

# **Icy Surface Characterization with X-band Uplink Bistatic Scattering at Pluto**

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## **Abstract**

During New Horizons encounter with Pluto and near the moment of closest approach, the spacecraft's High Gain Antenna (HGA), will scan Pluto's surface. The on-board radioscience instrument (REX), will receive specular reflections from Pluto's surface in both RCP and LCP polarizations of the X-band uplink transmitted from Earth. Specular reflection scattering provides information on the surface character, *e.g.* roughness and slope distribution, as well as surface composition, *e.g.* dielectric constant and index of refraction. The surface characterization planned for Pluto is based on recent experience with bistatic specular scattering from the icy polar regions of Mars. The methods and results will be presented from the Mars experiment together with their applicability to the planned Pluto encounter.