

ACAT2013

Thursday, 16 May 2013 - Tuesday, 21 May 2013

Book of Abstracts

Contents

Analitical calculation of heavy quarkonia production processes in computer	1
Theory of phase transitions and critical phenomena : new approach for numerical calculation of anomalous dimensions.	1
QCD Corrections to the Drell-Yan Process for Experiments at the Large Hadron Collider	1
ALICE expert system	1
Contraction of 1-loop 5-point tensor Feynman integrals	1
TGeoCad –An interface between ROOT and CAD systems	2
DELPHES 3: A modular framework for fast-simulation of generic collider experiments .	2
Special functions in Higher Loop Calculations: harmonic, generalized harmonic, and binomial sums, polylogarithms and special constants	2
Solution of Loop Integrals in Quantum Field Theory using Modern Summation Methods	2
New developments in FeynRules	3
Performance optimizations for distributed analysis in ALICE	3
A concurrent vector-based steering framework for particle transport	3
Multidimensional polynomial regression and fit function uncertainty	3
Three-loop beta-functions and anomalous dimensions in the SM	3
The automated matrix element methods and its applications at LHC	4
Numerical multi-loop calculations with SecDec 2.1	4
Data Quality Monitoring for the ATLAS trigger System during the first data taking period of the Large Hadron Collider	4
The evolution of the Trigger and Data Acquisition System in the ATLAS experiment . .	4
The ATLAS Muon and Tau Trigger	5
Sophisticated high-resolution deconvolution algorithms for data processing in nuclear spectroscopy	5
Study of cache performance in distributed environment for data processing	5

MadAnalysis 5: a framework dedicated to phenomenological investigations at LHC . . .	5
FormCalc 8	6
Automated NLO calculations with GoSam	6
Designing DAG-shaped classifiers for fast triggers	6
Precise calculation for heavy gauge boson production in the LHT model	6
SANC system and its applications for LHC	7
Automatic calculation in Quarkonium Physics	7
Simulation-aided optimization of detector design using portable representation of 3D ob- jects	7
The computation of cross sections in brane world models	7
High performance computing activities in hadron spectroscopy at BESIII.	8
Multi-loop Integrand Reduction with Computational Algebraic Geometry	8
Less is more. Why Oberon beats mainstream in complex applications	8
Computation of multi-leg amplitudes with NJet	8
Automated One-loop Computation in Quarkonium Process within NRQCD Framework .	8
LiteRed: a new powerful tool for the reduction of multiloop integrals	9
Quasi-optimal weights: a versatile tool of data analysis	9
Event Reconstruction and Analysis in the R3BRoot Framework	9
”Multiloop QCD: 33 years of continuous development”	9
GPU for Real Time processing in HEP trigger systems	10
A Web-Based Development Environment for Collaborative Data Analysis	10
Automated computation of scattering amplitudes	10
Advanced Analysis Techniques in the Search for Production of a Higgs Boson in Associa- tion with Top Quarks at CMS	10
ATLAS Trigger Simulation with Legacy Code using Virtualization Techniques	11
Supernova Trigger in the Daya Bay Reactor Neutrino Experiment	11
Initial explorations of ARM processors for scientific computing	11
FAPT: a Mathematica package for calculations in QCD Fractional Analytic Perturbation Theory	11
Fast event generation system using GPU	12
The NLO Calculations of heavy quarkonium production at B factories	12

Automatic one-loop calculations with OpenLoops	12
Managing a Tier-2 Computer Centre with a Private Cloud Infrastructure	12
Data Analysis of Tracks of Heavy Ion Particles in Timepix Detectors	12
Development of an object oriented lattice QCD code “Bridge++”	13
One loop integration with hypergeometric series by using recursion formulae	13
The Alignment of the CMS Silicon Tracker	13
ATLAS Distributed Computing: Experience and Evolution	13
A Neural-Network Clusterisation Algorithm for the ATLAS Silicon Pixel Detector	14
Optimizing the ATLAS code with different profilers	14
FLES: First Level Event Selection Package for the CBM Experiment	14
Flexible data transport for the online reconstruction of FAIR experiments	14
The FairRoot Framework	15
Analysis of performance improvements for host and gpu interface of the APENet+ 3D Torus network.	15
Experienc of ROOF cluster maintenance and operation at Joit Institute for Nuclear Re- search for ALICE data analysys.	15
Influence of distributing a Tier-2 data storage on physics analysis	15
Flasher Identification at Daya Bay	16
Experience, Use, and Performance Measurement of the Hadoop File System in a Typical Nuclear Physics Analysis Workflows	16
Performance quality monitoring system(PQM) for the Daya Bay reactor neutrino experi- ment	16
Maximum likelihood reconstruction in the Daya Bay Reactor Antineutrino Experiment .	16
Recent developments on FORM	17
CMS Use of a Data Federation	17
Usage of the CMS Higher Level Trigger Farm as a Cloud Resource	17
A Wavelet Based Analysis System for Monitoring Information	17
Generators BCVEGPY and GENXICC for doubly heavy mesons and baryons	18
The BlackHat Library for One-Loop Amplitudes	18
Use of Checkpoint-Restart for Complex HEP Software on Traditional Architectures and Intel MIC	18
Feynman Loop Integral Computation on Hybrid Platforms	18

