

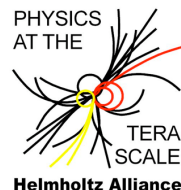
# Detector Simulation + Reconstruction with GEANT4 and ROOT

MC-PAD / Alliance Training Event

Thomas Schörner-Sadenius



































GEANT4/ROOT Training Event  
DESY Hamburg, 4-6 March 2010



# WELCOME ...

- > ... to the (second) training event on “Detector simulation and reconstruction using GEANT4 and ROOT”!
- > We are extremely happy to welcome you here at DESY for 3 days of lectures, tutorials, social interaction etc.
- > This is the second such event – the first was held in January 2010, mainly for members of the Marie-Curie Particle detectors (MC-Pad) network.
  - ... so you will have all the benefits from debugged tutorials, tested exercises, well-rehearsed lectures ...
- > Your feedback is essential for us ...
  - ... please help us to improve by telling us what you think of this event and by filling in the questionnaires at the end of the event.

# PROGRAMME

	Thursday 04 March 2010		Friday 05 March 2010		Saturday 06 March 2010	
AM	08:15	  Registration	09:00	  Lecture and tutorial: User actions and Analysis - Gunter Folger (CERN)	09:00	  Tutorial on ROOT Analysis of Test Beam Data: Momentum Dependence of Position Resolution, Multiple Scattering Effects - Gero Flucke (DESY) Olaf Behnke (DESY) Thomas Schoerner-Sadenius (DESY)
	09:00	  Welcome and organizational issues - Robert Klanner (Hamburg University) Thomas Schoerner-Sadenius (DESY)	10:45	--- Coffee break ---	10:45	--- Coffee break ---
	09:30	  Lecture and tutorial: Basic fitting (1) - Gero Flucke (DESY) Olaf Behnke (DESY)	11:00	  Lecture and tutorial: Particles and physics processes	11:00	  Tutorial on ROOT Analysis of Test Beam Data: Angular Dependence of Cluster Charge and Position Resolution - Gero Flucke (DESY) Olaf Behnke (DESY) Thomas Schoerner-Sadenius (DESY)
	10:30	--- Coffee break ---	12:45	  Tutorial: Generation of the test data with Geant4	12:00	  Summary of workshop - Thomas Schoerner- Sadenius (DESY)
	10:45	  Lecture and tutorial: Basic fitting (2) - Gero Flucke (DESY) Olaf Behnke (DESY)			12:30	--- Lunch break ---
	12:00	  Lecture: Monte Carlo method - Thomas Schoerner-Sadenius (DESY) Albert Knutsson (DESY)				
PM	13:00	--- Lunch break ---	13:00	--- Lunch break ---		
	14:00	  Lecture: Physics of the beam telescope - Tilman Rohe (PSI)	14:00	  Tutorial on ROOT Analysis of Test Beam Data: Pedestal and Noise Determination, Cluster Finding and Position Reconstruction - Gero Flucke (DESY) Olaf Behnke (DESY) Thomas Schoerner-Sadenius (DESY)		
	15:00	  Lecture and tutorial: Introduction to and first experience with Geant4 - John Apostolakis (CERN)	16:30	--- Coffee break ---		
	16:10	--- Coffee break ---	16:45	  Tutorial on ROOT Analysis of Test Beam Data: Cluster Charge Distributions - Gero Flucke (DESY) Olaf Behnke (DESY) Thomas Schoerner-Sadenius (DESY)		
	16:25	  Lecture and tutorial: Geometry, Materials, and Particle Source - Andreas Schaelicke (DESY)	19:00	--- Workshop dinner ---		

# ORGANISATIONAL ISSUES

- > We provide a WLAN for all; information on that has been handed out.
  - *Name: Geant2010*
  - *WPA/WPA2-PSK: u!uz7nea6*
- > Exercises / tutorials are done on the desktop machines; accounts have been handed out.
  - Please note that we expect you to perform the work in pairs – two participants share one PC.
- > Dinner takes place Friday evening in restaurant Champus: Beselerstr. 35. We leave DESY together at 19:15 (main entrance) and walk there.
  - Today and tomorrow: Breakfast and lunch can be taken in the DESY canteen.
  - Saturday: breakfast here in seminar room area (time); we will also provide lunch.
- > We try to staff the registration desk during coffee breaks. In case of questions / problems contact Magdalene Hack (2208), Michaela Grimm (3100) or Thomas Schörner-Sadenius (3429).

# THANKS TO ....

- > ... MC-PAD, DESY and the Helmholtz Alliance for funding
- > ... to all lecturers and tutors
  - ... for their immense work!
- > ... to Hamburg University colleagues
  - ... for their support
- > ... and to all people behind the scenery which are necessary to put things in place:
  - Secretaries Michaela Grimm, Magdalene Hack
  - DESY IT / technicians: Maike Ermisch, Horst Lehmann et al.
  - Seminar room technicians: R. Eisberg, S. König, O. Knak
- > ... have I forgotten anybody?