

DNP10-2010-000475

Abstract for an Invited Paper  
for the DNP10 Meeting of  
the American Physical Society

**Carbon Burning in the Universe and the Laboratory**

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Carbon burning is a crucial process in stellar evolution. Due to its complicated reaction mechanism, there is great uncertainty in the reaction rate which limits our understanding of various stellar objects, such as massive stars, type Ia supernovae, and superbursts. In this talk, the challenges in the study of carbon burning will be reviewed, and an outlook for future experiments will be provided.