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Determination of the Temperature of Nitrogen on Pluto from Spectral Measurements

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Laboratory measurements of the 2.148  $\mu\text{m}$  band of solid nitrogen show that the band has additional structure at 2.162  $\mu\text{m}$  which is evident only over a limited temperature range (Tryka et al., 1993, Grundy et al., 1993). The strong temperature dependence of this nitrogen band provides a unique method for determining the temperature of nitrogen on a body from spectral observations. This technique was used by Tryka et al. (1993) to make an independent measurement of the temperature of nitrogen on Triton. Recent observations of Pluto (Owen et al., 1993) have demonstrated that nitrogen is present on this body. We will present temperatures of nitrogen on Pluto based on observations made at the United Kingdom Infrared Telescope in 1992 and 1993.

References;

W. Grundy et al.. The temperature dependent spectra of  $\alpha$  and  $\beta$  nitrogen ice with application to Triton, *Icarus*, in press.

T.C. Owen et al., Surface ices and atmospheric composition of Pluto. *Science*. in press.

K.A. Tryka et al., Spectroscopic determination of tile phase composition and temperature of nitrogen ice on Triton, *Science*, in press.

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