

# **BND School 2016 Antwerp**

**Sunday, 28 August 2016 - Friday, 9 September 2016**

**Room K.202, Kleine Kauwenberg 14, Antwerp**

## **Scientific Programme**

The BND Summer School in Particle Physics is organised yearly by a Belgian, Dutch or German Particle Physics group. The Summer School is intended primarily for experimental high energy physicists preparing a PhD in particle physics, in particular during their first two years. The lectures cover both theoretical and experimental aspects of the field.

The focus of the school alternates every year between electroweak standard model physics & tracking detectors and strong interaction physics & calorimeters. This year will be devoted to strong interactions and calorimetry with theoretical lectures on Quantum Field Theory, QCD, neutrino physics and cosmology. The experimental lectures will focus on calorimetry detectors, experimental design and computing/electronics.

The school follows an intensive schedule of roughly 60-70 hours of lectures and tutorials spread over 10 days. It contains a core theoretical program covering 6+4 hours of Quantum Field Theory with tutorials, 8+4 hours of Quantum Chromo Dynamics with tutorials and a core experimental program of 6 hours on the topic of Calorimetry Detectors. The core program is supplemented by roughly 30 hours of topical lectures that vary from year to year. These will minimally include lattice QCD, cosmology, neutrino physics and heavy ion physics. Finally the program will contain 12 hours of hands-on projects related to experiment design, literature study and computing/electronics.

The program is finally supplemented with 2 off-topic evening lectures, 2 half days of social-cultural activities and 2 or three evening activities.

## **Topics**

### **Lecturer**

Quantum Field Theory  
Prof. KLEISS, Ronald

Calorimetry  
Prof. CORTINA, Eduardo

QFT Tutorial  
Dr. VERHEYEN, Rob

Student projects  
Prof. VAN REMORTEL, Nick

Neutrino properties  
Prof. HAMBYE, Thomas

Quantum Chromo Dynamics  
Prof. DUHR, Claude

Heavy Ion Physics  
Prof. KUIJER, Paul

Experimental tests of QCD  
Prof. FIELD, Rick

Astroparticle Physics  
Prof. BUITINK, Stijn

Large Scale structure formation  
Prof. THEUNS, Tom

Lattice QCD  
Prof. JANSEN, Karl

Evening Lecture: Feynman & Field and the advent of QCD  
Prof. FIELD, Rick

Evening Lecture: The Science of Paintings  
Prof. JANSSENS, Koen

QCD Tutorials  
Prof. DUHR, Claude

Practical Statistics  
Prof. BRUN, Hugues & Prof. VANLAER, Pascal