

**TUFTS UNIVERSITY**  
**Physics and Astronomy Colloquium**

*Christoph Paus*  
**MIT**

**“Unveiling the Mystery of  
Mass”**

One of the prime reasons the Large Hadron Collider (LHC) was built is to resolve the question about how particles acquire their mass. While it is very simple to measure particle masses and we have a model – the Standard Model of Particle Physics -- which explains quite accurately all presently available measurements the seemingly trivial mechanism of how particles acquire their mass remains a mystery. The Standard Model invokes a new scalar gauge field to resolve this mystery but we have until very recently not been able to find experimental evidence for its existence. On July 4, 2012, the CMS and ATLAS experiments have announced the discovery of a new Higgs-like particle at a mass of about 125 GeV.

I will review our knowledge about the Higgs boson before the LHC started, quickly touch on the newest results from the Tevatron and discuss the discovery in this context. Finally, I will outline the steps required to complete the task and clearly identify the newly discovered particle as the Higgs boson.

**3:00 pm**  
**Friday, September 14, 2012**  
**Robinson 253**  
**Medford Campus**

***Refreshments served at 2:30 in The Knipp Library, Room 251***

