Tune continuously over one octave by changing the RF acoustic frequency applied to the device.

An infrared (1.2–2.5 μm) Acousto-Optic Imaging Spectrometer (AlmS) has been designed that closely conforms to the surface composition mapping objectives of the Pluto Fast Flyby. It features a 75-cm focal length telescope, infrared AOTF, and 256 x 256 NICMOS-3 focal plane array for acquiring narrowband images with a spectral resolving power (∆λ/λ) exceeding 250.

We summarize the instrument design features and its expected performance at the Pluto-Charon encounter.

**References:**


**IMAGING SPECTROMETERS USING CONCAVE HOLOGRAPHIC GRATINGS.** J. Gradie1 and S. Wang2, 1Terra Systems, Inc., 169 Kuukama Street, Kailua HI, 96734, USA, 2SETS Technology, Inc., 300 Kahelu Avenue, Mililani HI 96789, USA.

Imaging spectroscopy combines the spatial attributes of imaging with the compositionally diagnostic attributes of spectroscopy. Imaging spectroscopy is useful wherever the spatial variation of spectral properties is important, such as mapping spectrally distinct compositional units on surfaces (planetary, terrestrial, medical, industrial), spectral emission and absorption of gases and surfaces (planetary, etc.), or regional spectral changes over time.

Imaging spectrometers produce a series of spatial images at many wavelengths in a number of ways: (1) a single-spot field of view that is step-wise scanned over the spatial field while the wavelengths (or wavenumbers) are scanned sequentially (single-detector element), (2) a single-spot field of view that continuously scans the field of view while sampling all wavelengths simultaneously (a linear-array detector), (3) a slit that continuously scans the field of view while sampling all wavelengths simultaneously (a two-dimensional array detector), or (4) frames of the full field of view taken at sequential wavelengths.

For spacebased remote sensing applications, mass, size, power, data rate, and application constrain the scanning approach. For the first three approaches, substantial savings in mass and size of the