Abstract for an Invited Paper
for the SES09 Meeting of
The American Physical Society

Neutrinos and nucleosynthesis from Supernovae and Gamma Ray Bursts

GAIL MCLAUGHLIN, North Carolina State University

We discuss the way in which neutrinos together with ambient conditions impact the nucleosynthesis in extreme astrophysical environments such as supernovae and gamma ray bursts. Hot dense material near the center of these objects will be composed of free nucleons. As this material flows outward, it cools and combines into nuclei and creates some of the elements we find on earth today. Neutrinos are an important aspect of this process for many reasons, one of which is that since they are emitted in great numbers, through the charged current interactions, they determine the relative numbers of neutrons and protons in the material. We examine several effects of neutrinos on the nucleosynthesis in both environments.