

## Colloquia

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FALL 2014

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Higgs Particle as the Fruit of the Marriage  
Between Physics and Engineering

day

DECEMBER 17, 2014 WEDNESDAY

location

EE01

time

15:40

### ABSTRACT

Particle physics aims to explain all forces and matter in the universe by a small number of fundamental particles. These particles living in the quantum realm, have basic properties like mass, charge, spin etc. The mechanism behind one of these properties, namely how particles acquire mass, is now known thanks to the discovery of the Higgs boson at CERN. Large Hadron Collider, the tool used for discovering the Higgs Boson is a particle accelerator designed, built and operated by engineers and accelerator physicists. In fact, many other (sub-)atomic particles were discovered using particle accelerators in the past century. On the other hand, creative minds have found a wide variety of medical and industrial applications for particle accelerators. Currently, Turkey is also building its own particle accelerators under collaborations by physicists and engineers. We will explain the story that connects the Higgs boson discovery at CERN LHC, which completed the Standard Model of particle physics, to the accelerator we are building in TAEK-SANAEM, which we hope will make exciting contributions to Turkish science and industry.

The Physics Colloquia are designed to address a non-specialist, broad audience and introduce topics of contemporary research through lectures by leading experts. We warmly invite all members of the student body, including undergraduates enrolled in any programme.

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