

## Cyclopentene and Cyclopentadiene Formation in Isoprene Pyrolysis

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Supporting Information

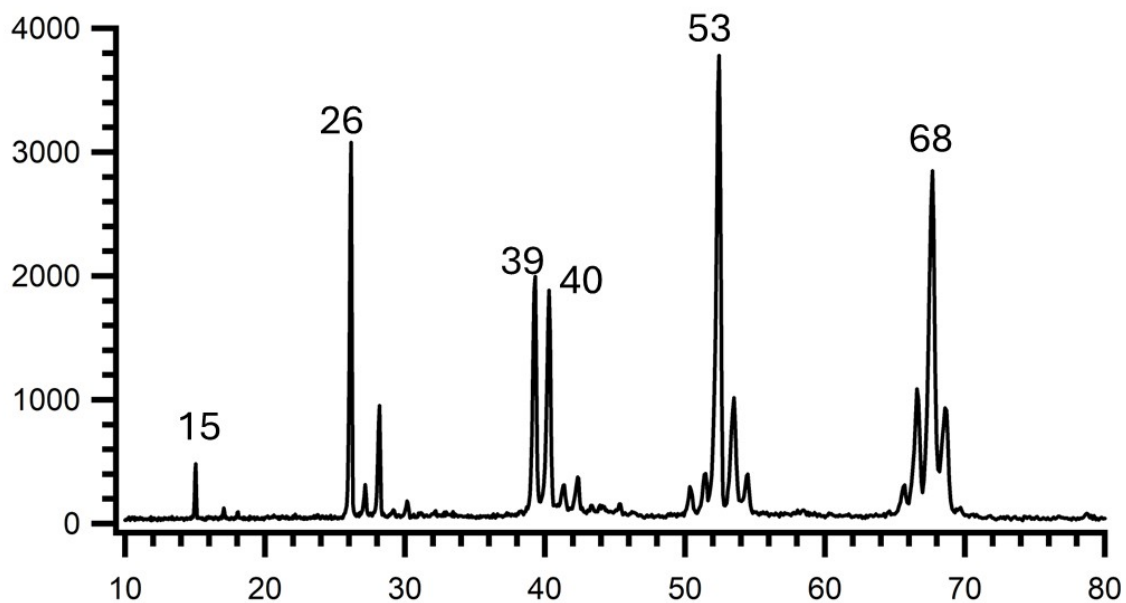


Fig. S1. Mass spectrum at 1400 °C and 12 eV photon energy in coincidence with all electrons (not only threshold ionization). Note that some ions, such as  $m/z$  67 and 53, are dissociation products of  $m/z$  68 and NOT due to the ionization of a neutral 67 Da species.

