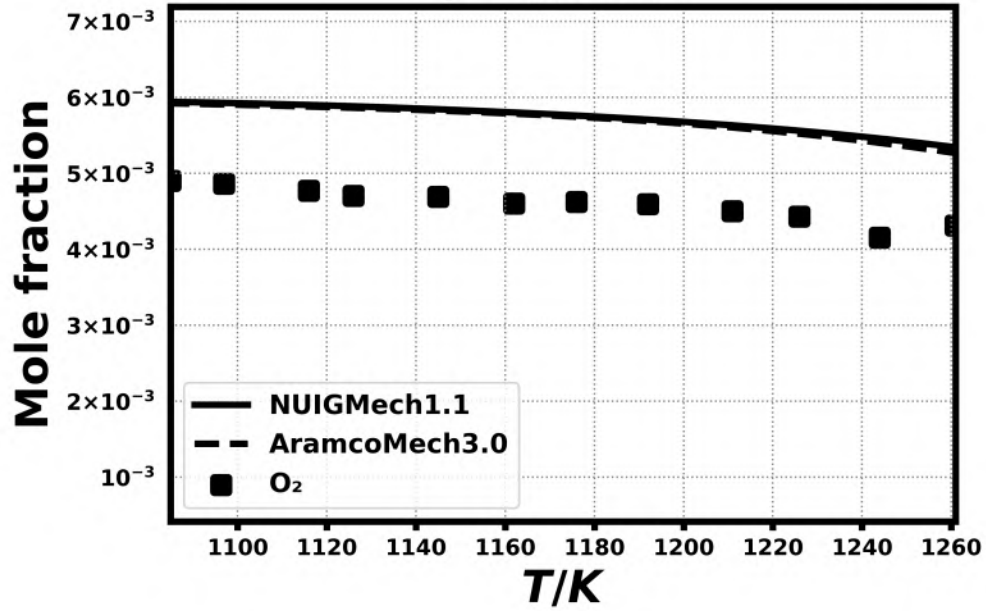
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



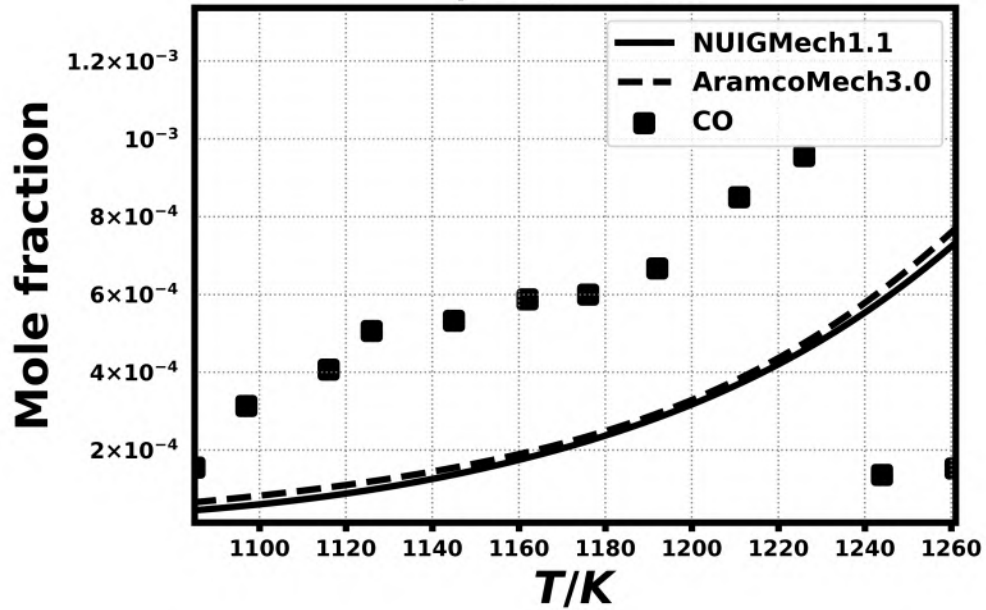
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



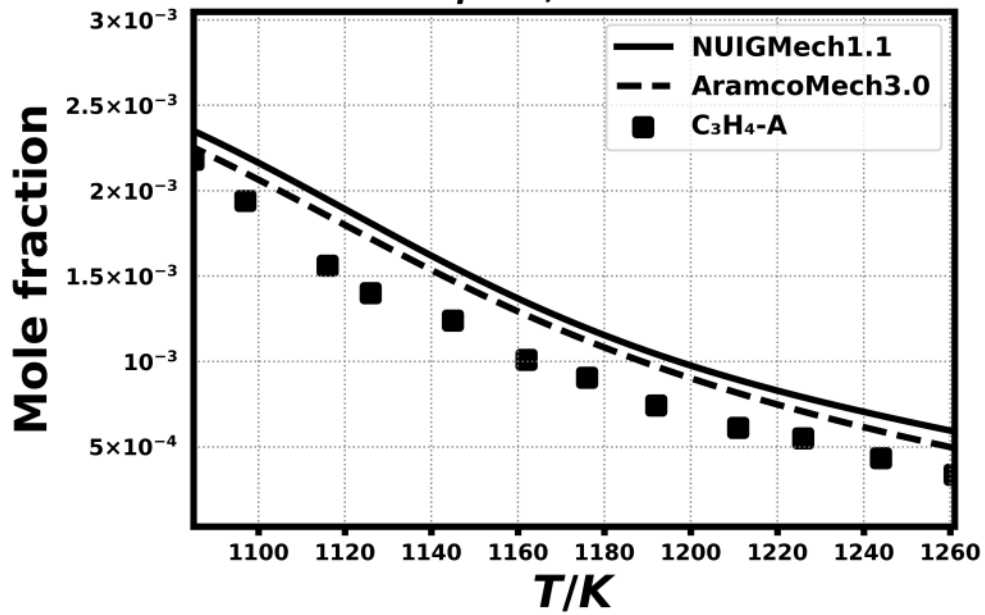
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



