



Karlsruhe Institute of Technology

ETP Monday Meeting

13.05.2024

Markus KLUTE (markus.klute@kit.edu)
Institute of Experimental Particle Physics (ETP)

A dark-themed banner for the ETP (Institute of Experimental Particle Physics). On the left, there is a snippet of Python code. In the center, the text 'Institut für Experimentelle Teilchenphysik (ETP)' is written in a large, white, sans-serif font. On the right, the ETP logo is displayed, consisting of the letters 'ETP' in a bold, white font, with a stylized circular graphic behind the 'P'. Below the logo, the full name 'Institut für Experimentelle Teilchenphysik' is written in a smaller white font. The background features a network of white lines and dots, a teal world map at the bottom right, and a teal circular graphic at the bottom center.

```
def main(args, config):
    logger.info(args)
    import numpy as np
    np.random.seed(int(config["seed"]))
    import ROOT
    ROOT.PyConfig.IgnoreCommandLineOptions()
    import root_numpy
    import matplotlib as mpl
    mpl.use('Agg')
    import matplotlib.pyplot as plt

    import tensorflow as tf
    logger.debug(tf.__file__)
    tf.set_random_seed(int(config["seed"]))
    from keras import set_session
    tfconfig = tf.ConfigProto()
    tfconfig.gpu_options.allow_growth = True
    set_session(tf.Session(config=tfconfig))

    from sklearn import preprocessing, model_selection
    import keras.models
    from keras.callbacks import ReduceLROnPlateau,
        EarlyStopping, ModelCheckpoint

    # Extract list of variables
```

Institut für
Experimentelle
Teilchenphysik (ETP)

ETP
Institut für Experimentelle Teilchenphysik

New Team Members

- Arvid Kamman: Automating L1 trigger performance monitoring at Belle II
- Florian Ohlheiser: Graph Neural Network track reconstruction for low momentum particles at Belle II
- Simon Weber: Automating K0S performance monitoring at Belle II

“Laufzettel” - Checklist

- Please make sure to fill our checklist when joining & leaving the institute!
- Preparing an updated version that will be available from the new WIKI

Checklist ETP

Name:..... Given name:.....

Date of birth:

City and zip code Street: Phone number

.....

E-Mail address KIT:

E-Mail address private:

Working group: Prof.

Workplace (Bld.): Room-No. KIT phone.....

Emergency contact:

Name:..... Given name:.....

Phone number :

**Please report any changes immediately to the ETP Institute Secretariat,
Ms. Bräunling (CS) or Ms. Fellner (CN)**

PhD, Master-, Bachelor- und Teacher candidates only:

Degree you are aiming for (please check one box):

PhD Master Bachelor Teacher

Thesis topic:

Thesis supervisor:

Contact	Registration (signature)	De-registration (signature)
Prof. U. Husemann CN 401, R. 407 or CS 8-19		
Prof. M. Klute CN 401, R. 329 or CS 9-4		
Prof. T. Ferber CS 9-7		
Prof. G. Quast CS 9-5		

Particle Physics Master Program

- Bachelor curriculum in (particle) physics was restructured
 - Python Course (Torben)
 - Modern Physics II - 5th semester 1/2 course on particle physics (Markus)
 - Modern Physics III - 6th semester elective on particle physics (Torben)
- Consequence: Master curriculum needs to be adjusted
 - TP1 (PP1): WS24/25 Introduction to PP (Pablo/Markus)
 - TP2 (PP2): WS24/25 Detector (Frank)
 - TP2 (PP2): BSM Physics, Flavor, W,Z, Higgs and QCD, Jets, Top (2/4 each year)

Colloquia

■ Physics Colloquium

- Lehmann Hörsaal
- Friday 15:45 Uhr
- Program

■ Particle Physics Colloquium

- Kleiner Hörsaal B
- Thursday 15:45 Uhr
- Program

Experimentelle Nanophysik
Prof. Dr. Katharina J. Franke



KCETA Colloquium

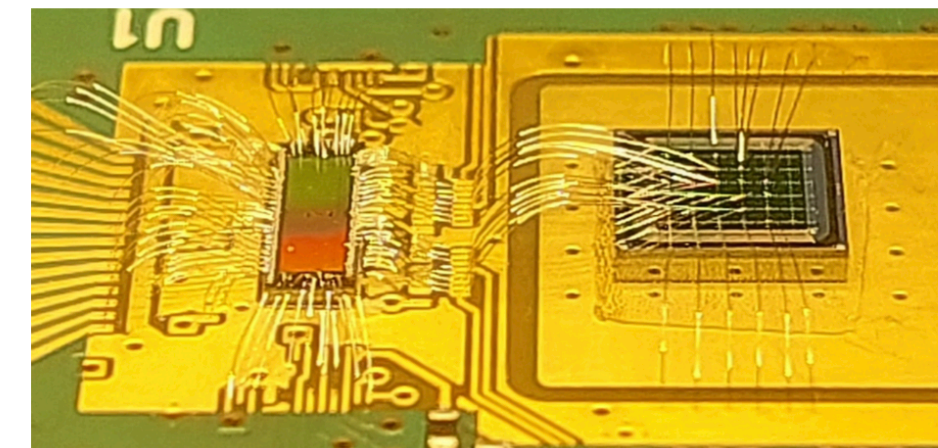
4D tracking: an enabling technology for future experiments