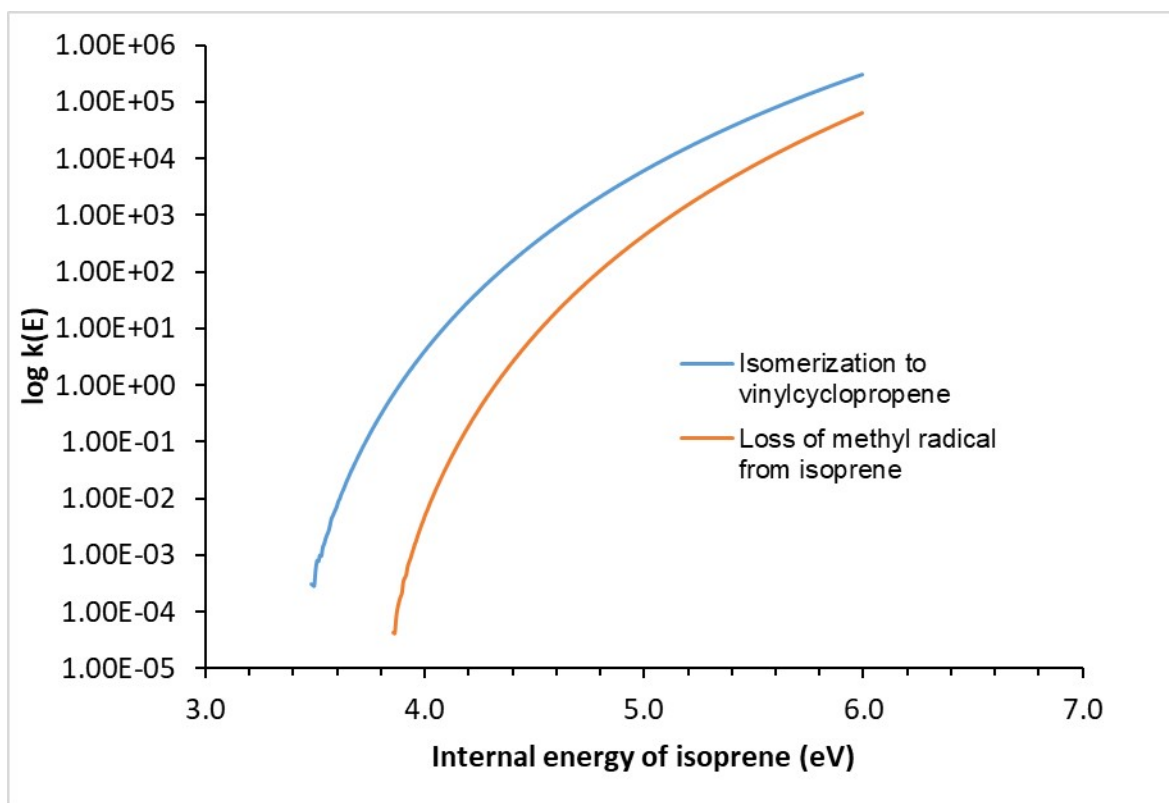


Fig. S2. Comparison of the  $k(E)$  vs  $E$  curves for isomerization to cyclopentene (via vinylcyclopropene) and direct methyl loss from isoprene.

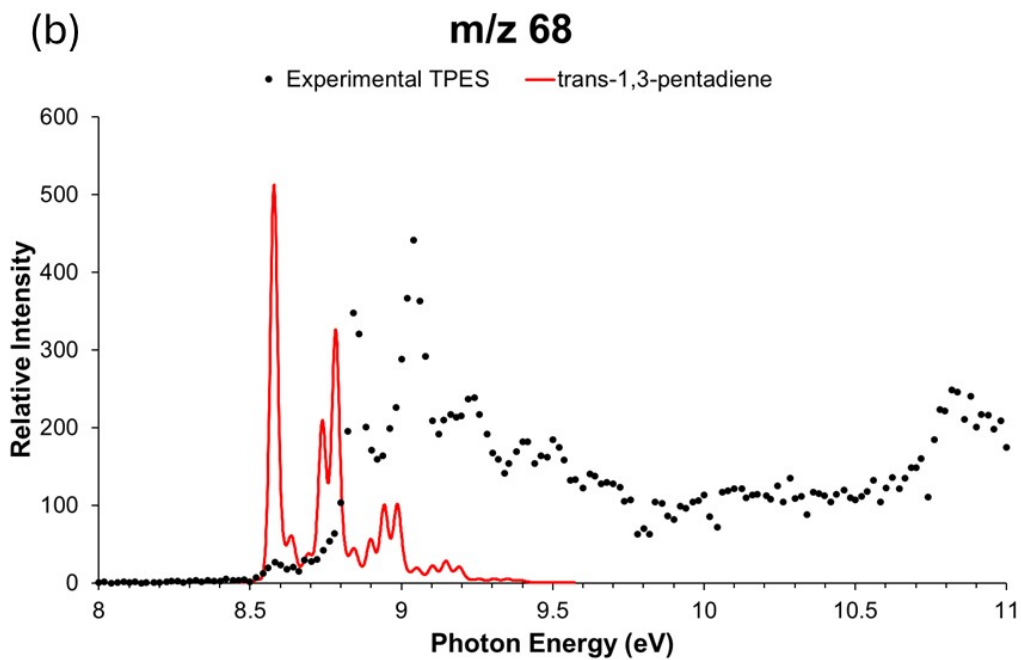
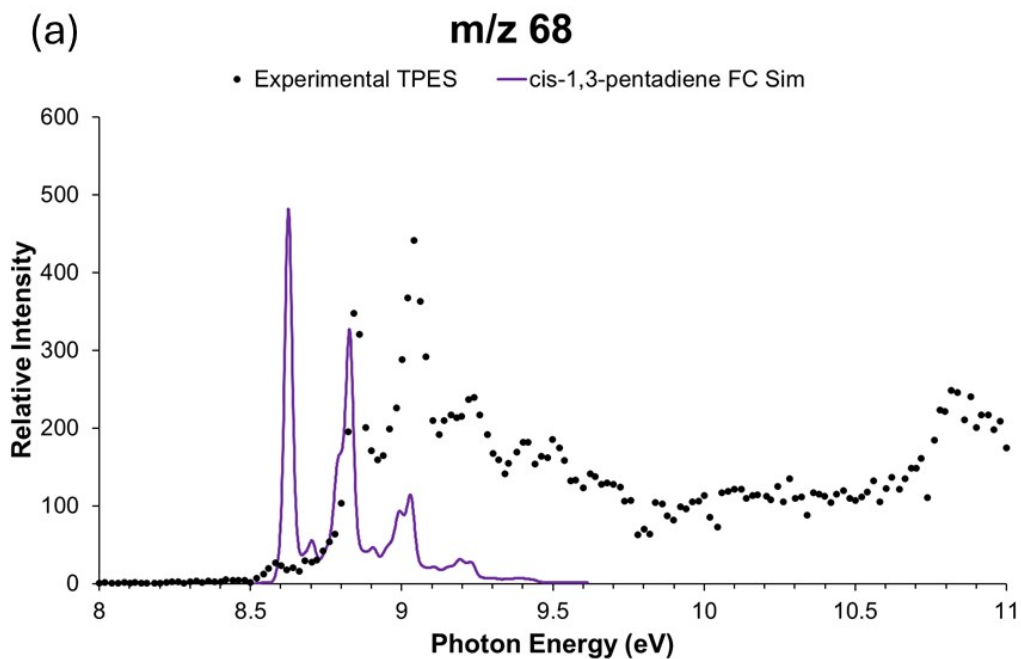


