

Smashing Protons!

Exploring Nature's Fundamental Particles and Forces with the Large Hadron Collider

with Professor Beate Heinemann of UC-Berkeley



A One-hour Multimedia Presentation with Q&A for High School Students & Motivated Teens

Wednesday, September 30th, 2009

7:30 – 8:30 p.m.

**Terra Linda High School , Room 207
320 Albion Way, San Rafael, CA 94903**

Dr. Heinemann's experiment recently became famous when it was featured in the blockbuster movie "**Angels & Demons**" with Tom Hanks. She will discuss particle physics and her work with the Large Hadron Collider in Switzerland.



The field of "particle physics" tries to understand the physics of the most fundamental building blocks of matter. How many such building blocks are there? How do they relate to each other? Why are they there? Currently we do not have a good theory why we have any mass at all, even though of course we know that all matter has a mass. There are, however, many theories about why this might be and the goal of my experiment is to prove or disprove them, or to maybe find completely unexpected phenomena that will then need to be explained. One exciting possibility is that we find extra dimensions of space that could even result in the production of mini-blackholes. My experiment is called ATLAS and is situated at the "Large Hadron Collider" (abbreviated as LHC) that is located in Switzerland. There are more than 2000 physicists on my experiment, and many engineers and technicians: all of them collaborate with each other to answer some of the most basic and fundamental questions of Science today. In my talk I will describe how this experiment works and what we hope to discover there.

Dr. Heinemann is Assistant Professor of Physics at UC-Berkeley.

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