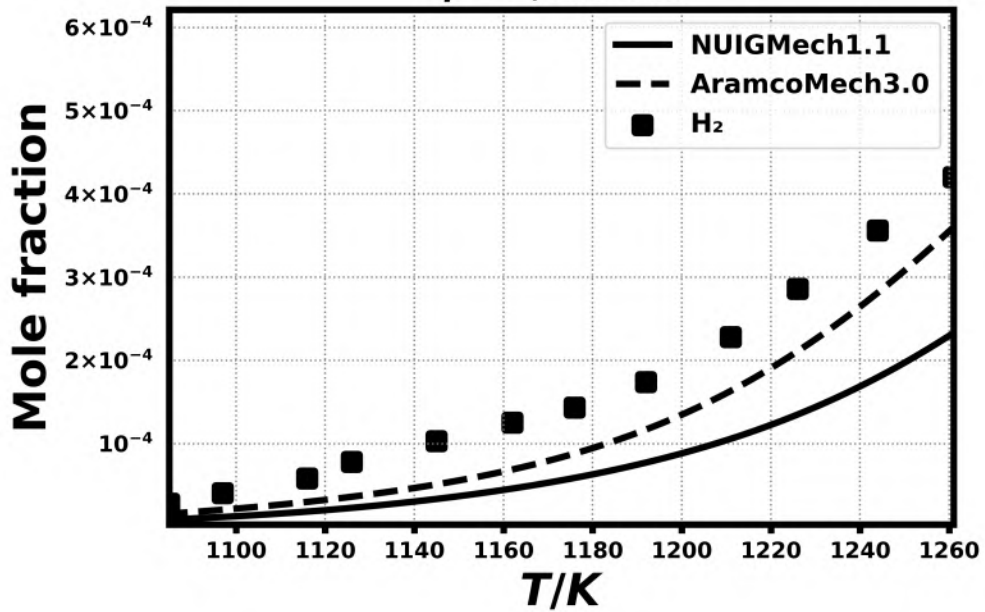
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



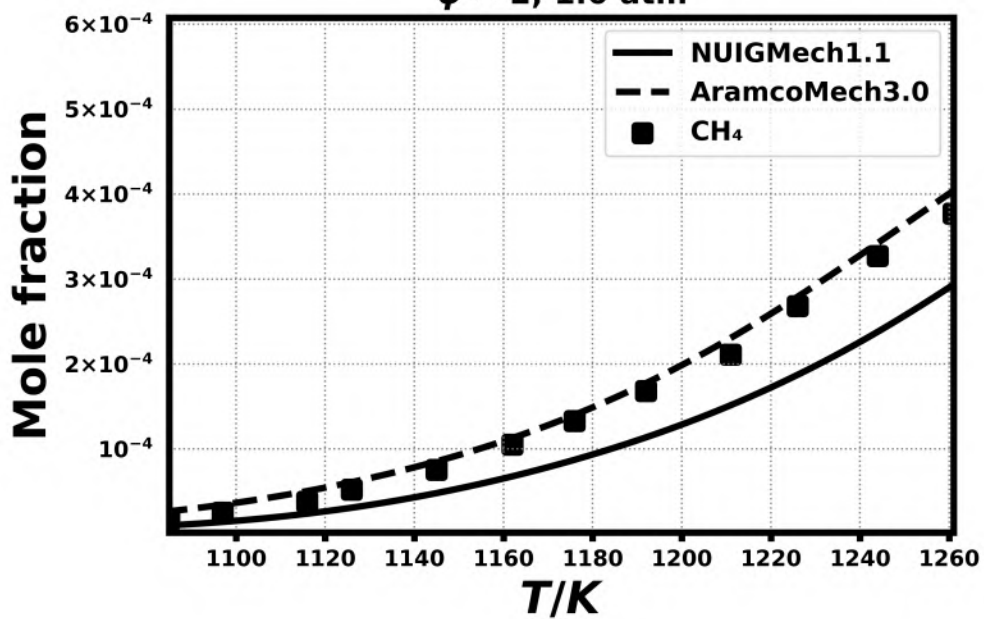
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



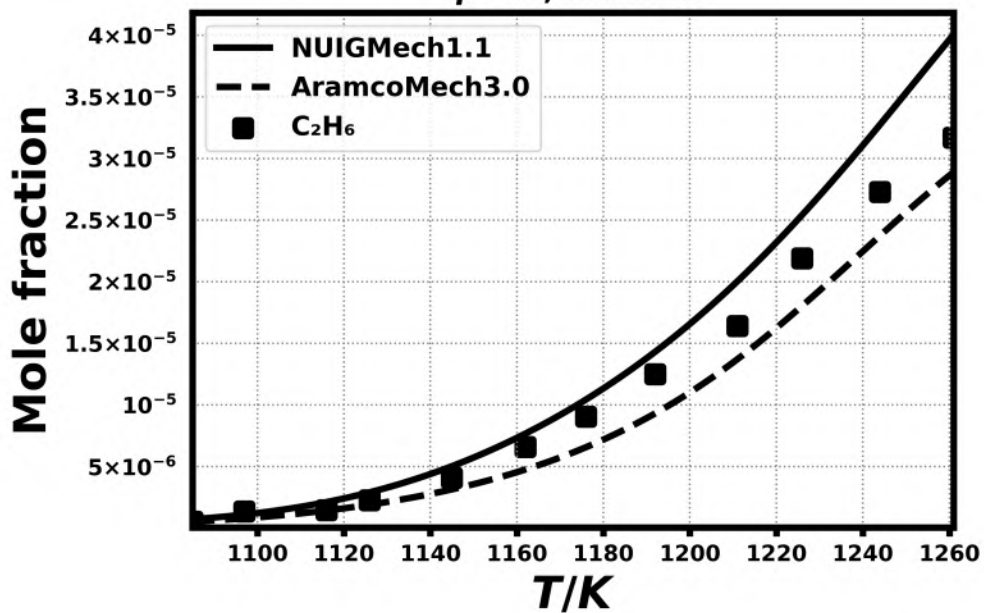
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



