

Abstract: Quantifying transport by shearing instabilities in stellar interiors: differential rotation

We propose to run two series of numerical simulations to quantify the effect of horizontal shear and rotation on shear-induced mixing in stars. The PI and her group have made very substantial progress in the past 5 year to quantify mixing by shear instabilities in the stellar parameter regime, albeit in an idealized situation where rotation and horizontal shear was ignored. However, shear in stellar interiors is primarily due to differential rotation, hence the need to account for these effects. This work is funded by a new NSF grant awarded to the PI in September. The standard UCSC resources that the PI normally uses are becoming too oversubscribed to do the proposed work.