

# Thermal history of the Earth's core

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# Thermal conductivity problem

Geodynamo:

- At least for the last 3.5 Gyr
- Mainly powered by the energy released by inner core formation

**Problem:** new higher (3x) thermal conductivity

⇒ enhances the heat conducted along the adiabat

⇒ less power available to generate dynamo

- likely stable stratification below the CMB ⇒ influence on the magnetic field at the surface and on convection
- lower mantle melted and younger inner core (less than 1 Gyr)

⇒ alternative energy source needed

**One solution:** light element exsolution (*O'Rourke and Stevenson, 2016; Badro et al., 2016*)

# Entropy budget

