

# International Francqui Symposium: What asteroseismology has to offer to astrophysics

Dec 2-4, 2013

Brussels

Stellar astrophysics is the foundation of our understanding of the nature of the Universe. The luminous energy emitted from the surfaces of stars has given astrophysicists the clues to deduce the nature of stellar structure and to map the physical changes stars undergo over their lifetimes, from birth out of the interstellar medium to death as white dwarfs, neutron stars or black holes. We have now reached the long-awaited stage where we can test and improve our understanding of stellar structure and evolution theory, with important implications for all research fields that build on this foundation. For the first time we can peer into the interiors of stars to see their structures using asteroseismology. This revolutionary new view is the result of uninterrupted space photometry, precise to parts per million, delivered for thousands of stars by the Kepler and CoRoT Space Telescopes. The primary aim of these space missions is to detect exoplanet systems, with an ultimate goal of finding Earth-like planets in the habitable zone. The ultra-high precision continuous observations obtained have produced tremendous benefits for asteroseismology. Asteroseismic inference of the exoplanet host star provides crucial input to characterise the planetary system. We can now peer into the interiors of stars in all stages of evolution, including their red giant and compact stages - for both binary and single stars - probing extreme physical conditions with unprecedented confidence. We can even perform asteroseismic galactic studies of clusters and populations in the Milky Way.

The goal of this three-day symposium is to present recent progress in asteroseismology to the broader astrophysics community and to discuss what this field may offer to other research domains in astrophysics. Keynote invited speakers will cover broad areas of importance for astrophysics; their review talks will be followed by dedicated talks on how asteroseismology has brought, or will bring improvements in that topic. In addition to these invited presentations, shorter contributed talks in this same spirit will be solicited from the community.

The Symposium is partly funded by and organised under the auspices of the Francqui Foundation. It marks the end of the Advanced Grant: Probing Stellar Physics and Testing Stellar Evolution through Asteroseismology (PROSPERITY, <http://www.ster.kuleuven.be/PROSPERITY>) awarded to Conny Aerts by the European Research Council.

The purpose of this 1st announcement is to make the community aware of the symposium and to present the list of invited talks. A call for participation, registration and abstract submission for a contributed talk will be sent out in January 2013. Abstract submission closes on 31 March 2013 and contributed talks will be selected by 1 May 2013. The final programme will be posted on the website by that date. Registration closes on 1 July 2013.

Tutorial for junior post-docs

The symposium is followed by a one-day tutorial on 5 December 2013 at the same venue for junior postdocs who will be provided with a training in the theme of "How to survive from PhD to tenure-track" by several of the senior invited speakers of the symposium. This tutorial is limited to 15 participants and constitutes of an intensive practical training in the writing and defending of successful competitive peer-reviewed grant applications. More information can be found on the website.

Symposium Programme

The programme is available on the website.

Weblink: <http://fys.kuleuven.be/ster/meetings/francqui/francqui>

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