

## ZEKE-PFI SPECTRA OF $\text{AlNH}_3$ AND $\text{AlNH}_2(\text{CH}_3)$

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The aluminum complexes were prepared in a metal cluster source and identified with a time-of-flight mass spectrometer. The electronic spectra of the complexes were measured with single-photon ZEKE-PFI (zero electron energy pulsed field ionization) technique. The ZEKE spectrum of  $\text{AlNH}_3$  shows vibronic transitions from two spin-orbit levels of the neutral ground electronic state, which allows the measurements of the following spectroscopic constants: ionization potential ( $39746 \text{ cm}^{-1}$ ), spin-orbit splitting ( $58 \text{ cm}^{-1}$ ), Al-NH<sub>3</sub> symmetric stretching frequencies ( $\omega_3^+ = 339 \text{ cm}^{-1}$ ,  $\omega_3^+ x_3^+ = 3.1 \text{ cm}^{-1}$ , and  $\nu_3 = 227 \text{ cm}^{-1}$ ), and Al-N symmetric bending frequency ( $\nu_6^+ = 557 \text{ cm}^{-1}$ ). The ZEKE spectrum of  $\text{AlNH}_2(\text{CH}_3)$  displays at least four progressions, from which two vibrational modes ( $365$  and  $160 \text{ cm}^{-1}$ ) may be identified.