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# Innsbruck Physics Colloquium


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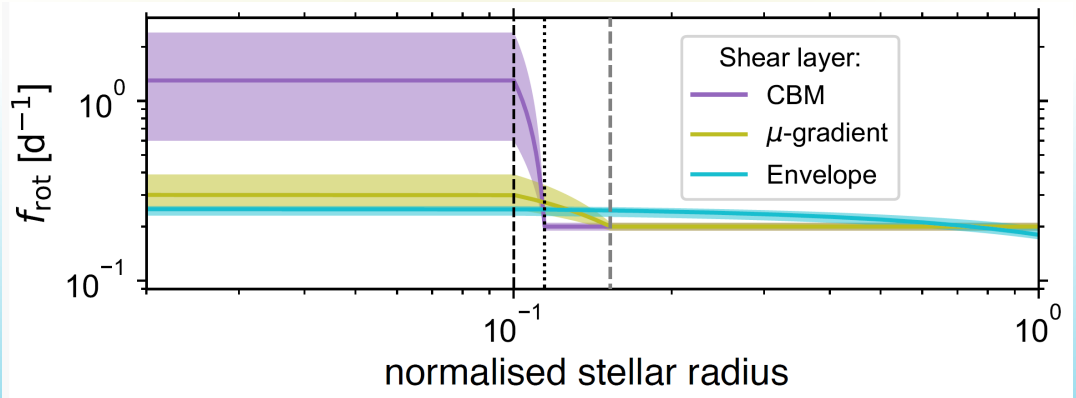
## Asteroseismology of massive stars: new insights of stellar interiors from their pulsations


Massive stars are important metal factories in the Universe because through their winds and explosive deaths as supernovae they provide radiative, kinematic and chemical feedback to their surroundings. However, stellar evolution models currently contain large theoretical uncertainties for physical mechanisms at work in the deep interiors of massive stars. The uncertainties associated with interior rotation, chemical mixing and angular momentum transport propagate throughout stellar evolution making it difficult to accurately determine stellar masses and ages. However, the detection and analysis of coherent pulsation mode frequencies in massive stars allows one to break model degeneracies, uniquely probe stellar interiors, and constrain largely uncalibrated physical processes within stellar evolution models. In this seminar, I discuss the advances in our understanding of massive stars by means of asteroseismology of their coherent pulsation modes. Modern space telescopes have revealed pulsations in many massive stars across different evolutionary stages, which includes the main sequence through to blue supergiant stars, and provides the opportunity to perform a data-driven empirical calibration of theoretical evolution models for some of the most massive and short-lived stars in the Universe.


**Tuesday, 12.03.2024, at 16:30 h, HS C (Technik)**

Innsbruck Physics Colloquium,
Organisation: K. Erath-Dulitz, H.-C. Nägerl, T. Schrabback