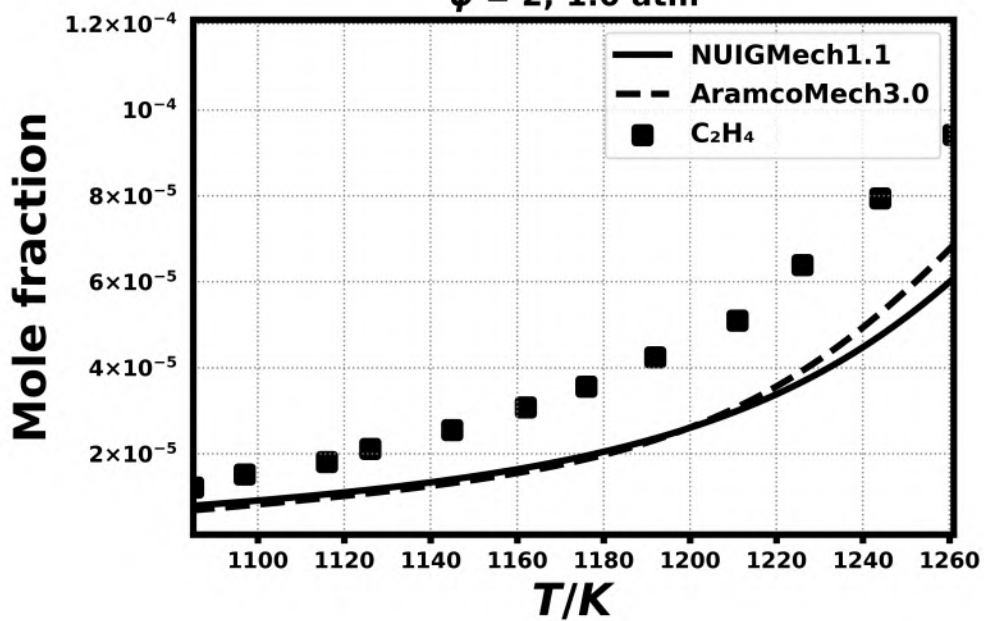
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



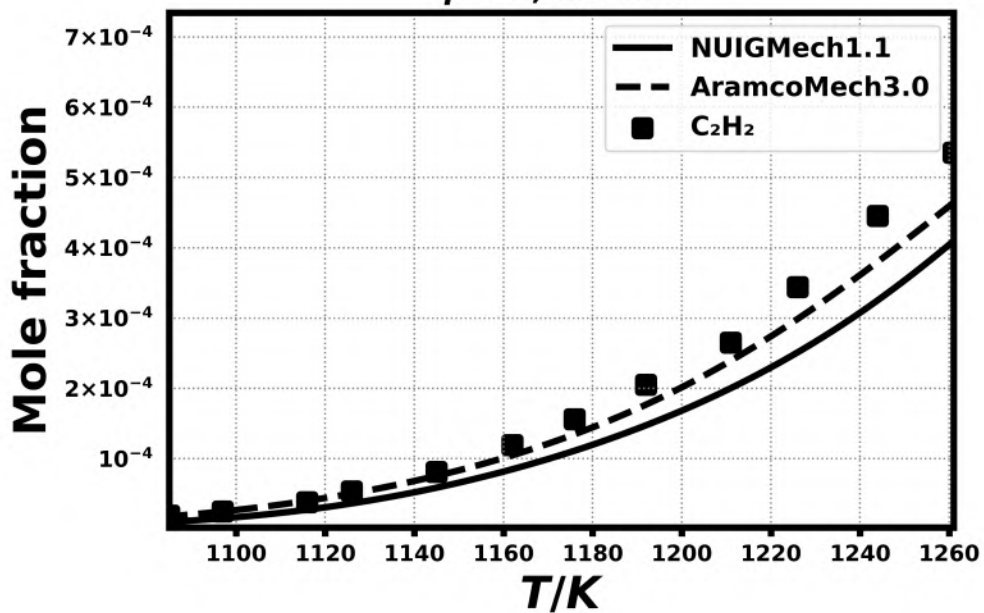
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



