
The action of waves in stellar interiors: transporting angular momentum and chemicals and providing key informations

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Abstract

Waves propagating in stars are of major importance. First, they provide thanks to asteroseismology the main window allowing us to probe their internal structure, chemical stratification, rotation, and magnetism. Next, they are able for low-frequency waves to transport efficiently angular momentum and chemicals that modifies the dynamics and the evolution of stars.

In this review, I will draw a complete picture of the state-of-the-art and of the most recent advances on our modeling and understanding of waves propagating in rotating stratified magnetized stellar interiors. First, I will discuss the consequences for asteroseismic observations. Then, I will show how the complex interplay between waves, rotation and magnetic fields is driving angular momentum transport and chemical mixing. Finally, I will discuss what are the perspectives to build a coherent vision of the multi-dimensional structure and dynamics of stars along their evolution.

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