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PPS22-25

会場:A02



時間:5月28日17:30-17:45

小惑星ベスタにおけるダイオジェナイト形成の為の結晶化・冷却条件 Crystallization and cooling conditions for the diogenite formation in the turbulent magma ocean of the asteroid 4 Vesta

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The asteroid 4 Vesta has been completely differentiated to core and mantle despite its small size, of which surface materials are howardite-eucrite-diogenite (HED) meteorites that we know the detailed petrology, and therefor, is a good target for understanding differentiation of terrestrial planets. A new differentiation model for crust formation was developed by taking magma ocean fluid dynamics, chemical equilibrium, presence of ²⁶Al, and cooling into consideration with special care to crystal separation. The role of crystal size, thickness of the conductive lib, and fO₂ are evaluated as parameters. Large crystals (1cm) settle and form a km-thick cumulate layer of orthopyroxene with Mg# of 0.70-0.90 in 20 thousand years, which almost agrees with the Mg# of diogenites, whereas thinner layers are formed if the grain size is smaller.

キーワード: マグマオーシャン, 小惑星ベスタ, HED 隕石 Keywords: magma ocean, Asteroid 4 Vesta, HED meteorites