Working Group on Information
Arbeitsgruppe Information (AGI)

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Overview of Invited Talks and Sessions

(Lecture hall L 4.001)

Invited Talks

AGI 1.1	Wed	14:00–14:45	L-4.001	**Data preservation in high energy physics** — •Ulrich Schwickerath
AGI 1.2	Wed	14:45–15:30	L-4.001	**The PAHN-PaN Consortium - A Contribution to the National Research Data Infrastructure** — •Thomas Schörner-Sadenius

Sessions

AGI 1.1–1.3	Wed	14:00–16:00	L-4.001	**Challenges in Research Data**
AGI 2	Wed	16:30–17:30	L-4.001	**Mitgliederversammlung**
AGI 3.1–3.3	Thu	11:00–12:30	L-4.001	**Hacky Hour (with AKjDPG) (joint session AGI/AKjDPG)**

Annual General Meeting of the Working Group on Information

Mittwoch 16:30–17:30 L 4.001

- Begrüßung
  Genehmigung des Protokolls der letzten Mitgliederversammlung
  Wahl der Protokollführerin oder des Protokollführers
- Bericht des Sprechers und der stellvertretenden Sprecherin
- Wahl der Sprecherin oder des Sprechers
- Wahl des/der stellvertretenden Sprechers/Sprecherin
- Aktuelle Projekte und Schwerpunkte
- Verschiedenes

AGI 1: Challenges in Research Data

Time: Wednesday 14:00–16:00 Location: L-4.001

Invited Talk AGI 1.1 Wed 14:00 L-4.001

Data preservation in high energy physics — •Ulrich Schwickerath — CERN, Geneva, Switzerland

We preserve our data to extend the scientific reach of our experiments. In high energy physics it is cost-efficient to warehouse data from completed experiments on the tape archives of our national and international laboratories. To use data archived in such a way we must also preserve our ability of use the data, specifically the documentation, computing environment and software of the experiments and analyses. Successful data preservation thus requires careful planning and ongoing effort. The contribution illustrates the challenges of long-term data preservation with experience from the LEP and LHC experiments at CERN. Examples will be given of the varying degrees of success in supporting new physics searches resulting from different approaches to data preservation.

Invited Talk AGI 1.2 Wed 14:45 L-4.001

The PAHN-PaN Consortium - A Contribution to the National Research Data Infrastructure — •Thomas Schörner-Sadenius — DESY-FH/CMS, Hamburg

The national research data infrastructure (NFDI) is intended to systematically open up, sustainably secure and make accessible the databases of science and research and to network them (inter-)nationally. It will be set up in a process driven by science as a networked structure of consortia acting on their own initiative. PAHN-PaN is one of the consortia that submitted an application for NFDI funding in October 2019.

The PAHN-PaN communities (particle physics, astroparticle physics, hadron&nuclear physics) have always been at the forefront of technological developments. Today, due to the development of new accelerators, new observatories and experiments, and new detectors with increased resolutions and higher event rates, our physics is experiencing a rapid increase of data rates and volumes and also a more diverse access sharing. This boost of data leads to ever increasing demands on data analysis power and methods, and on data management capabilities. The goal of the PAHN-PaN consortium is to develop solutions for the data challenges and to help setting up the structures necessary for this endeavour. These structures will facilitate the exploitation of synergies within the consortium, easy transfer of knowledge and technology to and from neighbouring consortia and communities, and the establishing of relevant services for PAHN-PaN and the entire NFDI.

The presentation will give an overview of the status, plans and objectives of the PAHN-PaN consortium.

AGI 1.3 Wed 15:30 L-4.001

Facing the data management challenge: NFDI in the field(s) of physics — •Uwe Kahlert — RWTH Aachen University

Almost every research progress is based on the creation and evaluation of data in the broadest sense. Especially in physics these data vary enormously in type and quantity depending on the field of research. There are areas that have always had to deal with "big data" and have built up extensive expertise in the management of this data. In others, the management of research data has not kept pace with their digitalization. The aspects of sustainability and re-use have generally been considered rather secondary. With the launch of the NFDI initiative, the DFG has now initiated the establishment of a National Research Data Infrastructure. The presentation will give an overview of the initiatives and developments, especially in the field(s) of physics, and highlight synergies and possible open fields of action.

AGI 2: Mitgliederversammlung

Time: Wednesday 16:30–17:30 Location: L-4.001

Mitgliederversammlung der Arbeitsgruppe Information

AGI 3: Hacky Hour (with AKjDPG) (joint session AGI/AKjDPG)

Time: Thursday 11:00–12:30 Location: L-4.001

AGI 3.1 Thu 11:00 L-4.001

WireGuard: VPN made as easy as SSH — •Frederik Lauber — Gaußstraße 20, 42119 Wuppertal, Germany

WireGuard is a new VPN system directly build into the linux kernel. Within roughly 4000 lines of code, it implements a full level 3 traffic tunneling system. With the code in net-next, it should be mainlined shortly enabling VPN on all modern linux kernels as easy as SSHing into a machine with nearly no bandwidth loss through the tunnel.

A short introduction to WireGuard will be presented. I am also planing to have a short live speed test between my Laptop and a Raspberry Pi to demonstrate its performance but am unsure at the moment if this is feasible.

AGI 3.2 Thu 11:30 L-4.001

Python based USB device controlling — •Benedikt Bieringer — Institut für Kernphysik, Uni Münster, Germany

USB devices are a main part of practically every physics experiment. In this talk, multiple ways of writing a graphical device readout and control software for USB devices in Python are demonstrated. While the use of proprietary drivers is presented, also self-written, user-space Python USB drivers are introduced as a tool to minimizing software and hardware requirements. This talk gives an overview over writing Python modules in C++, writing USB drivers in Python, analyzing USB packets using Wireshark, writing a user-space driver with PyUSB and writing a GUI software with updating plots in Python.

AGI 3.3 Thu 12:00 L-4.001

NIFTy - Numerical Information Field Theory for Bayesian signal reconstruction — •Torsten Ensslin and the NIFTy Team — MPI für Astrophysik

NIFTy (Numerical Information Field Theory, http://ift.pages.mpcdf.de/nifty/) facilitates the construction of Bayesian field reconstruction algorithms for fields being defined over multidimensional domains. A NIFTy algorithm can be developed for 1D field inference and then be used in 2D or 3D, on the sphere, or on product spaces thereof. NIFTy5 is a complete redesign of the previous framework, and requires only the specification of a probabilistic generative model for all involved fields and the data in order to be able to recover the former from the latter. This is achieved via Metric Gaussian Variational Inference, which also provides posterior samples for all unknown quantities jointly.