Fig. S3 Comparison of the FC simulation for (a) cis- and (b) trans-1,3-pentadiene with the experimental ms-TPES of m/z 68. The FC simulations were moved to the experimentally-reported IE values.<sup>42</sup>

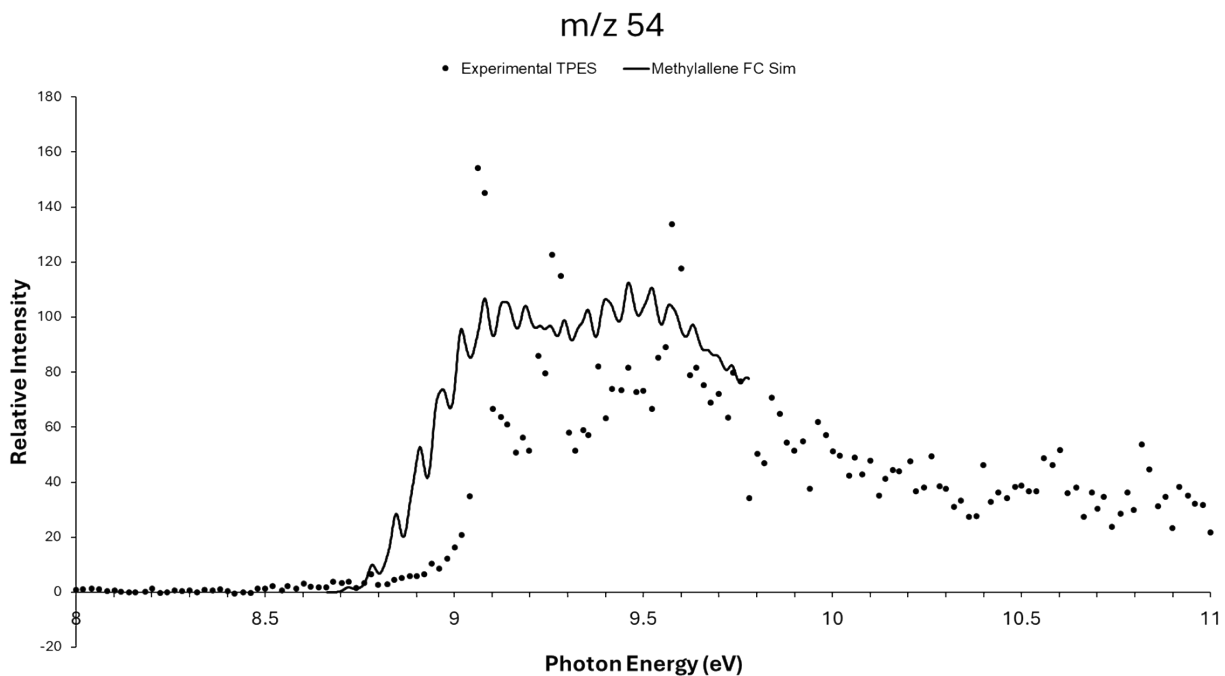


Figure S4. Comparison of the FC simulation for methylallene with the experimental ms-TPES of m/z 54