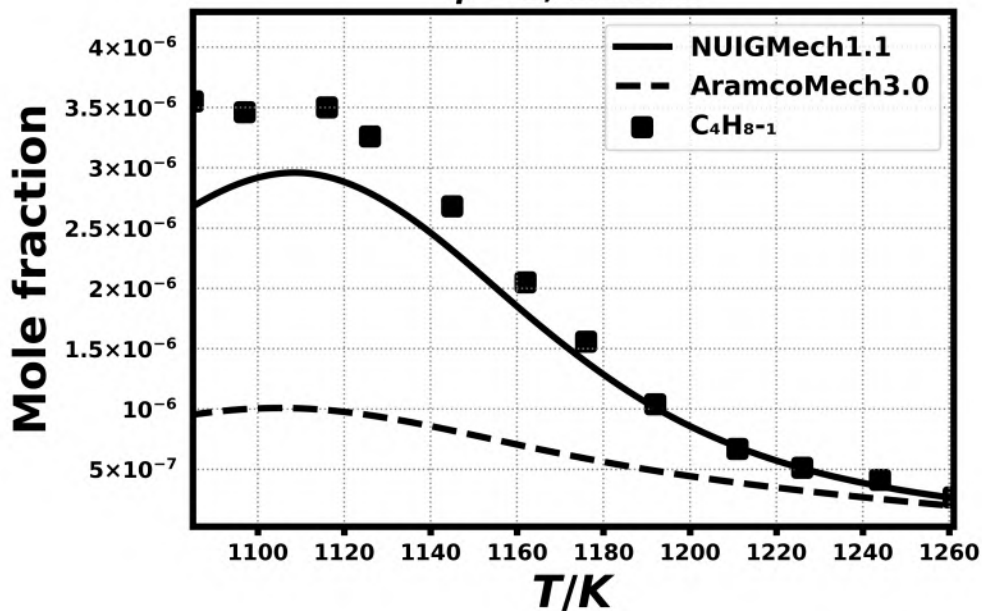
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



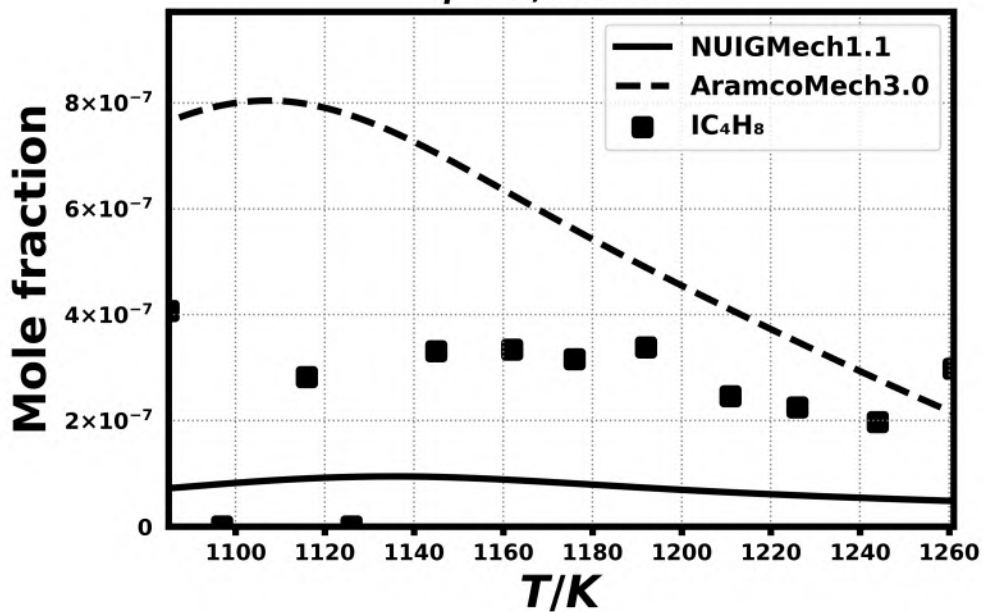
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



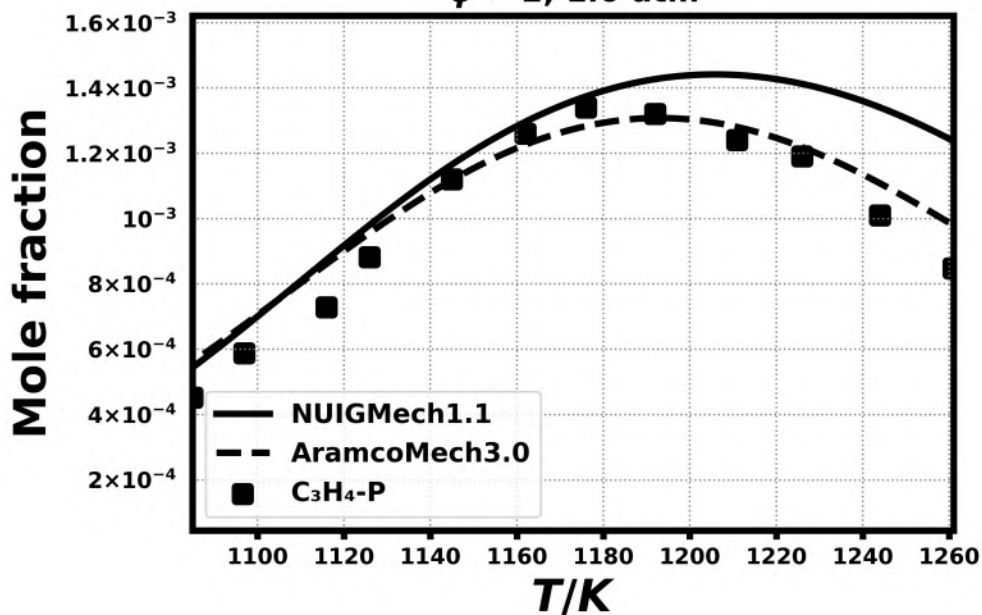
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



