

**Title:** Antimatter in the Laboratory

**Lecturer:** Dr. R. Landua

**Date and Times:** 13<sup>th</sup> July at 09:15  
14<sup>th</sup> July at 09:15

### **Summary of the proposed talk**

These two lectures for non-specialists will start with a short theoretical and historical overview:

- why are antiparticles needed?
- Why is the symmetry between matter and antimatter so fundamental?
- What is the role of antimatter in cosmology?

It follows a tour of the many uses of antiparticles in experimental physics: as a tool in accelerators; as a probe inside atoms or nuclei; or as an object to study fundamental symmetries.

The lecture will then focus on the "antimatter" programme at the Antiproton Decelerator (AD) at CERN, where large numbers of slow moving antihydrogen atoms have been produced for the first time.

An outlook on present and potential future applications of antiparticles in science and our daily life will conclude the overview, hopefully within the allocated time.

### **Prerequisite knowledge and references**

None

## **Biography**

**Dr Landua, R.**

German nationality.

School in Wiesbaden, physics study in Mainz (Ph.D. 1980).

Came as post-doc to CERN, fellow 1982-1984, CERN research physicist since 1987.

Worked on experiments studying exotic atoms, antiproton-proton annihilation, meson spectroscopy and searching for "glueballs".

In 1996, started working on the ATHENA experiment at the Antiproton Decelerator, to find ways of producing cold antihydrogen atoms.

From 1999-2003, spokesman of this experiment.

Since 2005, head of the education group at CERN.

Despite continued efforts, still member of too many committees.