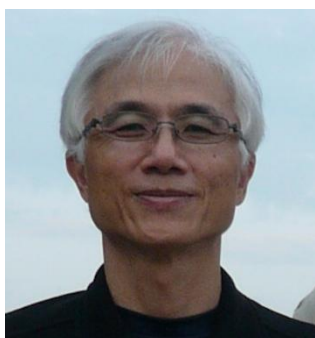


国台学术报告 NAOC COLLOQUIUM

2014 年 第 06 次 / Number 06 2014

Time: Wednesday 2:30 PM, Feb. 12 Location: A601 NAOC

Probing Magnetic Field in the Solar Interior: Solar-cycle Variations of Meridional Flows



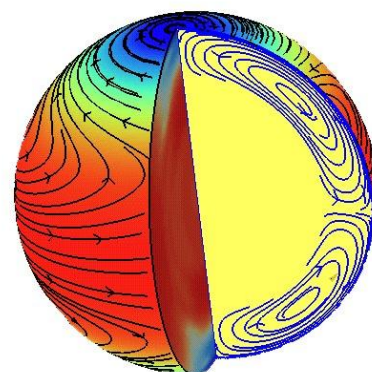
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Abstract

Magnetic fields are responsible for all activities on the Sun. How and where solar magnetic fields are generated is a long-standing unanswered question. Most theories predict that solar magnetic fields are generated by dynamo near the base of the convection zone and rise to the surface as active regions. However, so far no observational evidence of magnetic fields near the base of convection has been found. Here we show the evidence of magnetic signature through the entire convection zone down to the base of convection zone with the measurements of solar-cycle variations of meridional flows in the solar interior in the period of 1996-2013. Meridional flows are large-scale axisymmetric circulating flows on solar meridional planes. It is poleward on the surface and penetrates into the solar interior. Using the time-distance method in helioseismology, we are able to measure meridional flow signals at different depths down to about one sixth solar radius. These signals have different solar-cycle variations at different depths and latitudes that are believed to be mainly caused by magnetic fields. The result is in general consistent with the general picture of most dynamo theories.



All are welcome! Tea, coffee, biscuits will be served at 2:15 P.M.