



Current progress in stellar fluid dynamics: the case of rotating stars

M. Rieutord

LATT, Observatoire Midi-Pyrénées, Université Paul Sabatier, CNRS, 14 av. E. Belin 31400
Toulouse, France

Until recently, the inclusion of rotation, either in stellar models or in the treatment of stellar oscillations, has been done, essentially, through perturbation methods. Centrifugal distortion was considered as almost negligible and Coriolis acceleration was mostly included only through its first order effect, namely a kind of Zeeman splitting of oscillation frequencies. However, the recent development of optical and infrared interferometry has shown that the shape of many stars is strongly influenced by rotation; moreover, the required precision for the interpretation of acoustic frequencies of stars monitored by space missions like COROT demands a fully non-perturbative approach of rotation.

In this talk I will review our currently knowledge of the influence of rotation on both the structure of stars and their oscillation spectrum.