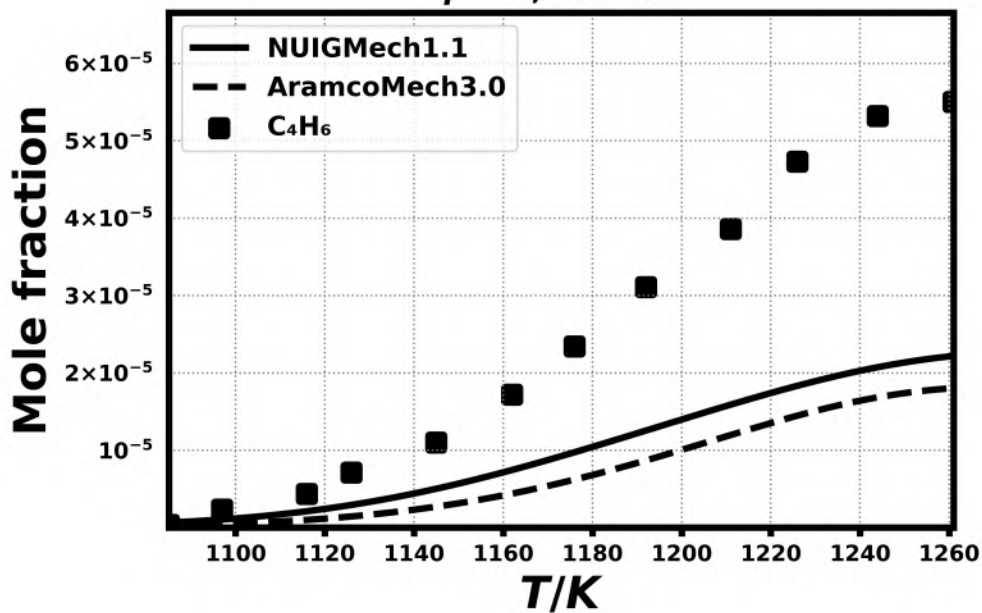
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



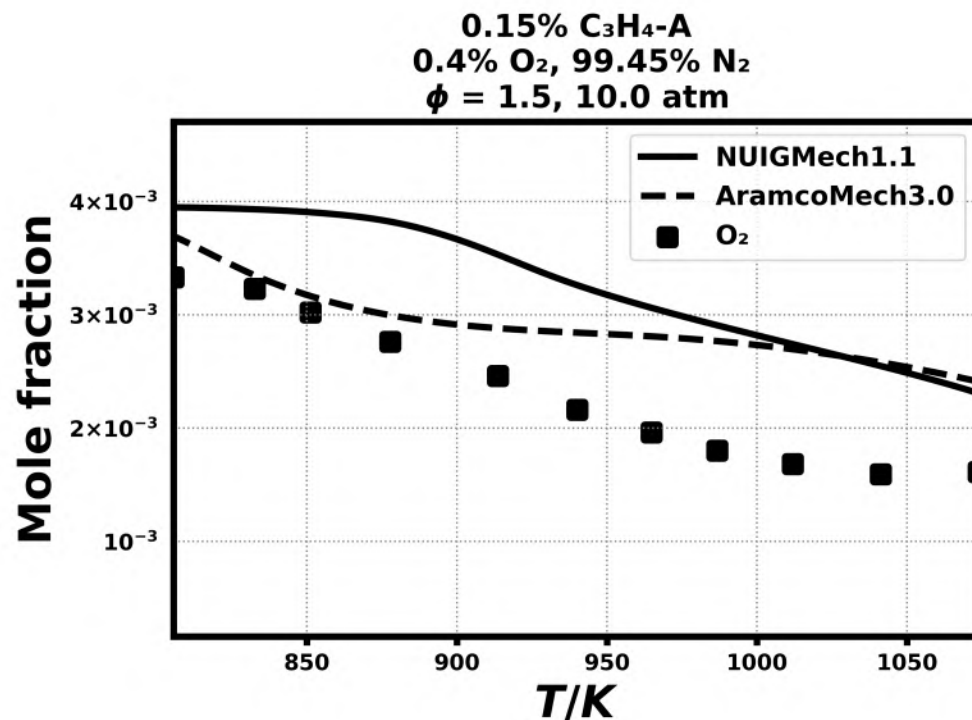
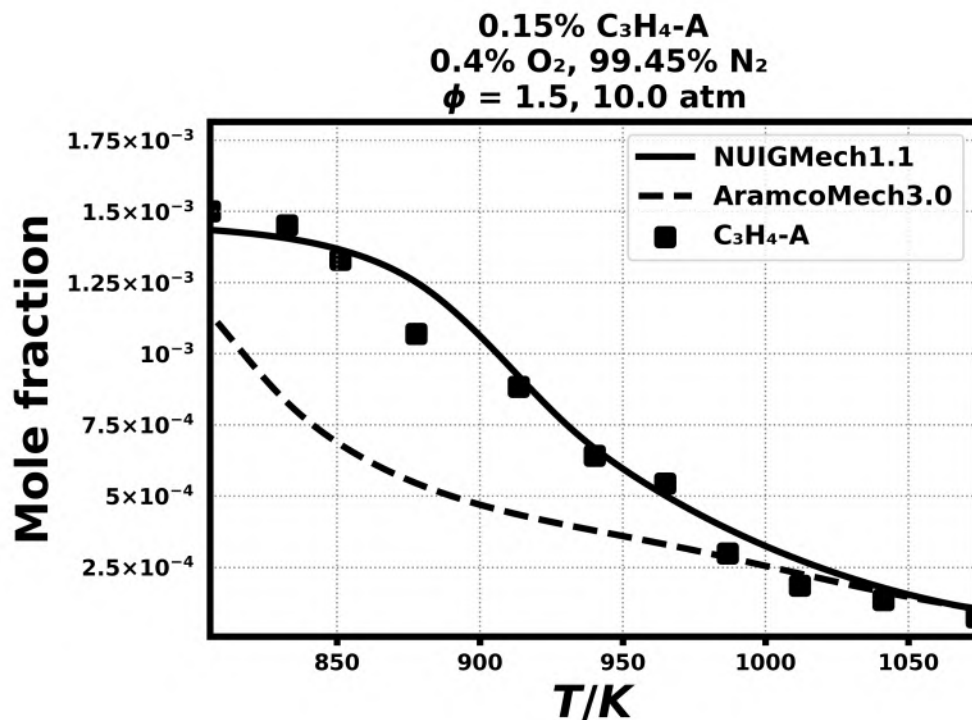
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



