

Waves inside Stars: Theory, Simulations, Observational Signatures, and Lab Experiments

Monday 31 August 2015

Freiburg

Waves inside Stars: Theory, Simulations, Observational Signatures, and Lab Experiments

Splinter session, Monday 31 August, 10h - 12h30, during

SOLARNET III / HELAS VII / SpacelInn Conference "The Sun, the stars, and solar-stellar relations"

<http://www.iac.es/congreso/solarnet-3meeting/>

Organisers:

Tamara Rogers (Newcastle University, UK)

Conny Aerts (Leuven University, B)

Abstract:

Waves are as ubiquitous in stars as they are on Earth. Just as on Earth, waves can transport angular momentum and mix species within stellar interiors, steering their rotational and chemical evolution. Waves also set up standing modes which can be observed through helio- and asteroseismology. Helioseismology has revolutionized our picture of the Sun, constraining the internal rotation profile and convective undershooting in the solar interior. Asteroseismology is not far behind, recently constraining core-envelope differential rotation and core convective overshooting in more massive stars. Indeed, the observations of waves through helio- and asteroseismology places the tightest constraints on the dynamical evolution those same waves induce.

This 2.5 hour splinter session aims to bring together researchers doing theory, simulations, and observations of waves in stars (gravity, pressure and mixed) with the hope that the synergy between the three (often disparate) fields could lead to tests and comparisons which would further our understanding of stellar interiors. Moreover, we include also studies of wave generation by convection in laboratory experiments to search for connections between those and stellar physics. We begin this session with four short talks on each of the sub-topics and will then continue with a guided discussion on how these fields can work together to advance our understanding.

Programme: Monday 31 August, 10:00 - 12:30

10:00 - 10:30 Theory: Stephane Mathis (Saclay, France)

10:30 - 11:00 Simulations: Tami Rogers (Newcastle, UK)

11:00 - 11:15 Observational Signatures: Conny Aerts (Leuven, B)

11:15 - 11:30 Lab Experiments: Santiago Andres Triana (Leuven, B)

11:30 - 11:45 Short Coffee Break

11:45 - 12:25 Guided discussion, participants are encouraged to bring 1 slide

12:25 - 12:30 Summary of Synergies & Future Steps

Weblink: <http://www.iac.es/congreso/solarnet-3meeting/>

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