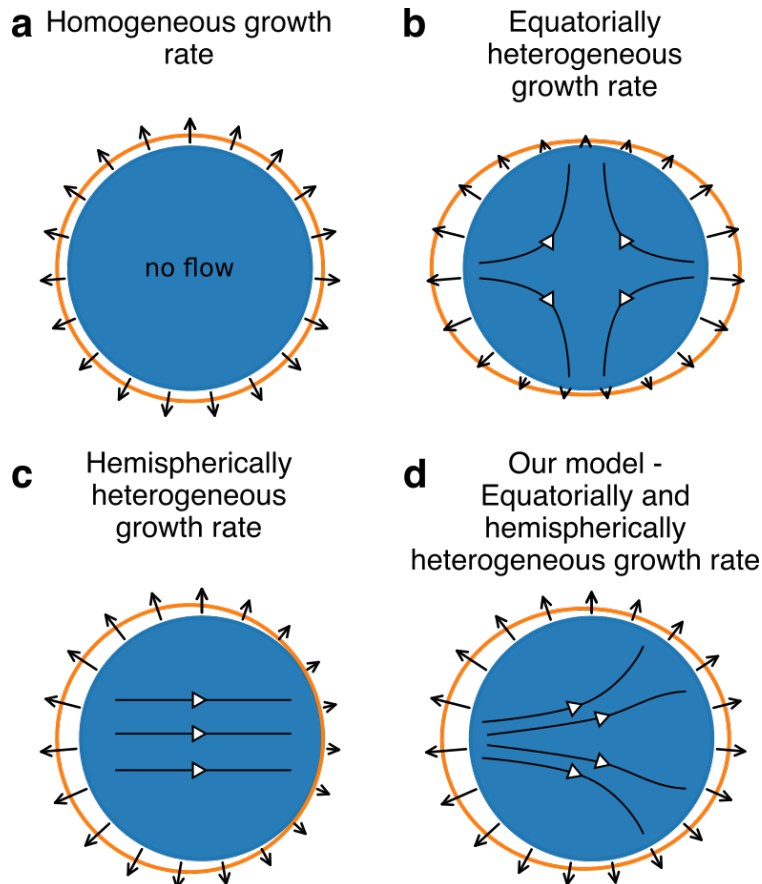


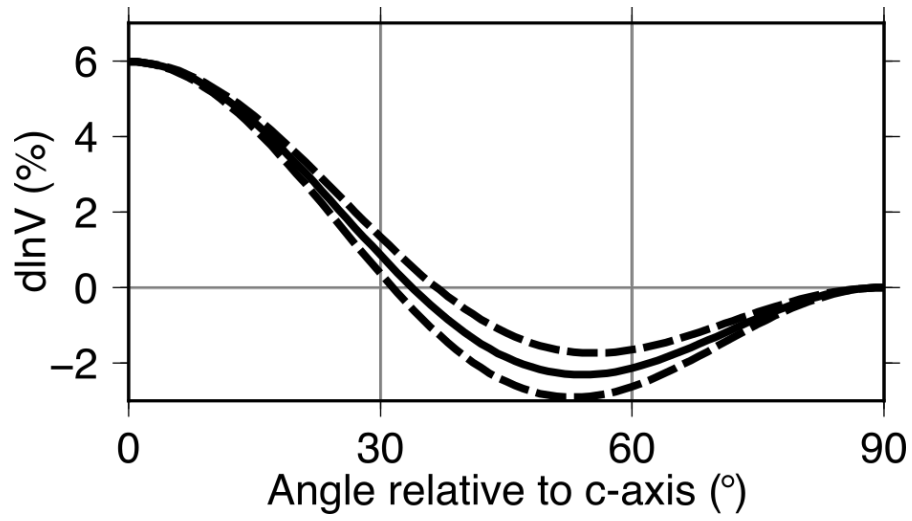
**Title:** Dynamic history of the inner core constrained by seismic anisotropy

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**Supplementary Information**



**Supplementary Information Figure 1: Conceptual models of inner core growth scenarios.** Boundary conditions (black arrows), resultant growth patterns (white arrows), and expected topography (orange line, exaggerated for visualisation) for inner core models with (a) homogeneous growth rate, (b) equatorial heterogeneous growth rate<sup>11</sup>, (c) hemispherical heterogeneous growth rate<sup>15,16</sup>, and (d) equatorial and hemispherical heterogeneous growth rate, combining models b and c.



**Supplementary Information Figure 2:** Single crystal anisotropy of hcp Fe<sub>93.75</sub>Ni<sub>6.25</sub> alloy at 5500 K and 360 GPa<sup>20</sup> with error range.