TWO-COLOR REMPI SPECTROSCOPY OF THE Ag_2-Ar VAN DER WAALS COMPLEX

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The weakly bound complex Ag_2-Ar is produced using laser vaporization of silver in a pulsed supersonic molecular beam. Previous studies have explored the B←X transition using one-color REMPI and determined both the ground and excited state binding energies. Attempts to study complexes with other ligands such as N_2, CO_2 and others at the B state were unsuccessful, leading to the hypothesis that the B state may be highly predissociative for these ligands. The A←X transition is expected to fall to the red of 432nm and should have a lower probability of predissociative behavior. Spectroscopy of the Ag_2-Ar complex at the A←X transition is expected to yield vibrational information as well as the binding energy of the A state and should confirm the previous measurement of the ground state binding energy. In addition, this study should also pave the way for studies of other complexes with silver dimer which have been previously unobserved.