APR10-2009-000145

Abstract for an Invited Paper
for the APR10 Meeting of
the American Physical Society

New Hydrodynamical Models of Type I X-Ray Bursts

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Type I X-ray bursts constitute the most frequent type of stellar explosion in the Galaxy (and the third most energetic event after supernovae and nova outbursts). They take place in the H/He-rich envelopes accreted onto neutron stars in binary systems. In this talk, I will present new hydrodynamic models (1D) of type I X-ray bursts, from the onset of accretion up to the explosion stage, with special emphasis on their gross observational properties (light curves, recurrence time between bursts) and their associated nucleosynthesis. In particular, I will focus on the impact of the chemical composition of the accreted material on burst properties. The impact of nuclear uncertainties on the final nucleosynthetic yields will be discussed as well.