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Attosecond dynamics in simple molecular systems

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Isolated attosecond pulses have been used to excite and ionize H_2 and D_2 molecules. The interplay among the large variety of states of the neutral molecule and of the molecular ion that can be accessed, determines a complex dynamics that can be probed using a synchronized infrared field. A complete quantum mechanical calculation including nuclear and electronic wave-packets has been applied to interpret the experimental outcome. In the analysis particular attention will be devoted to the role of the doubly excited states of H_2/ D_2.