Spring Block Course 2011

General Information

⋆ **DATE**: March 07 - March 11

⋆ **LOCATION**: Hotel Amselgrundschlößchen in Rathen (near Dresden)

Hotel Amselgrundschlößchen
Amselgrund 3
D-01824 Kurort Rathen

Phone +49 35024 / 74 333
Fax +49 35024 /74 444
E-Mail: info@amselgrund.de

⋆ **HOW TO REACH FROM DRESDEN**

Rathen is connected to Dresden via S-Bahn $S1$ with a train every half an hour to "Kurort Rathen" railway station. It takes 35 minutes to reach from Dresden main station. Please check the schedule at the DB website for further informations.

Kurort Rathen railway station, on the Dresden S-Bahn, is about 200 metres from the Oberrathen ferry terminal. To reach Amselgrund in Niederrathen, one needs to take the ferry which connects Niederrathen, on the east bank, to Oberrathen, on the west bank.

⋆ **SEMINAR ROOMS**

Most of the lectures will be given in seminar room $S1$ which is to be found at "Haus des Gastes". To reach the building turn left from the Amselgrund into "Zum Grünbach" and follow the street for about $600m$. The building is on the left hand site at the corner "Füllhölzelweg" with the fire department on the ground floor.

The second seminar room $S2$ is to be found at the hotel next to the lunch and diner room.

Program

⋆ BASIC LECTURES

A) *Physics beyond the Standard Model:*
Strong CP (non-)Violation, EDMs, Axions, hidden Photons and other BSM particles.
- A1) Theoretical Concepts by Javier Redondo (MPI Munic)
- A2) Experimental Searches by Konstantin Zioutas (CERN)

B) *Neutrino Physics, Majorana Neutrinos and seesaw mechanism*
- Samoil Bilenky

⋆ ADVANCED LECTURES (To be hold in parallel sessions!)

A) *Advanced Software Development:*
(1) *UML: The Feynman Diagrams of Software Design*
(2) *Design Patterns:*
Selected Examples and Use-Cases in High Energy Physics
(3) *Hands-on: Excercise on Software Design*
(4) *Class Design Principles: Efficient Methods of Developing Re-Usable Code in High Energy Physics*
- by W.F.Mader (CERN) & P. Steinbach (TU Dresden)
For this lecture, experience with object oriented programming is required!

B) *On-Shell methods in gauge theory scattering amplitudes*
- by Jan Plefka (HU Berlin)

⋆ EVENING TALK

What does Quantum Field Theory tell us about the material world ?
- by Meinard Kuhlmann (U Bremen)

⋆ STUDENT PRESENTATIONS

Luz Gomez	- *Jets triggers for the ATLAS experiment*
Simon Dinter	- *Nucleon Matrix Elements from Lattice QCD*
Petra Kovacikova	- *Drell-Yan Cross Section at NNLO via Mellin Space*
Kathrin Leonhardt	- *Observation of* $Z \to \tau\tau \to e\mu$ *with the ATLAS experiment*
Frank Seifert	- *Tau efficiency systematics in Z->tautau measurement in ATLAS*
Peter Steinbach	- *A Measurement of* $\sigma(Z+b)/\sigma(Z+jets)$ *with ATLAS* 2010 *data*

SCHEDULE

TIME	MONDAY 07.03.	TUESDAY 08.03.	WEDNESDAY 09.03.	THURSDAY 10.03.	FRIDAY 11.03.
08:00 - 09:00		Breakfast	Breakfast	Breakfast	Breakfast
09:00 - 10:15		Zioutas (S1)	Zioutas (S1)	Zioutas* (S1)	Mader / Steinbach (S2) Plefka (S1)
10:15 - 10:45		Break	Break	Break*	Break
10:45 - 12:00		Bilenky (S1)	Redondo (S1)	Zioutas* (S1)	Mader / Steinbach (S2) Plefka (S1)
12:00 - 14:30		Lunch	Lunch	Lunch	Lunch
14:30 - 15:45	Redondo (S1)	Redondo (S1)		Mader / Steinbach (S2) Plefka (S1)	
15:45 - 16:15	Coffee	Coffee		Coffee	
16:15 - 17:30	Redondo (S1)	Bilenky (S1)		Mader / Steinbach (S2) Plefka (S1)	
17:30 - 17:45	Break	Break		Break	
17:30 - 19:00	Presentations (S1)	Presentations (S1)		Mader (S2) / Plefka (S1)	
19:00 - 20:20	Diner	Diner	Diner	Diner	
20:30 - 22:00		Kuhlman (S2)			

Annotations: S1 - seminar room at “Haus des Gastes” / S2 -seminar room at the hotel
* - Starting time is 30 minutes prior normal schedule!