LOW-FREQUENCY VIBRATIONAL MODES OF ALUMINUM-PHOSPHINE AND -ARSINE COMPLEXES

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Vibrationally resolved spectra of the aluminum-phosphine and -arsine complexes were measured using ZEKE spectroscopy. The ZEKE spectrum of Al-P$(CH_3)_3$ reveals the vibrational energy levels of low-frequency modes in the cationic and neutral species. These modes include the symmetric Al^+-P stretching (326 cm^{-1}) and Al^+-P-C bending (76 cm^{-1}) in the ion and the symmetric Al-P-C bending (71 cm^{-1}) in the neutral. The spectrum of Al-As$(CH_3)_3$ displays a major progression associated with the Al^+-As-C bending. Other transitions are also evident in the spectrum. Analysis is ongoing.