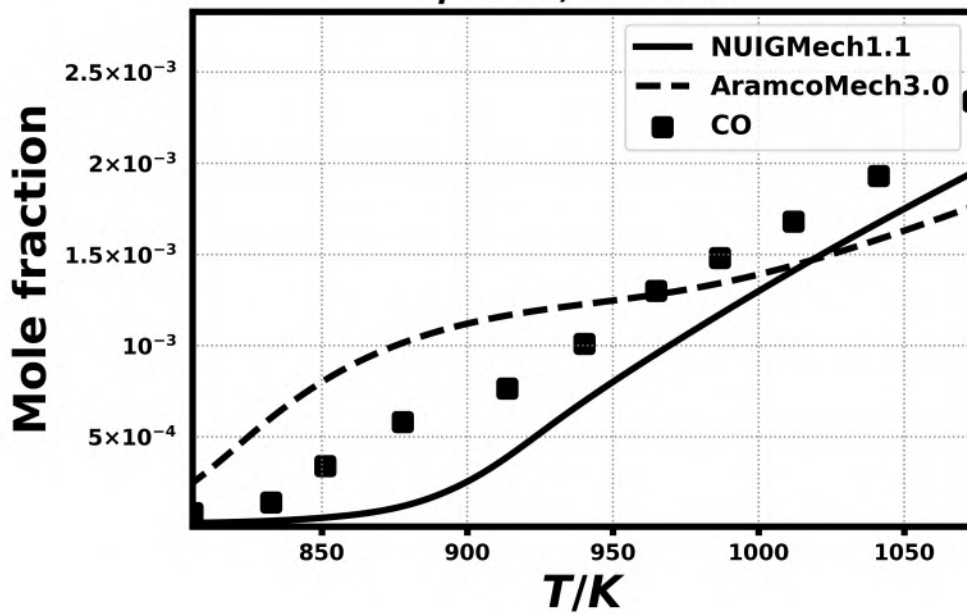
0.3% C₃H₄-A
0.6% O₂, 99.1% N₂
 $\phi = 2, 1.0 \text{ atm}$



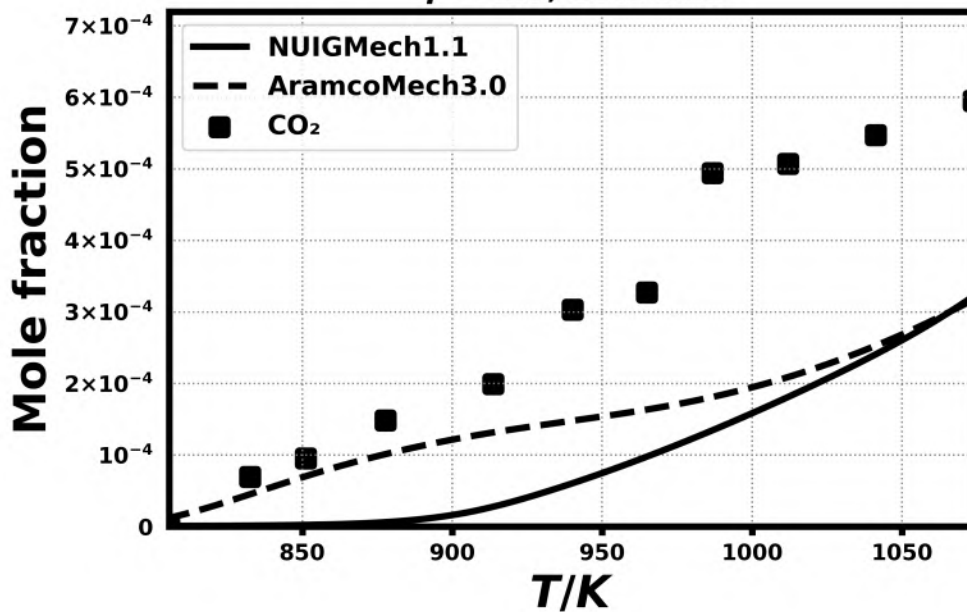
18.3) Curran, H., Simmie, J. M., Dagaut, P., Voisin, D., & Cathonnet, M., In Symposium (International) on Combustion, 26 (1996, January) 613-620.