Concepts and Plans towards fast large scale Monte Carlo production for ATLAS	19
Simulations of nuclear experiments framework	19
JAliEn - A new interface between the AliEn jobs and the central services	19
Documenting through activity diagrams	19
Large-Scale Application on TianHe-1A and HPC in China	20
Lessons learned from the Kei computer project	20
Future Storage Architectures for Large Data-Analysis Systems	20
Grid AND Cloud evolution from now onward	20
Opportunities and choice in a new vector era	20
Advances in tracking and trigger concepts	20
Role of Multivariate Analysis in LHC physics	21
Opening	21
Summary Track 1	21
Summary Track 2	21
Summary Track 3	21
Summary	21
Data-intensive High Performance Computing and Analysis in Solid Earth Sciences	21
From Black Holes to Cosmology : The Universe in the Computer	22
XData: Sugon all-in-one BigData Machine	22
Round Table:Open-source, knowledge sharing and scientific collaboration	22
Visit to BEPCII	22

Plenary / 0**Analitical calculation of heavy quarkonia production processes in computer**

Author: Victor Braguta¹

¹ *IHEP*

Corresponding Author: braguta@mail.ru

Track 3 / 1**Theory of phase transitions and critical phenomena : new approach for numerical calculation of anomalous dimensions.**

Authors: Loran Adzhemyan¹; Mikhail Kompaniets¹

Co-authors: Gleb Dovjenko ¹; Sergey Novikov ²

¹ *St-Petersburg State University, Russia*

² *Google Switzerland GmbH*

Corresponding Author: mkompan@gmail.com

Track 3 / 2**QCD Corrections to the Drell-Yan Process for Experiments at the Large Hadron Collider**

Author: Vladimir Zykunov¹

¹ *Belarussian State University of Transport*

Corresponding Author: zykunov@rambler.ru

Track 1 / 3**ALICE expert system**

Author: Costin Ionita¹

¹ *CERN*

Corresponding Author: costin.ionita@cern.ch

Track 3 / 4**Contraction of 1-loop 5-point tensor Feynman integrals**

Author: Jochem Fleischer¹

Co-author: Tord Riemann ²

¹ *University of Bielefeld, Germany*

² *DESY, Zeuthen*

Corresponding Authors: tord.riemann@desy.de, fleischer@physik.uni-bielefeld.de

Track 1 / 5

TGeoCad –An interface between ROOT and CAD systems

Author: Cinzia Luzzi¹

Co-author: Federico Carminati ²

¹ *University of Ferrara - CERN*

² *CERN*

Corresponding Author: cinzia.luzzi@cern.ch

Track 2 / 7

DELPHES 3: A modular framework for fast-simulation of generic collider experiments

Author: Michele Selvaggi¹

¹ *UCL*

Corresponding Author: michele.selvaggi@cern.ch

Track 3 / 8

Special functions in Higher Loop Calculations: harmonic, generalized harmonic, and binomial sums, polylogarithms and special constants

Author: Johannes Bluemlein¹

¹ *DESY*

Corresponding Author: johannes.bluemlein@desy.de

Plenary / 9

Solution of Loop Integrals in Quantum Field Theory using Modern Summation Methods

Author: Carsten Schneider¹

¹ RISC, J. Kepler University, Linz

Corresponding Author: cschneid@risc.jku.at

Track 3 / 10

New developments in FeynRules

Author: Adam Alloul¹

¹ IPHC Strasbourg

Corresponding Author: adam.alloul@iphc.cnrs.fr

Track 1 / 11

Performance optimizations for distributed analysis in ALICE

Authors: Andrei Gheata¹; Costin Grigoras¹; Latchezar Betev¹; Mihaela Gheata²; Peter Hristov¹

