

1. No hints

2. - Assume dipole magn. field outside star

- Ideal MHD \Rightarrow frozen-in condition \Rightarrow magn flux through a certain portion of the plasma in and around the star stays constant despite deformation of the plasma

3. - How is magn. pressure defined?

- Assume dipole magn. field outside Earth. For a reference value, find the magnitude of Earth's B-field at the equator in the lecture slides.

4. a) Vector algebra, b) $\vec{M} = M \hat{z}$

c) Solve the given differential eq. by inserting the magn. field component expressions found in (c), reorganizing the eq. and integrating along the magn. field line