BOSTON UNIVERSITY

Boston University College of Arts & Sciences Institute for Astrophysical Research and Center for Space Physics

SPACE PHYSICS AND ASTROPHYSICS JOINT SEMINAR

Too close for comfort!

Consequences of a near-Earth supernova on the solar system

There is now substantial evidence that Earth was recently exposed to debris from a nearby (within ~100 pc) supernova 2-3 Myr ago. Radioactive ⁶⁰Fe forged in supernova explosions has been found in deep sea sediments, crusts, and even lunar samples and Antarctic snow. The same supernova that deposited its ⁶⁰Fe on Earth must have had a dramatic effect on the heliosphere. In this talk, I will present an overview of the evidence and implications for how a nearby supernova could affect the Earth. I will then focus on hydrodynamic simulations

of the supernova remnant's blast wave compressing the heliosphere. While the blast wave does not reach the orbit of Earth, much of the outer solar system is exposed. Over the following ~100 kyr, the blast weakens and allows the heliosphere to rebound.



Monday, January 23rd 3:30 - 4:30 p.m. CAS 502

Jesse Miller Boston University