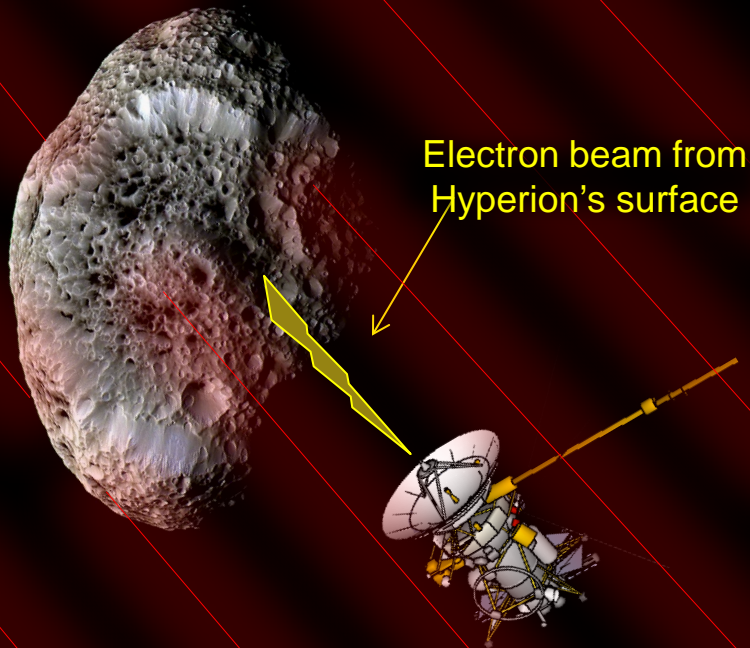


Cassini Makes a “Shocking” Discovery at Saturn’s Moon Hyperion



Electron beam from Hyperion's surface

Saturn's Magnetic Field

- Scientists analyzing data from the Cassini plasma spectrometer (CAPS) from a 2005 flyby were surprised to find that Saturn's small, sponge-faced moon Hyperion reached out to zap the spacecraft.
- Measurements from CAPS indicated the presence of a strongly negative charge on Hyperion. As Cassini flew by, low-energy electrons were accelerated across the 1930 km (1200 miles) to the spacecraft by the large potential difference. There were no signs of damage from the 200-volt electron beam.
- This is the *first confirmed* detection of a charged surface on an object other than the Earth's Moon. Hyperion resides in a highly variable environment between Saturn's magnetosphere and the solar wind. This active environment is likely the cause of Hyperion's surprising electrical charge.
- Surface charges are predicted to occur on many other bodies including asteroids and comets. Strong electric charging effects could be a hazard to future robotic and human explorers of solar system objects without atmospheres, such as Earth's moon.

"Detection of a strongly negative surface potential at Saturn's moon Hyperion,"
T. Nordheim, *et al.*, *Geophysical Research Letters*, 41, 7011-7018, 2014.