

Asteroid colors: a novel tool for magnetic field detection?

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Vesta's surface is surprisingly pristine. We present new ion irradiation experiments on an eucrite meteorite, which characterizes well the surface of Vesta, in order to simulate the solar wind irradiation on this asteroid. Our result implies that if solar wind ions do reach the surface of Vesta, its reflectance spectrum should be much redder and its albedo darker. This strongly suggests the presence of a magnetic field shielding the surface from solar wind ions. This is the first remote detection of the magnetic field of an asteroid from its color.