PHYSICS AT THE TERA SCALE

Helmholtz Alliance

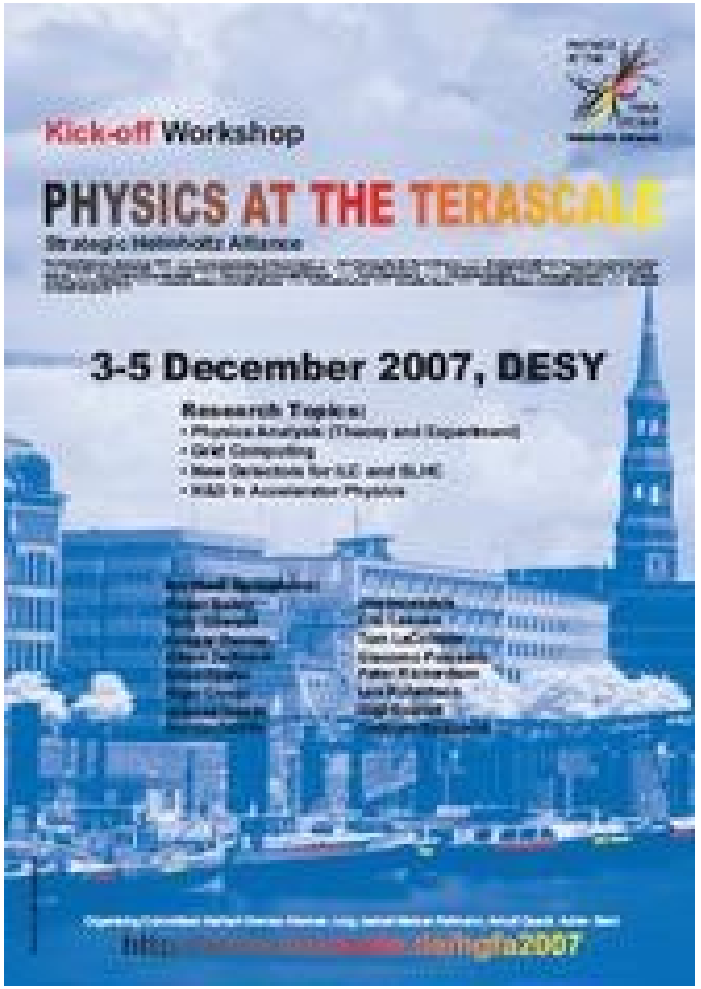
1. Detector Workshop Helmholtz Alliance

Ties Behnke, DESY

Karlsruhe, 3/4/2008 - 4/4/2008

Detector physics / detector developments are a central part of the HGF Alliance

- What is the Alliance
- Why are we here in Karlsruhe



The Helmholtz Alliance

- Network of 17 German Universities,
  2 HGF centres (DESY, FZK), and
  MPI Munich
- Trigger a new level of coherence in HEP
  in Germany

The Alliance of course exists in the context of existing structures:

BMBF FSP (ATLAS, CMS)

existing cooperations (bilateral etc)

The Alliance wants to extend the cooperation primarily in the area of infrastructures and long term sustained actions.

Start July 2007, 25Mio in 5 years

Structure of the Alliance

Four pillars, around which all activities are grouped:

Physics	Detector	GRID	Accelerator

Develop and improve infrastructures available to all members of the Alliance

special attention to long term effects
(infrastructures, tenure track positions, ...)

Important difference to BMBF Verbundforschung

Physics at the Terascale

	Physics Analysis	Grid Computing	Detector Science	Accelerator Science
Scientific Goals	**Data Analysis** • Understanding LHC Detectors • Physics at the LHC • The path to the ILC	**Improved Grid** • Virtualization • Application-driven monitoring • Development of NAF tools	**ILC Detectors** • Vertex Detector • Tracking • Calorimetry • Forward Detectors	**Optimizing the ILC** • Acceleration Technology • Sources • Beam Dynamics
	Analysis Tools • Algorithms and Techniques • Simulation Tools	**Data Storage + Retrieval** • Mass storage • Data Access	**(s)LHC Detectors** • Vertex Detectors • Tracking • Trigger • Luminosity Monitor	
	Theory/Phenomenology • Monte Carlo Generators • Precise Predictions • New Models			
Work Packages	**Analysis Network** • Alliance Working Groups • Monte Carlo Group • Virtual Theory Institute	**Virtual Computing Centre** • Computing resources Tier 2 • National Analysis Facility • High performance network • User friendliness • Grid-based mass storage	**Virtual Detector Lab** • VLSI & Electronics • Support Sensor Design & Characterization • Detectors Systems Support	**Advancing Accelerator Science**
	Analysis Centre at DESY	**R&D on Grid Tools:** • Virtualisation of resources • Application driven monitoring • Data access managment	**R&D Projects**	**R&D Projects**
	Training and Exchange	**Grid Training**		

Backbone Activities

Management – Young Investigator Groups - Fellowships – Equal Opportunities – Outreach – Interim Professorships

Available measures

- Positions and funds to build up and improve infrastructures
- Small number of positions (2 years) to trigger new detector projects
- Young Investigator groups on different topics
- Backbone activities:
  - Fellowships (1. round just finished, one more planned)
  - Dual career support
  - Guest support
  - Lecturer replacement program

We should try to utilize these measures as much as we can also in the area of detector!

