

The state of the art: Inversions for flows in the solar interior

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Abstract

Despite helioseismology being over 50 years old, a consensus on the actual structures of the meridional circulation and convective flows (supergranules) has yet to be reached. This has been in part due to the difficulties of observations and in part due to the lack of accurate and consistent solving of the forward and inverse problems. In this talk we will present a computational approach to inverting for these large scale flows through the computation of travel-time and cross-covariance amplitude sensitivity kernels of the flow. Our study and inversion of synthetic data will demonstrate the capabilities of our method, as well as the observational demands of the inversion in order to be accurate. This work is a promising step towards understanding the large scale flows in the solar interior.