DNP06-2006-000015

Abstract for an Invited Paper
for the DNP06 Meeting of
the American Physical Society

The Diffuse Supernova Neutrino Background[1]

JOHN BEACOM, Ohio State University

The cosmic stellar birth rate can be measured by standard astronomical techniques. It can also be probed via the cosmic stellar death rate, though until recently, this was much less precise. However, new results based on measured supernova rates, and importantly, also on the attendant diffuse fluxes of neutrinos and gamma rays, have become competitive, and a concordant history of stellar birth and death is emerging. The neutrino flux from all past core-collapse supernovae, while faint, is realistically within reach of detection in Super-Kamiokande, and a useful limit has already been set. I will discuss predictions for this flux, the prospects for neutrino detection, the implications for understanding core-collapse supernovae, and a new limit on the contribution of type-Ia supernovae to the diffuse gamma-ray background.

[1]Research supported by NSF CAREER grant No. PHY-0547102.