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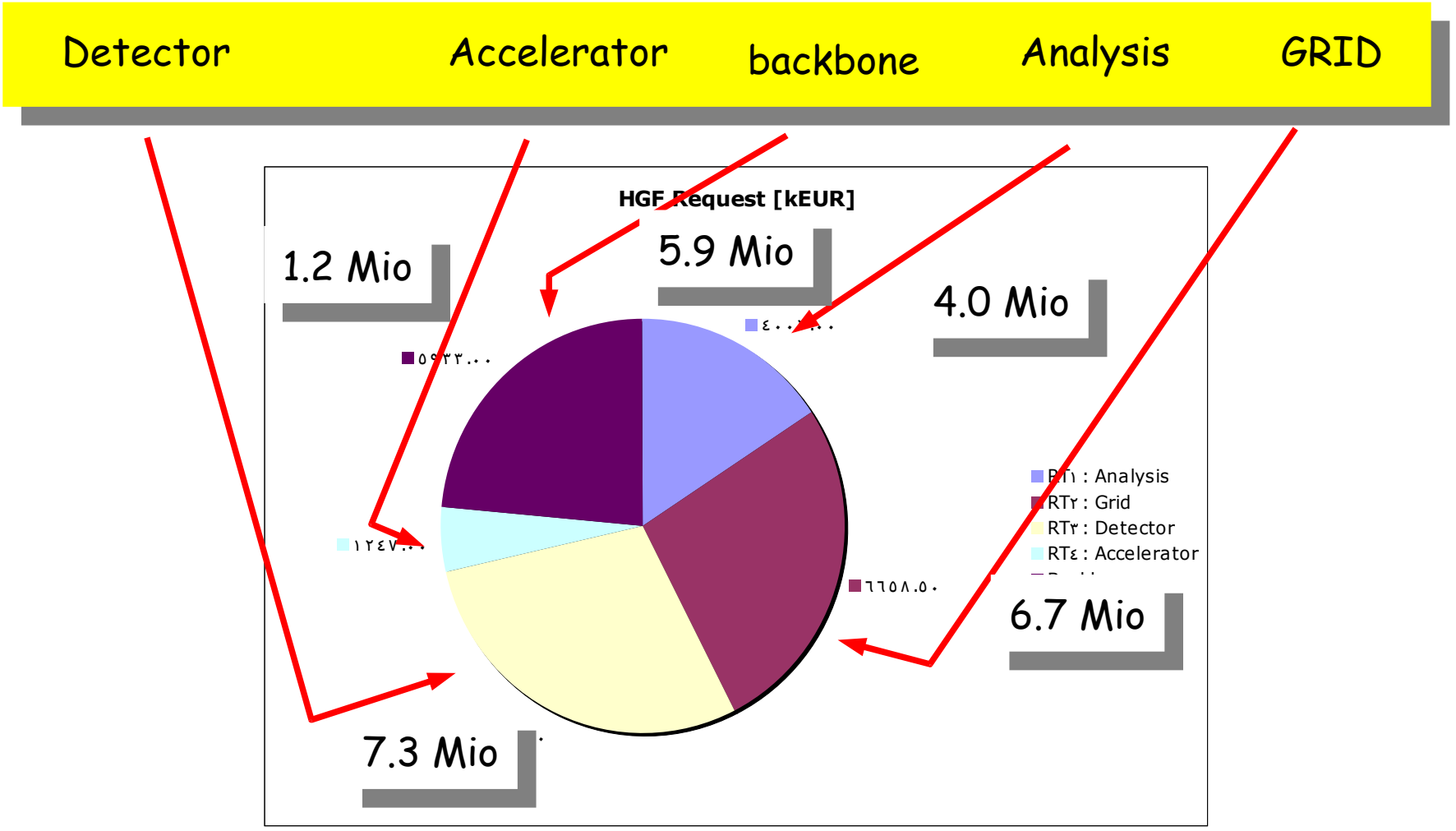

Who is who in the Alliance

Scientific Coordinators:

Peter Mättig, Ties Behnke (since 2008)

Scientific Manager

Ian Brock

Management Board

Project Boards (Analysis / Detector/ GRID/ Accelerator)

Institute Assembly

The important thing:

www.terascale.de to stay in touch and stay informed

Make sure you know who is your representative in the institute assembly

The Alliance and others

Increasingly: we are living in a project oriented world:

BMBF projects
EU projects (EUDET, DevDET in the future?)
DFG
others....

Scientific Network "Alliance": chance to act coherently in such activities as well

Example: DevDET (30 Mio European Detector Development project:
German partner is the Alliance

We should profit from these possibilities where it makes sense and where it can be done

The Detector Part

Infrastructure:

- Virtual Laboratory for Detector Technologies (VLDT):
  - Main partners are DESY – Bonn – Heidelberg, Hamburg, Karlsruhe
- Goal: provide general infrastructure available to all partners in the Alliance for projects in detector developments

Projects (Working groups)

- ILC
- (s)LHC

- Provide a forum for common projects
- Trigger common projects
- Optimize the usage of the infrastructures
- Provide (limited) startup funds to some projects

The idea behind this all...

Share expensive infrastructures between different groups

Example: Chip development / ASICS etc in Bonn and Heidelberg

Example: General detector support at DESY

Alliance provides funds to expand these infrastructures,
but it is still up to us to define how we are going to use these installations.

Fund some (limited) work to start new projects and to
further the goals of the Alliance

Goal of this workshop

1) Spread the word:

Communicate the state of the different Alliance infrastructures, discuss plans and status

2) Understand the needs

Gather input from potential users on their needs

3) Define common ("Alliance") projects

Who is interested to use which infrastrucure? Are there new projects we like to start with help from the Alliance?

This workshop

Two main compononents:

1) Presentations of the different infrastructures/ activities/ working groups:

Try to understand who does what, which plans are in the making
Method: Presentations

2) Working group sessions (Friday)

Try to discuss and develop concrete ideas on

- how should the infrastructure we build look like
- which projects do we want to tackle together