Coronal Seismology and Magnetoseismology

Fact Sheet

Project Information

CSAM
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Status
Closed project
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FP7-PEOPLE
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Coordinated by
KATHOLIEKE UNIVERSITEIT
LEUVEN
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Objective

The project aims to further our understanding of magnetohydrodynamical (MHD) waves in the solar corona and the upper layers of the solar interior and specifically addresses the coupling between the waves at the solar surface and in the corona. Within the local helioseismology community it is becoming widely accepted that magnetic fields should be taken into account when inverting the seismological data to infer local properties of the solar plasma. While the local helioseismic techniques have reached a fairly advanced stage they are predominantly based on purely hydrodynamical models. In the coming years, the inclusion of magnetic effects in the local helioseismic techniques is likely to become an important issue. Meanwhile, the emerging field of coronal seismology uses, compared to local helioseismology, simple models and methods often based on the analysis of a single eigenmode of the structure. As current and future space missions boost the data available for coronal seismology, the development of more advanced tools suitable for coronal seismology is a necessity. However, the construction of techniques for coronal seismology
analogous to those used in local helioseismology is not straightforward, as it inevitably involves the inclusion of magnetic fields and is complicated by the inherent 3D structure of the coronal magnetic fields and line of sight integration effects. The research regarding the inclusion of magnetic fields in local helioseismological techniques, offers a unique opportunity to investigate to what extent counterparts of helioseismological tools could be developed for use in magnetized coronal conditions. Moreover, there is increasing evidence that oscillations observed in the solar corona are intimately connected with the waves observed on the solar surface. This supports the need for a unified understanding of MHD waves at the solar surface and in the corona which will be of interest to both communities.

Field of science

/natural sciences/earth and related environmental sciences/geology/seismology
/natural sciences/physical sciences/astronomy/stellar astronomy/asteroseismology

Programme(s)

Topic(s)

Call for proposal

FP7-PEOPLE-2007-4-1-IOF

Funding Scheme

MC-IOF - International Outgoing Fellowships (IOF)

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