

Origin of magnetic fields of terrestrial planets and satellites

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It has been revealed that some of the terrestrial planets and satellites possess their own magnetic fields. One of the generation mechanisms of the fields is the dynamo action in their fluid cores. However, it is not evident whether these planets and satellites are self-exciting dynamos or not. In this review, magnetic fields and interior structure of those planets and satellites are revisited. Dynamics and dynamo actions in the interior of them, including the effects of the mantles and environments, are discussed. Magnetic field generation processes other than dynamo action are considered in the case that dynamo action is not enough to sustain the observed magnetic field. Plausibility of the processes and detectability of them by future observations will be discussed.

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