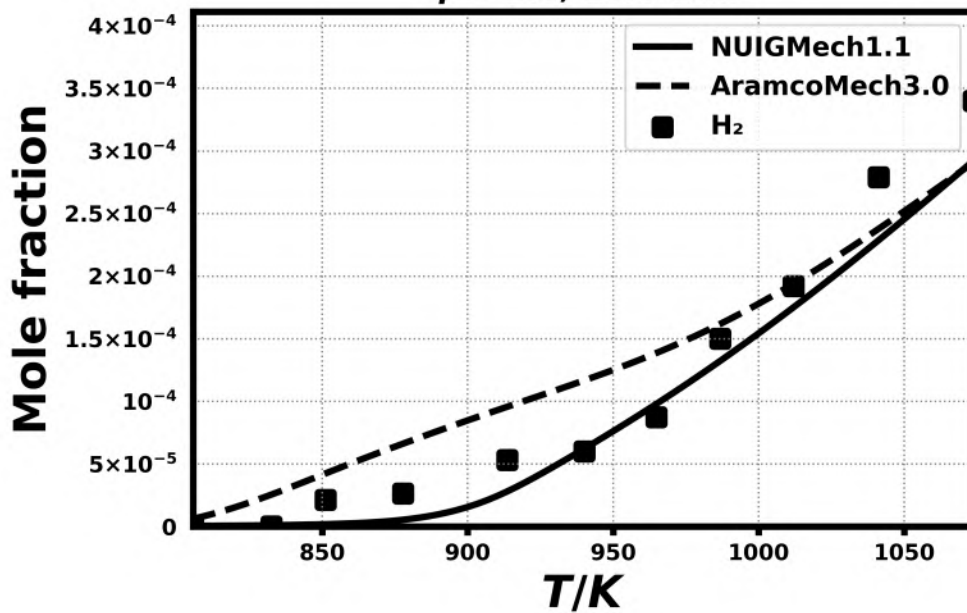
0.15% C₃H₄-A
0.4% O₂, 99.45% N₂
 $\phi = 1.5, 10.0$ atm



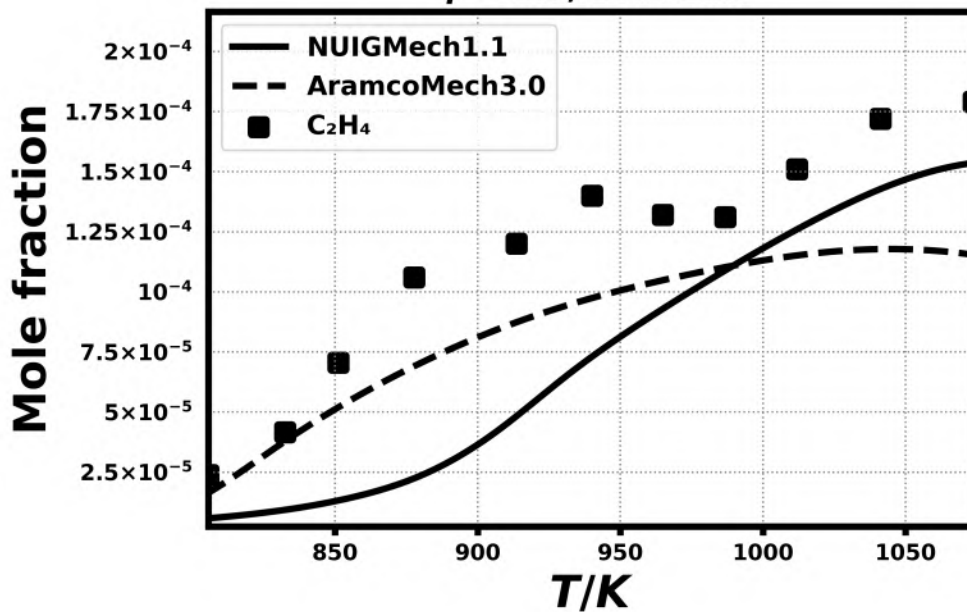
0.15% C₃H₄-A
0.4% O₂, 99.45% N₂
 $\phi = 1.5, 10.0$ atm



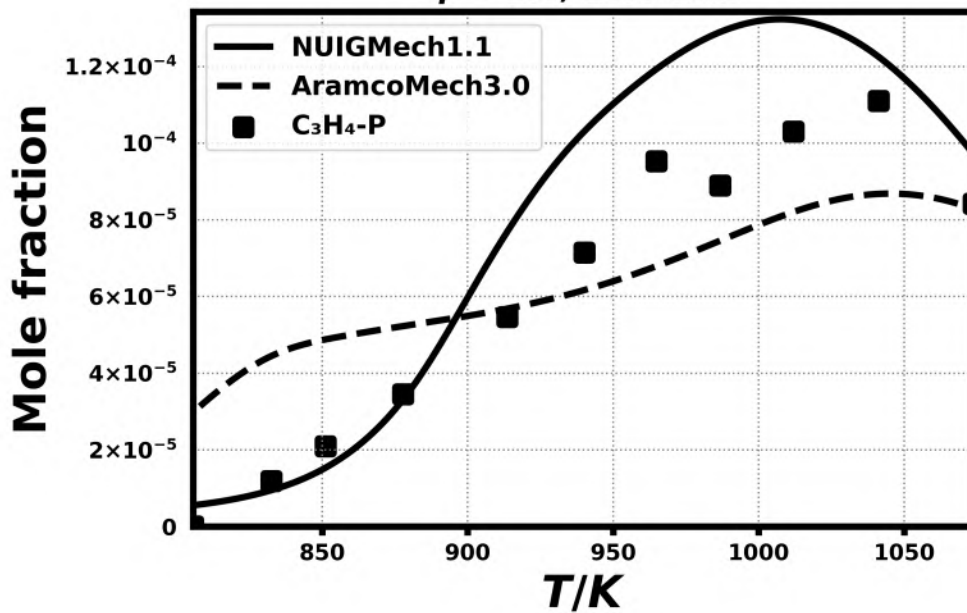
0.15% C₃H₄-A
0.4% O₂, 99.45% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



