AUTOIONIZATION OF HIGH ORBITAL ANGULAR MOMENTUM STATES OF CALCIUM MONOFLUORIDE

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The use of a double-resonance laser excitation scheme and proper choice of intermediate electronic state has enabled the observation of high orbital angular momentum states of calcium monofluoride with $\ell = 3$ and one or two quanta of core vibrational excitation. These states undergo vibrational autoionization by $\Delta v^+ = 1$ and $\Delta v^+ = 1$ processes. The structure of these states and their observed rates of autoionization are compared with the predictions of the long-range force model of core-nonpenetrating states.