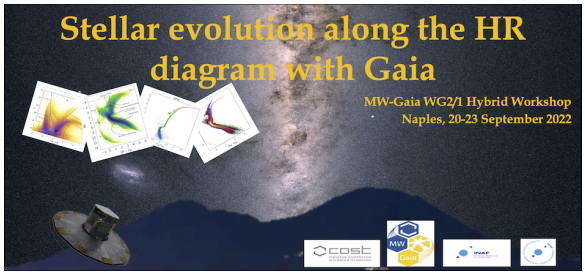

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Gaia distances: an opportunity for gauging the asteroseismic accuracy of beta Cephei pulsators

Wednesday, 21 September 2022 17:00 (20 minutes)

The β Cephei pulsators are massive main-sequence stars presenting low radial-order oscillations. These latter bear a powerful signature of physical processes at the edge of the convective core and in the radiative envelope, as for e.g. convective overshooting, hydrodynamic or magnetic instabilities. Yet, it is not clear to what extent the seismic inferences describe accurately the structure of these massive stars. However, a novel interferometric approach has recently been shown able to measure the angular diameter of these bright objects. We have developed and tested new methods for the seismic modelling of β Cephei pulsators, including inversions of the mean stellar density. Inferred density combined with an independently determined stellar radius would allow for accurate estimation of the mass ; and would be a direct test of the accuracy of the results from asteroseismic forward modelling. In that regards, improvement in the distance determination of bright stars by Gaia, presently or in the future, is the key to determine accurate radius from the recent interferometric measurements of β Cephei stars.

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