Ultrafast and XUV science

Photoelectron spectroscopy measurements of roaming reactions in acetaldehyde

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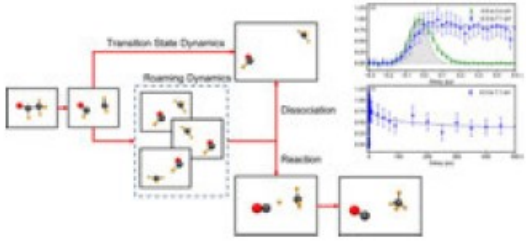
The dissociation reaction of acetaldehyde is mediated by a roaming reaction, where the CH_3 and HCO fragments are seen to roam around each other at intermediate distances between that associated with the bound molecule and the dissociated fragments. We have performed time-resolved photoelectron spectroscopy measurement of the roaming reaction where we observe the formation and collapse of the roaming intermediate.



Cartoon representation of the photochemical reaction of acetaldehyde following either a transition state or roaming reaction pathway. The inset shows the temporal changes in photoelectron signal for the peaks associated with the initially excited state (green) and the roaming intermediate (blue).

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