



Physics Colloquium



Thursday, February 25th at 3:30 pm in SC 234

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Weighing neutron stars with short gamma-ray bursts

Matter in the cores of neutron stars exists at a density and neutron fraction that cannot be explored in laboratories. Nuclear physicists thus turn to astronomical observations for guidance about the dense matter equation of state. Some guidance has come from the existence of 1.9-2.0 solar mass neutron stars, which provide a lower limit to the maximum neutron star mass, but upper limits have not been established. I will discuss an argument, based on the nature of short gamma-ray bursts, that either (1) the upper limit is less than 2.2 solar masses, or (2) the LIGO detection rate of compact inspirals will be significantly larger than previously hoped. I will also discuss how observations of gravitational waves from short gamma-ray bursts will reduce uncertainties significantly.

Refreshments 3:00-3:20 pm in SC 103