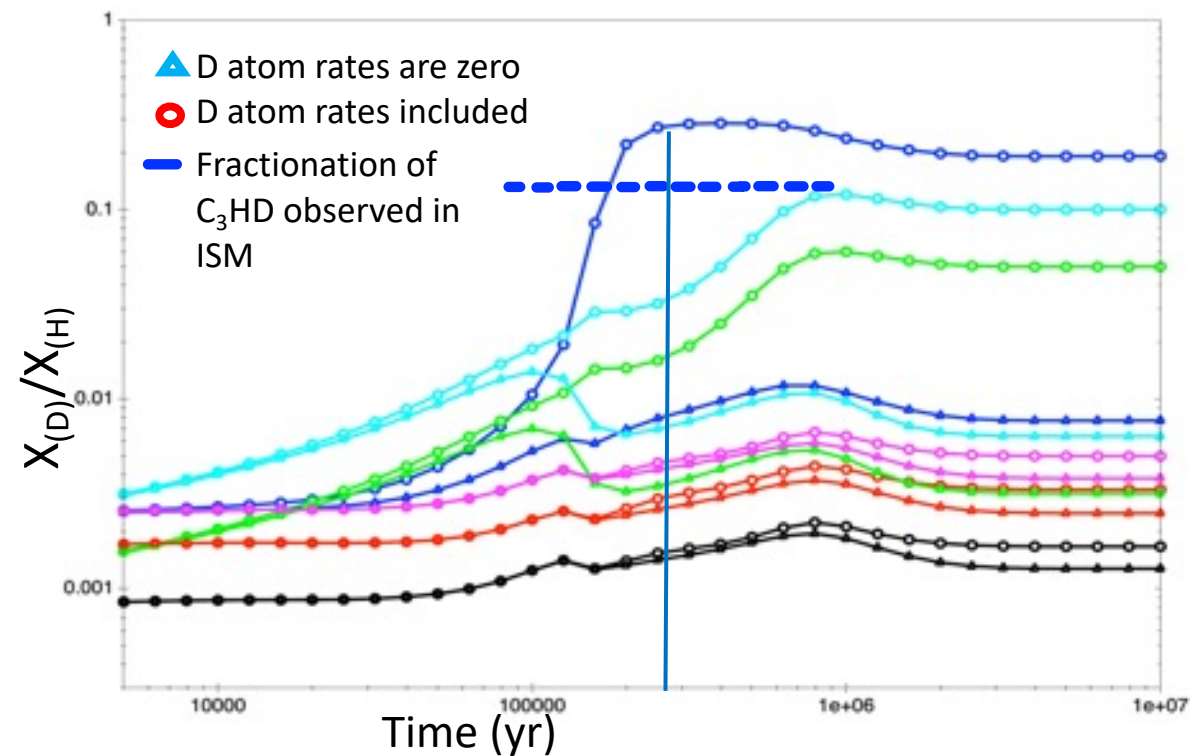
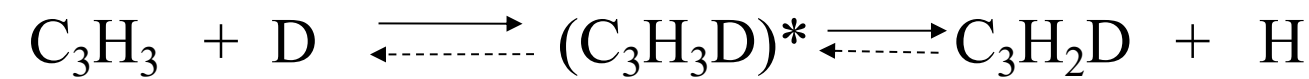
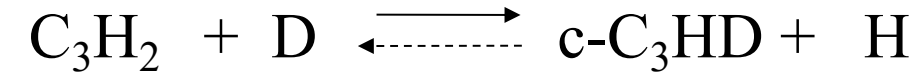
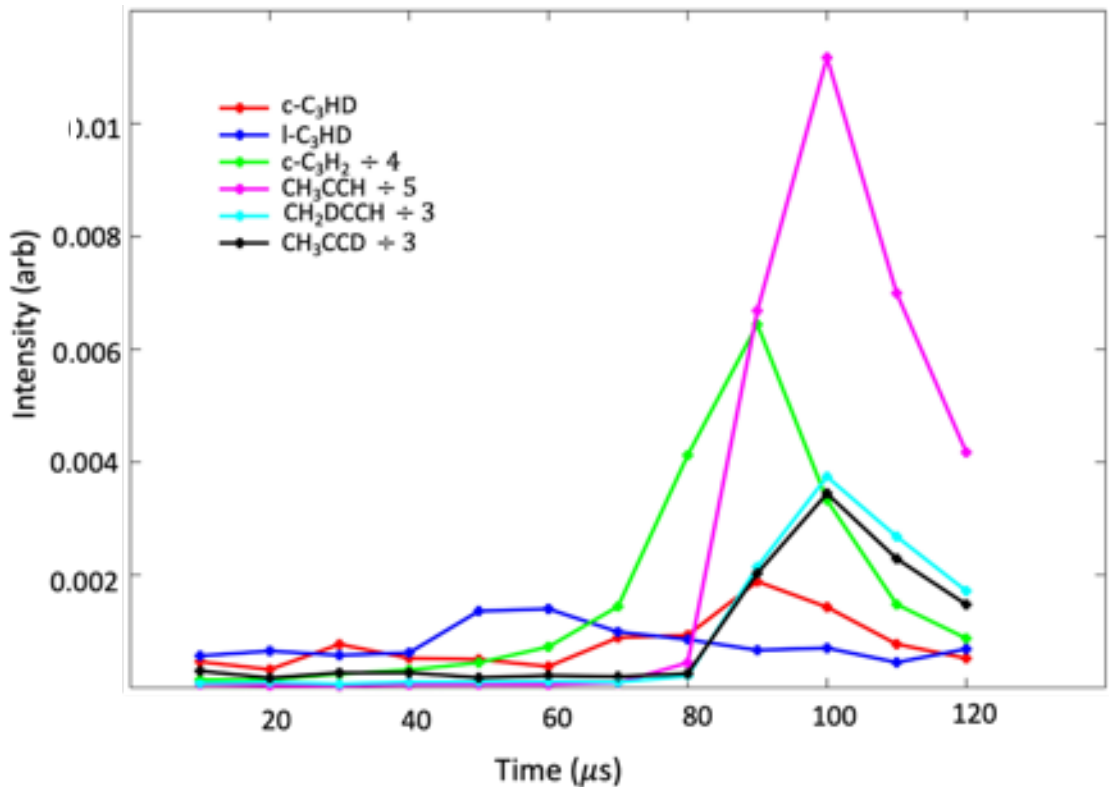


Direct D atom incorporation in radicals at low temperature

Nureshan Dias, Ranil Gurusinghe, Bernadette Broderick, Arthur Suits



Fractionation comparison of **C3HD**, **CHDCCH**, **CH2CCD**, **CH2DCCH**, **CH3CCD**, **CH2CCHD**



Time-evolution plot of the total integrated intensities

Species	Observed Fractionation	Fractionation (without D)	Fractionation (with D)
c-C3HD	0.08-0.16	0.01	0.28

Comparison of abundance and D/H ratios in TMC-1 with theoretical values in 10 K, $n(\text{H}_2) = 10^4 \text{ cm}^{-3}$ at $3 \times \text{E}5 \text{ (yr)}$