

## Discussion on how to approach to the origin of the Reiner Gamma Formation by the SELENE mission

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The Reiner Gamma Formation is an enigmatic objective on the surface of the Moon. It has two interesting characteristics. First, it has swirl-like albedo. Second, the strong magnetic anomaly has been measured on and around the feature. There are similar features as that of the Reiner Gamma Formation elsewhere on the Moon, which have reported since Apollo era and been recently reconfirmed by Lunar Prospector [Hood et al. 2001, Richmond et al. 2003]. The hypotheses of the origin of the Reiner Gamma Formation and/or similar features on the Moon may be classified into three [e.g., Pinet et al, 2000]: magnetized crater ejecta origin; anti-podal impact origin; cometary impact origin. These hypotheses all associate with important keys of the origin and evolution of the Moon.

In 2006, Japan will launch a Moon explorer SELENE (SELenological and ENgineering Explorer). On SELENE, 15 mission instruments will be installed. The data qualities and quantities provided by these instruments are higher than those by past lunar mission instruments. We will review the recent researches on the Reiner Gamma Formation and similar ones, and discuss how to approach to its origin by the SELENE mission.