Thursday, May 16, 2024

Kleiner Hörsaal A (CS) 15:45 - 17:00

Prof. Nicola Cartiglia
(INFN Torino)

In the past 10 years, two design innovations have radically changed the performance of silicon detectors and turned silicon sensors into high-resolution timing detectors, fit to meet the very demanding requirements of future 4D trackers. In this presentation, I will review the performance improvements that these two design innovations, low-gain (LGAD) and resistive read-out (RSD), have brought to silicon sensors. Due to the LGAD mechanism, large signals lead to improved temporal precision, while charge sharing, due to the RSD design, has removed the need for very small pixels to achieve excellent spatial precision. LGAD- and RSD-based silicon sensors are now adopted or considered in several future experiments and are the basis for almost every next 4D-trackers.



Please note:
The colloquium will also be live-streamed to Seminarraum 224 in Bld. 402 (CN).

FCC @ CERN

- Prep. Seminar May 15 at 4pm in Lehmann Hörsaal
- Community event May 22-24 in Bonn

Special KCETA Colloquium

Future Collider at CERN

Wednesday, May 15, 2024

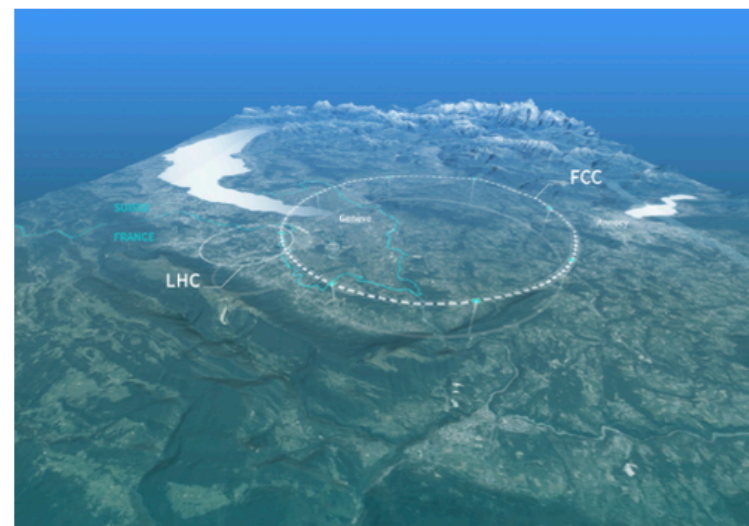
Lehmann Hörsaal (CS) 16:00-17:30

Prof. Margarete Mühlleitner (Institute for Theoretical Particle Physics)

Prof. Markus Klute (Institute of Elementary Particle Physics)

The German particle physics community is going to meet from 22.-24.05.2024 in Bonn (<https://indico.desy.de/event/44074/>). The focus of the meeting will be on the results of the mid-term review of the CERN FCC Feasibility Study and a discussion of possible German contributions to the FCC-ee in the areas of physics studies, precision predictions, detectors, computing, and accelerator. Significant amount of time will be reserved for discussions to collect the input from the community.

To engage the KIT community, Prof. Mühlleitner is going to talk about the theoretical aspects of “The Physics Case for an e^+e^- collider at CERN” and Prof. Klute about the experimental aspects of “The FCC-ee Project” in this special KCETA colloquium.



KIT Center Elementary Particle and Astroparticle Physics (KCETA)
www.kceta.kit.edu

Future Collider @ CERN

University of Bonn, 22-24 May 2024

With preparatory lectures for young researchers on the first day

- Physics case for a new e^+e^- collider
- Opportunities, challenges and options
- Midterm review of the FCC design study
- Potential German contributions to FCC-ee
- The path to the next EPPS-Update

Scientific organizing committee:

Erik Bründermann
Klaus Desch
Marumi Kado
Markus Klute
Karsten Köneke
Jenny List
Michael Lupberger
Tilman Plehn
Frank Simon
Markus Schumacher (chair)
Georg Weiglein

Local organizing committee:

Philip Bechtle
Florian Bernlochner
Jan Brock
Klaus Desch
Manuel Drees
Herbi Dreiner
Claude Duhr
Jochen Dingfelder
Christian Greife
Ingrid-Maria Gregor
Tatjana Lenz
Matthias Schott



- Kick-off event
 - Friday, April 26th, 10am, Kunstakademie Karlsruhe, Vortragssaal, Reinhold-Frank-Str. 81 (Vordergebäude)
- CERN Trip
 - May 2nd to 4th
 - <https://indico.cern.ch/event/1380525/>
- Follow-up
 - May 14 2pm
- Informal dialog
 - Throughout the semester and summer
- Midterm reports
 - End of June
- Vernissage
 - End of October / November

ETP Events in 2024

- Proposals for 2024
 - Summer Party - 04.07.24
 - Summer Hike - week of July 29, 2024
 - Schloss Lichtspiele - 09.08.24
 - Christmas Party - 06.12.24
- Need orga-teams for the summer party and hike!



Today's Meeting

17:00	→ 17:10	News Speaker: Markus Klute
17:10	→ 17:40	Probing top quark electroweak couplings at the FCC-ee Speaker: Simon Keilbach
17:40	→ 18:00	ArXiv Review Speaker: Sofia Giappichini (KIT)