

## Dynamo driven by a precessing planet with an inner core

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### Abstract

Precession has been proposed as an alternative power source for planetary dynamos and principle of future dynamo experiments. Previous hydrodynamic studies suggested that precession can generate very complex flows in planetary liquid cores. Following the pioneering work of A.Tilgner [1], the dynamo effect is demonstrated numerically in precession driven flow in spherical shells for a wide range of control parameters. The mechanisms of hydrodynamic instability and the level of saturation of both kinetic and magnetic energy are investigated in details and compared to analytical models. First conclusions about the behaviour of the dynamo at low Ekman numbers and low magnetic Prandtl numbers are drawn.

### References

- [1] Tilgner, A.: Precession driven dynamos, *Physics of Fluids*, Vol. 17, pp. 034104, 2005.