



Evidence from numerical experiments for a feedback dynamo generating Mercury's magnetic [U+FB01]eld.

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The observed weakness of the magnetic field of planet Mercury poses a long-standing problem to dynamo theory. We explore the conjecture that the dynamo evolution could be damped by a negative feedback process of magnetospheric origin since Mercury is embedded within a strong magnetospheric field. We present results from a numerical experiment showing how it is possible to capture the dynamo in a weak state in a powering up phase already with a weak external field. The numerical simulation enables us to show how the dynamics inside the inaccessible core are altered by the feedback and how the transition to a strong field dynamo is inhibited. We conclude with a description of the outside characteristics of the feedback dynamo which can be compared to satellite data.