

TWO-COLOR REMPI SPECTROSCOPY OF THE Ag₂-Ar VAN DER WAALS COMPLEX

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The weakly bound complex Ag₂-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 N₂, CO₂ 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 Ag₂-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.