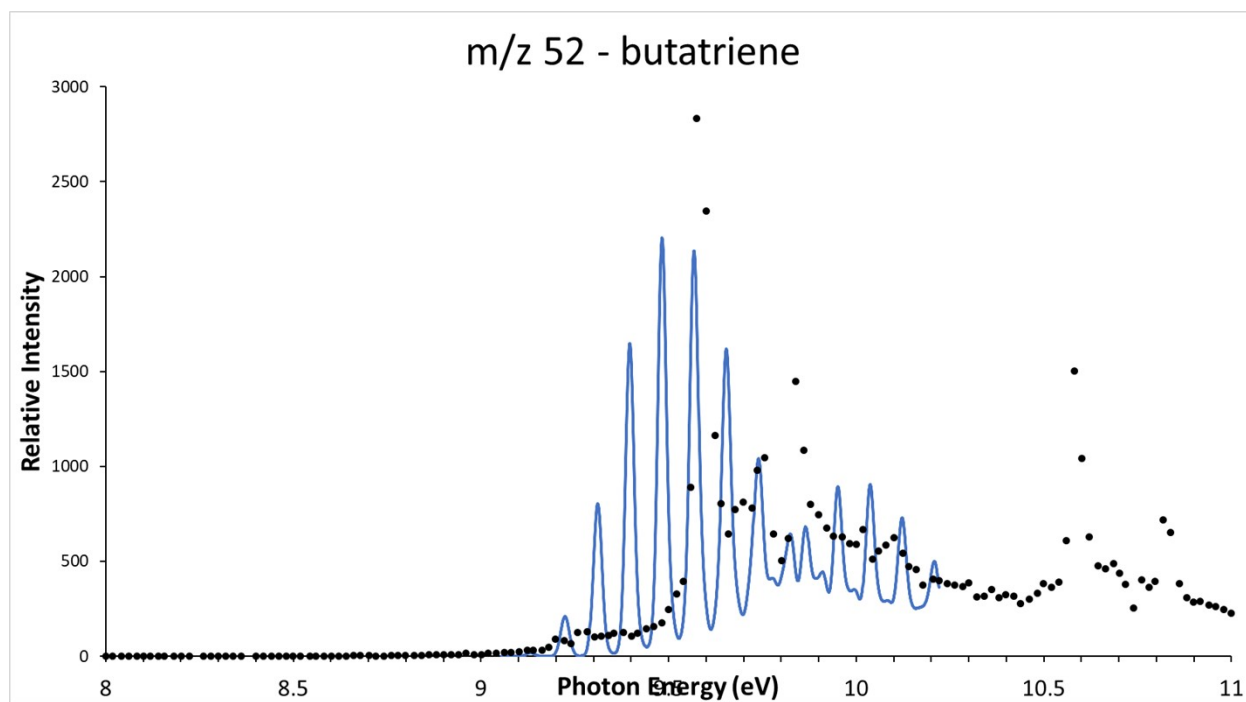


Figure S5. Comparison of the FC simulation for butatriene with the experimental ms-TPES of m/z 52

