

Paul Wegmann (ETHZ)

Title: Atomic electron detector for the LEMING experiment.

Abstract: I will talk about the LEMING experiment and on my efforts to find a low threshold (\sim kV) detector for electrons using perovskites.

Nico Haerringer (ETHZ)

Probing the Higgs sector at the FCC-ee.

And the abstract will be: We examined three observables relevant to the Standard Model Higgs sector, which are the Higgs boson mass, its production cross section and the trilinear self-coupling, and estimated the performance of the measurement of these parameters at the FCC-ee.

Òscar Lara Crosas

Title: "Beyond the Standard Model CP Violation: The Gradient Flow Formalism"

Abstract: "In this talk I will briefly introduce the Gradient Flow Formalism and discuss its relevance to connect low energy experiments to BSM physics".

Mariana Rajado Nunes da Silva

"Xenoscope - A full-scale vertical demonstrator for DARWIN".

The abstract is as follows: DARWIN is a proposed next-generation experiment to search for dark matter and other rare events. Xenoscope was developed as a full-scale test platform to characterize new detector technologies for DARWIN.

Gabriela Rodrigues Araujo

Unveiling the nature of neutrinos: the search for neutrinoless double beta decay with the LEGEND experiment
How do Neutrinos get their mass? Are neutrinos Majorana particles? To shed light on the nature of neutrinos, the LEGEND experiment searches for the lepton-number violating neutrinoless double beta decay of Ge-76 ($0\nu\beta\beta$: $\text{Ge-76} \rightarrow \text{Se-76} + 2e^-$). This search and the hardware R&D involved in it is the focus of this talk.

Nicolas Striebig

Development of HVCMOS sensors for particle and astroparticle physics".

"Presented is a design overview of a novel low power HVCMOS sensor, called "AstroPix", for a space-based compton camera."

Sigrid Scherl

"MightyPix: A HV-CMOS Pixel Chip for LHCb's Mighty Tracker".

"A new silicon detector in HV-CMOS processes is being developed for the Mighty Tracker, one of the proposed big upgrades to CERN's LHCb experiment."

Maximilian Zillinger

CP violation in $\eta' \rightarrow \pi^+\pi^-\mu^+\mu^-$ decays

It has been pointed out recently that a certain set of dimension-6 scalar P- and CP-violating light-quark-muon operators may be tested in η and η' decays to various final states involving $\mu^+\mu^-$ pairs, at a level not yet excluded by constraints from electric dipole moments. We here work out the hadronic matrix elements required for the predictions for the decays $\eta, \eta' \rightarrow \pi^+\pi^-\mu^+\mu^-$.

Yifeng Wang

DAQ development for the Scintillating Fiber sub-detector of Mu3e experiment
The sub-detector DAQ system utilizes FPGA to gather data from multiple gigabit links of our customized TDC, integrated with the online-selection, flow control, configuration and monitoring functionalities.
Guglielmo Coloretti
Search for new physics at the LHC with multi-lepton final states
I address a full fauna of anomalies with multi-lepton signals detected by different collaborations at the LHC, searching for new physics with several toy models and trying to unify them in a single picture.
Gilbertas Umbrasunas
Progress towards an improved measurement of the proton and antiproton magnetic moments
The recently developed measurement techniques combined with the apparatus upgrade in the Baryon-Antibaryon Symmetry Experiment (CERN and University of Mainz) open prospects towards the measurements of the proton/antiproton magnetic moments with a 100 ppt fractional precision. This will provide a 15-fold improved test of the CPT invariance in the baryon sector.
Stefan Hochrein
PIONEER: A Next-Generation Rare Pion Decay Experiment at PSI
Abstract: "A brief introduction to the ideas and physics behind the PIONEER experiment."
Mario Alves Cardoso
Using pileup in search of new physics
The normal LHC data-taking model is to use triggers to identify interesting events. However, it may be that the current triggers are not sensitive to new physics. In this case, alternative strategies are needed to be sensitive to the new physics of interest. One approach is look at the independent pileup collisions recorded along with the triggering collision, which represent an unbiased dataset. This presentation will present this approach, whereby pileup collisions are used as a new dataset for physics studies.
Federico Ronchetti
SiPMs aging and upgrade studies for the LHCb SciFi tracker
Monitoring of the radiation damage induced aging of the LHCb SciFi tracker SiPMs during the first 9 months of Run 3 and development of new high efficiency SiPMs for the SciFi upgrade.
Martin Andersson
Unbinned angular analysis of B^0 to $K^0_S \mu^+ \mu^-$ at the LHCb experiment
A measurement at the LHCb experiment of Wilson coefficients and the phase difference between the short- and long-distance contributions to B^0 to $K^0_S \mu^+ \mu^-$, where the theory uncertainty on the latter limits the interpretation of the >3 sigma anomalies seen in this mode.
Eslam Shokr
Ditau pair production in lead-lead ultra-peripheral collisions using UPCgen
In order to measure the anomalous magnetic moment for tau (a_τ) particles, we must first understand how the observables changed with a_τ . This can be accomplished by employing a Monte Carlo generator known as UPCgen. In this presentation, I will discuss this relationship and how it helps in this measurement.
Leon Bozianu
Real-time Machine Learning in the ATLAS Trigger