¹ CERN

² Institute of Space Sciences, Bucharest

Corresponding Author: andrei.gheata@cern.ch

Track 1 / 12

A concurrent vector-based steering framework for particle transport

Authors: Andrei Gheata¹; Federico Carminati¹; René Brun¹

¹ CERN

Corresponding Authors: andrei.gheata@cern.ch, federico.carminati@cern.ch

Track 2 / 13

Multidimensional polynomial regression and fit function uncertainty

Author: Peter Kövesárki¹

Co-author: Ian C. Brock ¹

¹ University of Bonn

Corresponding Author: kovesarki@physik.uni-bonn.de

Track 3 / 14

Three-loop beta-functions and anomalous dimensions in the SM

Author: Alexander Bednyakov¹

Co-authors: Andrey Pikelner²; Vitaly Velizhanin³

¹ *JINR*

² *JINR, Dubna, Russia*

³ *PNPI, Gatchina, Russia*

Corresponding Author: bednya@theor.jinr.ru

Track 2 / 15

The automated matrix element methods and its applications at LHC

Author: Alexandre Mertens¹

Co-authors: Christophe Delaere¹; Michele Selvaggi¹

¹ *CP3 - Université Catholique de Louvain*

Corresponding Author: alexandre.mertens@uclouvain.be

Track 3 / 16

Numerical multi-loop calculations with SecDec 2.1

Author: Gudrun Heinrich¹

Co-author: Sophia Borowka¹

¹ *Max Planck Institute for Physics*

Corresponding Author: gudrun@mpp.mpg.de

Poster Presentation / 17

Data Quality Monitoring for the ATLAS trigger System during the first data taking period of the Large Hadron Collider

Author: Monika Wielers¹

¹ *University of Lund*

Corresponding Authors: damazio@mail.cern.ch, attila.krasznahorkay@cern.ch, monika.wielers@cern.ch

Track 1 / 18

The evolution of the Trigger and Data Acquisition System in the ATLAS experiment

Author: Monika Wielers¹

¹ *University of Lund*

Corresponding Authors: attila.krasznahorkay@cern.ch, monika.wielers@cern.ch

Track 1 / 20

The ATLAS Muon and Tau Trigger

Author: Lidia Dell'Asta¹

¹ *Boston University*

Corresponding Author: dellasta@cern.ch

Track 2 / 21

Sophisticated high-resolution deconvolution algorithms for data processing in nuclear spectroscopy

Author: Vladislav Matoušek¹

¹ *Institute of Physics, Slovak Academy of Sciences*

Corresponding Author: vladislav.matousek@savba.sk

Track 1 / 22

Study of cache performance in distributed environment for data processing

Authors: Dzmitry Makatun¹; Jerome Lauret²; Michal Sumbera¹

¹ *Nuclear Physics Institute of Academy of Science of Czech Republic*

² *Brookhaven National Laboratory*

Corresponding Author: d.i.makatun@gmail.com

Track 2 / 23

MadAnalysis 5: a framework dedicated to phenomenological investigations at LHC

Authors: Benjamin FUKS¹; Eric CONTE²

¹ *CERN / IPHC Strasbourg*

² *GRPHE / IPHC Strasbourg*

Corresponding Author: eric.conte@iphc.cnrs.fr

Track 3 / 24

FormCalc 8

Author: Thomas Hahn¹

Co-author: Edoardo Mirabella ¹

¹ *MPI for Physics*

Corresponding Author: hahn@mpp.mpg.de

Track 3 / 25

Automated NLO calculations with GoSam

Author: Gudrun Heinrich¹

Co-authors: Francesco Tramontano ²; Gavin Cullen ³; Gionata Luisoni ¹; Giovanni Ossola ⁴; Nicolas Greiner ¹; Pierpaolo Mastrolia ¹

¹ *Max Planck Institute for Physics*

² *University of Naples*

³ *DESY Zeuthen*

⁴ *CUNY*

Corresponding Author: gudrun@mpp.mpg.de

Track 2 / 26

Designing DAG-shaped classifiers for fast triggers

Authors: Balázs Kégl¹; Djalel Benbouzid²; Michael Williams³; Vladimir Vava Gligorov⁴

¹ *LAL/LRI, University of Paris-Sud, CNRS*

² *LAL, University of Paris-Sud, CNRS*

³ *Massachusetts Institute of Technology, Cambridge, MA, USA*

⁴ *Organisation Européenne pour la Recherche Nucléaire, Geneva, Switzerland*

Corresponding Author: djalel.benbouzid@gmail.com

Track 3 / 27

Precise calculation for heavy gauge boson production in the LHT model

Author: Lei Guo¹

Co-author: Ren-You Zhang ¹

¹ *University of Science and Technology of China*

Corresponding Author: guolei@mail.ustc.edu.cn

Track 3 / 31

SANC system and its applications for LHC

Author: Renat Sadykov¹

¹ *JINR, Dubna, Russia*

Corresponding Author: sadykov@cern.ch

Plenary / 33

Automatic calculation in Quarkonium Physics

Author: Bin Gong¹

¹ *IHEP*

Corresponding Author: twain@ihep.ac.cn

Track 2 / 34

Simulation-aided optimization of detector design using portable representation of 3D objects

