

**Title:** CP Violation

**Lecturer:** Gerhard Raven

**Date and Times:**

- 27 July at 10:15
- 28 July at 10:15
- 29 July at 10:15
- 29 July at 11:15

**Summary of the proposed talk:**

The lectures introduce the experimental facts, the empirical necessity and the theoretical concept of Matter-Antimatter symmetry violation ("CP violation") in particle physics, leading to an excess of matter in our universe. Different experimental phenomena of CP violation are discussed and a theoretical description of CP violation within the framework of the Standard Model is given. Recent experimental results on CP violation in the sector of B mesons are highlighted and interpreted, and the prospects of CP violation measurements at the LHC are outlined.

**Prerequisite knowledge and references:**

Basic knowledge of the quantum mechanics and some familiarity with the Standard Model

**Biography-  
Brief CV:**

- 1991-1995: graduate student, Nikhef, Amsterdam, Ph.D. at Utrecht University (L3 experiment)
- 1995-1997: research associate, University of California, San Diego (L3 experiment)
- 1998-2001: project scientist, University of California, San Diego (BaBar experiment)
- 2002-2007: lecturer Vrije Universiteit Amsterdam & Nikhef (LHCb+BaBar)
- 2008- : senior lecturer Vrije Universiteit & Nikhef (LHCb+BaBar)

**Experiments:**

- L3 (luminosity, invisible Z decays, tracking, B-tagging, (SUSY) Higgs searches)
- BaBar (detector commissioning, tracking software, lifetime, mixing & CP violation)
- LHCb (tracking&analysis software, time-dependent B physics analysis preparation, high-level trigger)