The TopoCluster algorithm plays a crucial role in the hadronic physics programme at ATLAS, but it is also one of the most resource intensive steps in the High Level Trigger. In this work we search for alternative clustering methods, using machine learning, that have the potential to accelerate the identification and retrieval of topological structure in the ATLAS calorimeter.

Raphael van Laak

Detecting HNLs with DUNE

Abstract: We investigate the optimal position of a detector for HNL detection at the DUNE experiment.

Chiara Magliocca

An upgraded preshower detector for the FASER experiment at the LHC"

The FASER experiment at the LHC will be instrumented with a high precision W-Si preshower to identify and reconstruct electromagnetic showers produced by two O(TeV) photons at distances down to 200 μ m. A description of the preshower and its expected performance will be presented.

Jan Kunzmann

A Cryogenic Large-Area Photon Detector

ArCLight is a novel dielectric photon detector developed for the Deep Underground Neutrino Experiment Liquid Argon Near Detector (DUNE ND-LAr). It is designed to accurately and precisely locate scintillation light in time and space. This talk will discuss the performance studies I perform on ArCLights.

Gaia Fontana

Phase space integrals for N³LO QCD

Calculation of the relevant phase space integrals for QCD subtraction terms up to three loops.

Giovanni Del Maso

High Intensity Muon Beams at PSI

Here is a summary of the activities carried out on the muon beamlines serving the Mu3e and MEG experiments and on the upgrade of the high intensity muon beam lines at PSI within the HIMB project.

Sofia Cella

ATLAS High-Level-Trigger Rates and Cost Analysis

This presentation gives a short overview of the ATLAS High-Level-Trigger rates and cost analysis, which is an important part of the ATLAS High-Level-Trigger software: the monitoring of the CPU cost of algorithms and chains execution allows to estimate the required resources in advance of collisions, and the rates monitoring allows the prediction of the Trigger Menu rates and the calculation of the prescale sets.

Dimitrios Kaminaris

BCAMs study and γ CP measurement".

The abstract is: I'll be presenting my current studies on BCAM setup at LHCb along with highlighting the first steps and the future plan for my main analysis which will be a precision measurement of the γ CP parameter in flavour physics.

Fabian Stager

ATLAS+CMS SMEFT Fitting Exercise

Working towards an EFT combination of ATLAS and CMS measurements in the top, Higgs, and electroweak sector.

Pierini Gabriele

Simulating the frontier: non-linear QED on the lattice

Non-linear extensions of quantum electrodynamics (QED) are key to answering fundamental questions in non-perturbative regime of QED probed e.g. by experiments such as LUXE and PVLAS. I will discuss how lattice simulations can be used to get the theoretical predictions for this regime of electrodynamics theories.

Anni Matilda Kauniskangas

Angular analysis of the $B \rightarrow K \pi \pi \mu \mu$ at the LHCb, and SciFi detector performance studies at the SND@LHC

I will briefly discuss the plans for my PhD projects, which include an angular analysis of the 5-body decay $B \rightarrow K \pi \pi \mu \mu$ at the LHCb, and a performance study of the scintillating fibre detector at the SND@LHC experiment.

Johnny Friend

Search for the Higgs boson produced in association with a vector boson and decaying to a pair of b-quarks using boosted techniques

A summary of my research on the VHbb boosted 2-lepton analysis, including updated MVA results.

Giuseppe Lospalluto

muCool: A novel low-energy muon beam for precision experiments"

We present the progress towards the realisation of a novel positive muon beam of small phase space that will serve next generation precision experiments with muons and muonium.

Theo Moretti

20 picoseconds time resolution with fully-efficient monolithic silicon pixel detector without internal gain layer.

The MONOLITH project targets picosecond level timing capabilities using fully monolithic silicon pixel detectors. Results of 20 ps timing resolution and efficiency above 99.8% from beam test of a second prototype without internal gain layer will be presented.