Author: Jan Balewski¹

¹ *Massachusetts Institute of Technology*

Corresponding Author: balewski@mit.edu

Track 3 / 35

The computation of cross sections in brane world models

Author: Dmitry Kirpichnikov¹

¹ *INR RAS, MSU*

Corresponding Author: kirpich@ms2.inr.ac.ru

Track 1 / 36

High performance computing activities in hadron spectroscopy at BESIII.

Author: Beijiang Liu¹

¹ *IHEP*

Corresponding Author: liubj@ihep.ac.cn

Track 3 / 37

Multi-loop Integrand Reduction with Computational Algebraic Geometry

Author: Simon Badger¹

¹ *Niels Bohr Institute*

Corresponding Author: simon.badger@nbi.dk

Track 1 / 38

Less is more. Why Oberon beats mainstream in complex applications

Author: Fyodor Tkachov¹

¹ *Institute for Nuclear Research RAS*

Corresponding Author: ftkachov@ms2.inr.ac.ru

Track 3 / 39

Computation of multi-leg amplitudes with NJet

Author: Valery Yundin¹

Co-authors: Benedikt Biedermann ²; Peter Uwer ²; Simon Badger ¹

¹ *Niels Bohr Institute*

² *Humboldt University of Berlin*

Corresponding Author: yundin@nbi.dk

Track 3 / 40

Automated One-loop Computation in Quarkonium Process within NRQCD Framework**Author:** Feng Feng¹¹ *CHEP***Corresponding Author:** fengf@ihep.ac.cn

Track 3 / 41

LiteRed: a new powerful tool for the reduction of multiloop integrals**Author:** Roman Lee¹¹ *Budker Institute of Nuclear Physics***Corresponding Author:** r.n.lee@inp.nsk.su

Track 2 / 42

Quasi-optimal weights: a versatile tool of data analysis**Author:** Fyodor Tkachov¹¹ *Institute for Nuclear Research RAS***Corresponding Author:** ftkachov@ms2.inr.ac.ru

Track 2 / 43

Event Reconstruction and Analysis in the R3BRoot Framework**Author:** Dmytro Kresan¹¹ *GSI, Darmstadt, Germany***Corresponding Author:** d.kresan@gsi.de

Plenary / 45

”Multiloop QCD: 33 years of continuous development”**Author:** Konstantin Chetyrkin¹

¹ *Karlsruhe Institute of Technology (KIT)*

Corresponding Author: konstantin.chetyrkin@kit.edu

Track 1 / 46

GPU for Real Time processing in HEP trigger systems

Author: Piero Vicini¹

Co-authors: Alessandro Lonardo ¹; Andrea Biagioni ¹; Andrea Messina ²; Davide Rossetti ¹; Felice Pantaleo ²; Francesca Lo Cicero ¹; Francesco Simula ¹; Gianmaria Collazuol ³; Laura Tosoratto ¹; Marco Sozzi ⁴; Massimiliano Fiorini ²; Mauro Piccini ¹; Niccolò Camarlinghi ¹; Ottorino Frezza ¹; Pier Stanislao Paolucci ¹; Roberto Ammendola ¹

¹ *INFN*

² *CERN*

³ *Univ. Padova*

⁴ *Univ.Pisa*

Corresponding Author: piero.vicini@roma1.infn.it

Poster Presentation / 47

A Web-Based Development Environment for Collaborative Data Analysis

Author: Marcel Rieger¹

Co-authors: Christian Glaser ¹; Dennis Klingebiel ¹; Gero Müller ¹; Jan Steggemann ¹; Martin Erdmann ¹; Martin Urban ¹; Matthias Komm ¹; Robert Fischer ¹; Tobias Winchen ¹

¹ *RWTH Aachen, III. Physikalisches Institut A*

Corresponding Author: rieger@physik.rwth-aachen.de

Plenary / 49

Automated computation of scattering amplitudes

Author: Giovanni Ossola¹

¹ *New York City College of Technology - CUNY*

Corresponding Author: gossola@citytech.cuny.edu

Track 2 / 51

Advanced Analysis Techniques in the Search for Production of a Higgs Boson in Association with Top Quarks at CMS

