

DEPARTMENT OF PHYSICS & ASTRONOMY  
COLLOQUIUM

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**Things that go “BOOM:”**

**Learning from Energetic Events in the X-ray Universe**

**Abstract**

The universe, and the objects within it, are shaped by gravity and violence, both sudden and prolonged. These energetic events and environments typically emit X-rays, from the colliding winds of massive stars, to supernova explosions and their neutron star and black hole remnants, to supermassive black holes in the centers of galaxies, to galaxy clusters--the most massive bound objects in the universe--to the nature of dark matter and dark energy. They all produce both thermal and non-thermal X-rays through their interaction with intervening gas, offering clues about the processes affecting the formation and evolution of galaxies, clusters of galaxies, and the universe as a whole. I will describe a range of recent investigations with X-ray observatories covering these varied topics, undertaken by myself with my group or others. Future prospects for these studies, and for new observatories that could help carry them out, will also be briefly discussed.

FRIDAY, SEPTEMBER 20<sup>TH</sup>  
JFB 101  
2PM

REFRESHMENTS WILL BE SERVED IN JFB 219 AT 1:45PM