

PEM034-05

Room: 303

Time: May 27 16:22-16:35

Dependence of solar global magnetic parity on turbulent diffusivity

Hideyuki Hotta^{1*}, Takaaki Yokoyama¹

¹University of Tokyo

The dependence of the solar magnetic parity between the hemispheres on the some parameters, the turbulent diffusivity and the meridional flow is investigated. It is known that the solar global magnetic field is a dipole, i.e., antisymmetric about the equator. The dipole field, however, is not inherent in the solar flux transport dynamo model. It is known that the coupling of the magnetic field between hemispheres with the turbulent diffusivity is the important factor for the solar parity issue but the detailed criterion for the dipole field have not been investigated. In this study, we do the parameter study with the axisymmetric kinematic dynamo simulation. Our conclusions are as follows. (1) The stronger diffusivity near the surface is more liable to lead the magnetic field to be a dipole. (2) The thinner layer of the strong diffusivity near the surface is more apt to lead the magnetic field to be a dipole. (3) The faster meridional flow is more prone to lead the magnetic field to be a quadrupole, i.e., symmetric about the equator.

Keywords: sun, dynamo, solar cycle