KIC11911480: Probing deep into the interior of a pulsating white dwarf star

Noemi Giannichele$^1$, Sandra Greiss$^2$, Pierre Brassard$^1$, Gilles Fontaine$^1$, Stéphane Charpinet$^3$, and Boris Gänsicke$^2$

$^1$Université de Montréal – Canada
$^2$The University of Warwick – United Kingdom
$^3$Institut de Recherche en Astrophysique et Planétologie (IRAP) – CNRS : UMR5277 – France

Abstract

We present the first self-consistent seismic analysis of a white dwarf star in the Kepler field. We investigate the case of KIC11911480, a low-amplitude and well behaved ZZ Ceti pulsator (as expected from its location close to the blue edge) showing five rotationally split multiplet structures. We precisely establish the fundamental parameters of the star using the forward method based on physically sound models. We unravel the internal structure as well as the rotation profile of KIC11911480 deeper than in any other ZZCeti stars studied so far. This opens up interesting prospects for future analyses of the white dwarf pulsators monitored in the Kepler and Kepler2 fields.