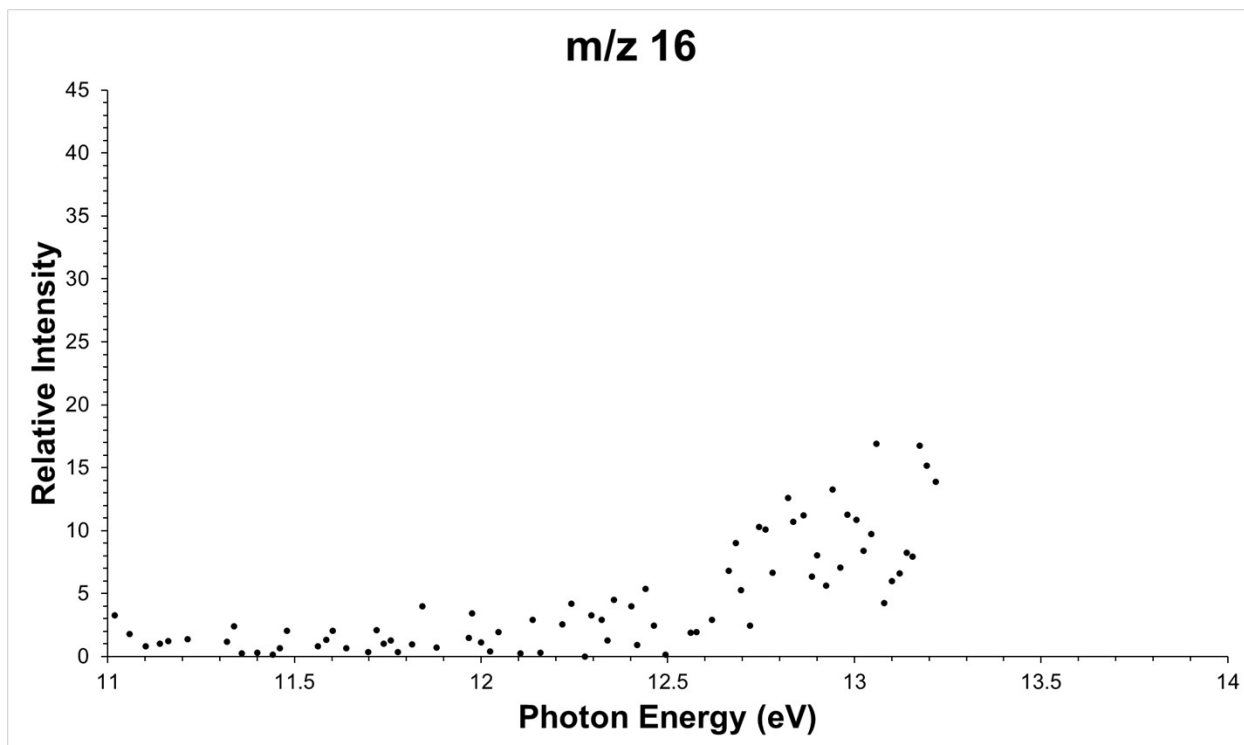


Figure S6. ms-TPES of m/z 16

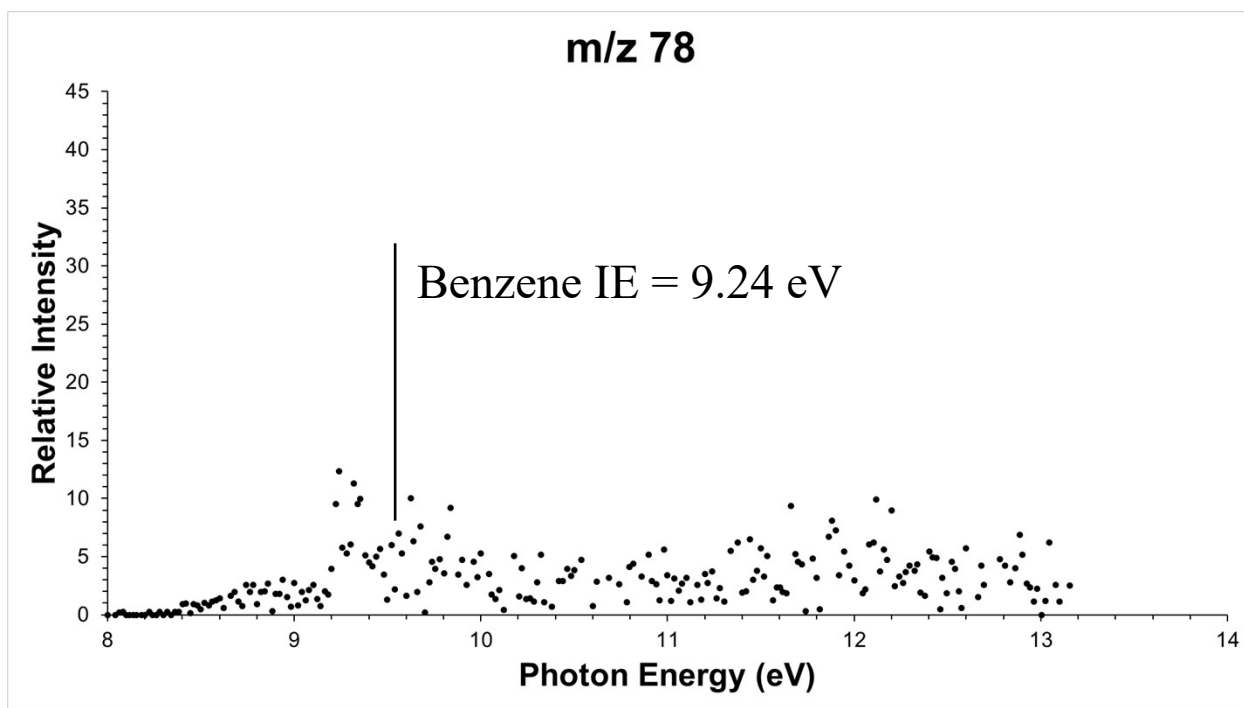


Figure S7. ms-TPES of m/z 78