

## VIBRONIC SPECTROSCOPY OF PHENYLVINYLNITRILE

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This talk will present results of a gas phase, jet-cooled vibronic spectroscopy study of phenylvinyl nitrile ( $C_6H_5-CH=CH-CN$ , PVN). This molecule is seen as a potential photochemical precursor to nitrogen heteroaromatics, and therefore is particularly relevant to Titan's atmosphere, where nitriles exist in significant abundance. As a first step towards such photochemical studies, a fluorescence excitation spectrum of PVN spanning the range  $33,500-35,840\text{ cm}^{-1}$  ( $298.5-279.0\text{ nm}$ ) has been recorded, and dispersed fluorescence spectra that uncover and characterize the vibronic activity have been acquired. The  $S_0-S_1$  origin is a prominent band located at  $33,826\text{ cm}^{-1}$ , and the excitation spectrum is characterized by significant vibronic activity leading to spectral congestion. Hole-burning in the region of  $33,500-35,840\text{ cm}^{-1}$  has also been completed, and the excitation spectrum can be assigned solely to (E)-PVN. As PVN is the nitrogen-containing counterpart to phenylvinylacetylene (PVA), a comparison of the vibronic spectroscopy between the two molecules will be made.