VIRGO Science Proposal
Asymmetry of p-mode line profile

Main Investigator

Any one of the 4 below

Co-Investigators

T.Appourchaux, D.O.Gough, A.Kosovichev, T.Toutain

Objectives

The asymmetry of the p-mode line profile will provide information about the location and size of the source exciting of the p modes. The lorentzian profile will be replaced by a more complex profile such as the one derived by Gough (1994) or by Gabriel (1995).

Work plan

The investigation should proceed in the following steps:

- Using at least the LOI, fit the p-mode line profile using Maximum Likelihood Estimators and the alternative profile.
- Assess the significance of the inferred parameters.

Outstanding problems

The analytical profile depends on the complexity of the model used. We should start with a simple profile, and increase the complexity if the detection is successful. Other data sets could be used such as those from GOLF or the SPMs. In this latter cases, the detection will be more difficult because the modes are blended.

Responsibilities and Management

T.Appourchaux will be for generating the power spectra and for providing the crosstalk for each spectra of an l, m mode. T.Toutain will be responsible for fitting the modes with the alternative profiles. D.O.Gough will be responsible fro providing the analytical profile (a simple one is already in hand). A.Kosovichev and D.O.Gough will be responsible for the scientific interpretation of the data.