Multiple PhD positions on stellar standard candles and Hubble’s constant in ERC and SNSF funded group at EPFL

The newly formed H1PStars team at EPFL in Switzerland is inviting applications for multiple PhD positions to improve distance measurements based on stellar standard candles in order to measure the cosmic expansion with unprecedented accuracy.

Are you highly motivated to embark on a career in astrophysics research in a diverse and stimulating environment at one of Europe’s leading Universities? Do you have a background in astrophysics, astronomy, and/or cosmology? Are you excited to work at the intersection between stellar physics and cosmology? Then don’t hesitate to get in touch!

The available thesis subjects will improve the calibration of standard candles, their application as distance tracers, and their astrophysical understanding. Standard candle here refers to pulsating giant stars, such as Cepheids, Miras, RR Lyrae stars, and stars near the tip of the red giant branch, all of which are important for calibrating the luminosity of type-Ia supernovae via the distance ladder. By improving such distance ladders, the H1PStars team will work to understand the origins and implications of the current discord among Hubble constant measurements based on early- and late-Universe probes.

There are currently two observationally and one more theoretically minded position open. The observationally minded projects involve working with time-series data from surveys, such as Gaia and SDSS-V, as well as targeted spectroscopic observations. The theory-oriented position involves working with stellar evolution models, population synthesis, as well as available observational data to test and improve model predictions.

The H1PStars team is based primarily at the Sauverny Observatory site, which offers a vibrant world-class astrophysics research environment shared by EPFL’s Laboratoire d’Astrophysique (LASTRO) and the University of Geneva’s Department of Astronomy. The team is funded through an ERC Starting Grant and an SNSF Eccellenza Professorial Fellowship. Other research groups at LASTRO focus on extragalactic astrophysics and observational cosmology, as well as numerical simulations. Research at the neighboring University of Geneva covers the range from theoretical and observational stellar astrophysics, the Gaia mission, spectroscopic instrumentation, extrasolar planets, extragalactic astronomy, and high-energy astro- and astroparticle physics.

PhD positions in Switzerland are fully funded for four (4) years. For EPFL’s eligibility criteria, please see: https://www.epfl.ch/education/phd/edpy-physics/

To apply, please:

1) combine the following documents into a single PDF file and e-mail it to estrella.briant@epfl.ch:
   - Motivation letter (max 2 pages, see instructions below)
   - CV (max 3 pages)
   - University degree certificates (Bachelor & Master, scanned copies). If studies are ongoing: a copy of the current degree’s transcripts
   - Three (3) confidential letters of recommendation will be collected through the EDPY application system, see below.

2) also apply to the EPFL Physics Doctoral School, called EDPY @ EPFL by 30 April 2021. Admission into EDPY is a requirement (necessary, not sufficient) for starting a PhD at EPFL. For details on the application and the doctoral program, please see: https://www.epfl.ch/education/phd/edpy-physics/

In Section 6 “Scientific Interests” of the EDPY application form, please mention in the comment box “Thesis director: Richard Anderson” in case this name does not appear in the list of available options to check.

Please make sure to include in your motivation letter:
- why you are interested in a PhD in astrophysics in general
- what kind of research you would like to do in your PhD
- how the mentioned opportunities match your interest
- if you are currently a student: your anticipated graduation date
- the following sentence in bold font: “I have read the job ad.”