Physics Colloquium

Michigan Technological University

Thursday, February 22, 2007
4:00 - 5:00 pm
Room 139, Fisher Hall

Initial Chemistry in the Detonation of Energetic Molecular Crystals: IsThere a Single Universal Mechanism?

Wil Slough
(Advisor: Professor Warren Perger)
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Abstract

Explosives have played an integral role in mankind's arsenal of technology. Their existence and use stretches back well before the attempt of modern science to explain how they work. Current explosive technology employs energetic materials formed from complex organic molecules. When these organic molecules bond together they form a distinct class of solids termed molecular crystals. Although much has been done to explore and explain the macroscopic behavior occurring during the detonation of these energetic molecular crystals, a great deal remains to be done in describing detonation on a molecular level. The complete description of the initial decomposition chemistry for molecular crystals undergoing detonation is still an open question of great scientific and technological importance. In this talk, I will explore the importance of answering this question, and our group's recent attempt at doing so.

Progress Toward Molecular Electronics

Jason Moscatello
(Advisor: Professor Yoke Khin Yap)
Physcis Department
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Abstract

As traditional silicon electronics approach their scalability limits, new approaches are necessary to continue advancement according to Moore's Law. While many new technologies, both mature and new, are focusing on addressing this problem, molecular electronics offers unique advantages...and challenges. Some of the of the most promising technologies will be discussed to give a sense of the state of the field, with a focus on our progress toward making and improving our own molecular devices.

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