Controlling the formation of excited neutral D* fragments of D₂ using intense ultrashort laser pulses

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— Excited neutral D* fragments \( (n \gg 1) \) are produced by the interaction of strong-field laser pulses with D₂ molecules. In this work, we focus on the formation of low kinetic energy release (KER) D* fragments, which are relatively unstudied, using NIR (800-nm) and UV (400-nm) laser pulses. The KER spectrum is found to be very sensitive to the laser parameters, including laser chirp. By changing the chirp of the UV laser pulses, two separate low-KER peaks are generated instead of a single peak. Moreover, the ratio between these peaks can be controlled with the chirp. Similarly, by chirping the NIR pulses, the low-KER peak is attenuated and shifted to lower energy.

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