Effect of angular momentum transport through mixed modes as a function of stellar evolution

Beatriz Bordadágua*[1], Felix Ahlborn[1], and Saskia Hekker[1]

[1]Heidelberg Institute for Theoretical Studies – Germany

Abstract

Current models of red giant stars predict higher core rotation rates than derived observationally. This indicates the need for an efficient mechanism of angular momentum (AM) transport. Mixed modes are proposed as a mechanism of AM transport through the interaction between the mean flow and the oscillations. This mechanism has been shown to potentially explain the seismic core rotation values.

We aim to uncover the potential of mixed modes as an efficient mechanism of AM transport as a function of evolution along the RGB and for different stellar masses. To this end, we compute stellar evolution tracks and implement the mixed modes mechanism for AM transport to obtain more realistic rotation profiles.

We present the evolution of the rotation profiles using AM transport through mixed modes and compare the results with observations.

*Speaker