THE ROTATIONAL SPECTRUM AND HYPERFINE CONSTANTS OF ARSENIC MONOPHOSPHIDE, AsP.

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Arsenic monophosphide has been prepared by laser ablation of arsenic in the presence of PH_3. The $J = 2 - 1$ and $1 - 0$ transitions in both the ground and first excited vibrational states have been measured with a cavity pulsed jet Fourier transform microwave spectrometer. Hyperfine structure in the rotational spectrum of AsP has been resolved and has led to the determination of the As nuclear quadrupole coupling constant and the P nuclear spin-rotation constant in this molecule for the first time. This data enables the electronic structure of AsP to be compared with other members of the inter-pnictide diatomic molecules.