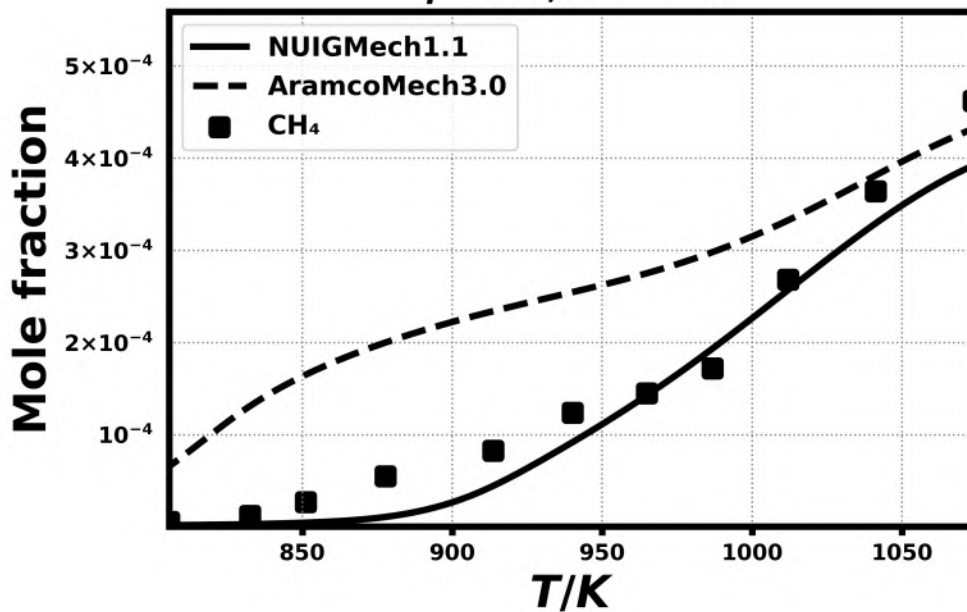
0.15% C₃H₄-A
0.4% O₂, 99.45% N₂
 $\phi = 1.5, 10.0 \text{ atm}$



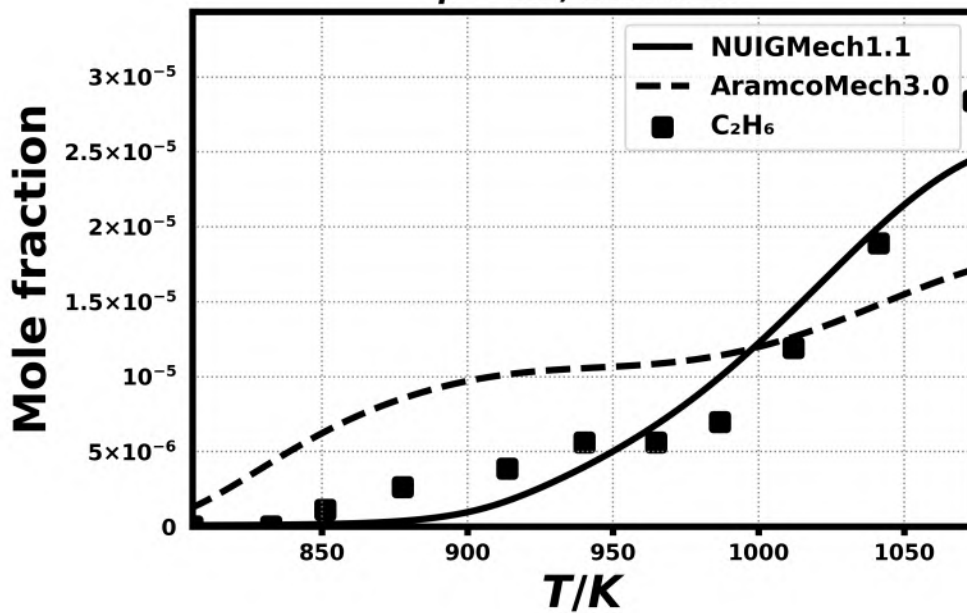
0.15% C₃H₄-A
0.4% O₂, 99.45% N₂
 $\phi = 1.5, 10.0$ atm



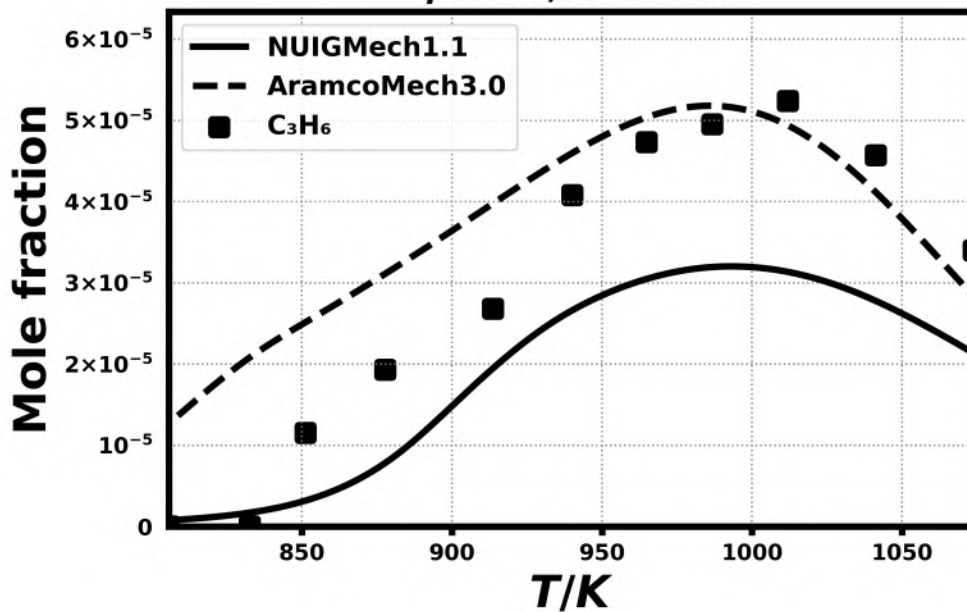
0.15% C₃H₄-A
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