Inhomogeneous interior models for Jupiter and Exoplanets

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With more than 5000 exoplanets found and about 2-dozens of planets with detected atmospheric chemical species, we moved from an era of discovery to a new era of exoplanet characterisation. On the other hand, extremely accurate measurements by Juno and Cassini missions, make this an exceptional time to combine the detail information on the solar system giant planets and the large amount of data from exoplanets to get a better understanding on planetary physics and a better comprehension on planet formation and evolution. Because our knowledge on the interior structure of the giant planets is linked with the data we obtain from space missions, these last years were crucial for this field: the outstanding accuracy of the gravity data provided by Juno has fundamentally changed our understanding of the interior of Jupiter. It has allowed us to put constrains on the zonal flows, the extent of differential rotation and lead us to find that Jupiter has most likely a dilute core. In this presentation I will show new results where we find that a non-homogenous envelope is also a constraint set up by the Juno measurements. Using this knowledge, I will also show how we can use the acquired knowledge on the solar system and the great data we are getting from space measurements to retrieve exoplanet interior structures.