



Seminar/Talk

[Online] STEM fatale Scientific Talk with Conny Aerts

Conny Aerts

KU Leuven

Host: STEM fatale organizing team

Conny Aerts is a professor at KU Leuven whose research covers stellar astrophysics, including stellar structure & evolution and variable stars. She also leads the Chair in Asteroseismology at the Radboud University Nijmegen and is an External Scientific Member of the Max Planck Society. Prior to high-precision space photometry, Conny developed rigorous mathematical methods to detect and identify non-radial stellar oscillations. Her team has designed and applied statistical classification methods in a machine-learning context, and discovered numerous gravity-mode pulsators in space photometry. Her role as a pioneer of asteroseismology earned her many awards, including two ERC Advanced grants, and in 2012 she was the first woman to receive the prestigious Francqui Prize in Science and Technology since its creation in 1933. In this talk, we start with an introduction into asteroseismology as a particular branch of astrophysics for the non-expert. We show how the space age in asteroseismology initiated about a decade ago implied tremendous progress in the understanding of the inner workings of stars. We discuss the diversity in nonradial oscillations of stars and make the link with pressure, gravity, magnetic, and tidal waves. We then discuss some highlights of space asteroseismology, mostly brought by the 4-year light curves assembled with the NASA Kepler space telescope. Examples of applications include high-precision sizing, weighing, and ageing of stars, archaeological studies of the Milky Way, and the derivation of the internal rotation of stars and its impact on the theory of stellar evolution. We end with an outlook for the glorious future of this field for astrophysics, thanks to the ongoing NASA TESS and future ESA PLATO space missions. Please note that this talk is open to everyone.

Thursday, May 6, 2021 02:30pm - 03:30pm

Online



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