Author: Jason Slaunwhite¹

¹ *CMS / Notre Dame*

Corresponding Author: slaunwhj@cern.ch

Track 2 / 53

ATLAS Trigger Simulation with Legacy Code using Virtualization Techniques

Authors: Gorm Galster¹; Monika Wielers²

¹ *The Niels Bohr Institute*

² *University of Lund*

Corresponding Authors: gorm.galster@cern.ch, monika.wielers@cern.ch

Track 2 / 54

Supernova Trigger in the Daya Bay Reactor Neutrino Experiment

Author: Hanyu Wei¹

¹ *Center for High Energy Physics, Tsinghua University*

Corresponding Author: weihy07@mails.tsinghua.edu.cn

Track 1 / 55

Initial explorations of ARM processors for scientific computing

Author: Peter Elmer¹

Co-authors: David Abdurachmanov ²; Giulio Eulisse ³; Shahzad Muzaffar ³

¹ *Princeton University*

² *Vilnius University*

³ *FNAL*

Corresponding Author: peter.elmer@cern.ch

Track 3 / 56

FAPT: a Mathematica package for calculations in QCD Fractional Analytic Perturbation Theory

Author: Viacheslav Khandramai¹

¹ *Gomel State Technical University*

Corresponding Author: v.khandramai@gmail.com

Track 1 / 57

Fast event generation system using GPU

Author: Junichi Kanzaki¹

¹ *KEK*

Corresponding Author: junichi.kanzaki@cern.ch

Plenary / 59

The NLO Calculations of heavy quarkonium production at B factories

Author: Yu-Jie Zhang¹

¹ *Beihang University*

Corresponding Author: nophy0@gmail.com

Track 3 / 60

Automatic one-loop calculations with OpenLoops

Authors: Fabio Cascioli¹; Philipp Maierhoefer¹; Stefano Pozzorini¹

¹ *Institute for Theoretical Physics, University of Zurich*

Corresponding Author: philipp@physik.uzh.ch

Track 1 / 61

Managing a Tier-2 Computer Centre with a Private Cloud Infrastructure

Authors: Dario Berzano¹; Riccardo Brunetti²; Stefano Bagnasco³; Stefano Lusso²

¹ *INFN Torino & CERN PH-SFT*

² *INFN Torino*

³ *Istituto Nazionale di Fisica Nucleare*

Corresponding Author: bagnasco@to.infn.it

Track 2 / 62

Data Analysis of Tracks of Heavy Ion Particles in Timepix Detectors**Author:** Son Hoang¹**Co-authors:** John Idarraga ¹; Lawrence Pinsky ¹; Martin Kroupa ¹; Nicholas Stoffle ¹; Ricardo Vilalta ¹¹ *University of Houston***Corresponding Author:** smhoang@uh.edu

Track 3 / 65

Development of an object oriented lattice QCD code “Bridge++”**Author:** Satoru Ueda¹**Co-authors:** Hidekatsu Nemura ²; Hideo Matsufuru ¹; Kazuyuki Kanaya ²; Naoya Ukita ²; Shinji Motoki ¹; Sinya Aoki ²; Tatsumi Aoyama ³; Yusuke Namekawa ²; Yusuke Taniguchi ²¹ *High Energy Accelerator Research Organization, KEK*² *Tsukuba U.*³ *Nagoya U., KMI***Corresponding Author:** suedata@post.kek.jp

Track 3 / 66

One loop integration with hypergeometric series by using recursion formulae**Author:** Norihisa Watanabe¹**Co-author:** Toshiaki Kaneko ¹¹ *KEK***Corresponding Author:** norihisa@post.kek.jp

Track 2 / 67

The Alignment of the CMS Silicon Tracker**Author:** Tapio LAMPÉN¹¹ *Helsinki Institute of Physics***Corresponding Author:** tapio.lampen@cern.ch

Plenary / 68**ATLAS Distributed Computing: Experience and Evolution**

Authors: Andrej Filipcic¹; Armin Nairz²

¹ *Jozef Stefan Insitute*

² *CERN*

Corresponding Authors: armin.nairz@cern.ch, andrej.filipcic@ijs.si

Track 2 / 69**A Neural-Network Clusterisation Algorithm for the ATLAS Silicon Pixel Detector**

Authors: Andrej Filipcic¹; Katharine Leney²

¹ *Jozef Stefan Insitute*

² *University of the Witwatersrand*

Corresponding Authors: katharine.leney@cern.ch, andrej.filipcic@ijs.si

Track 2 / 70**Optimizing the ATLAS code with different profilers**

Authors: Andrej Filipcic¹; Sami Kama²

¹ *Jozef Stefan Insitute*

² *Southern Methodist University*

Corresponding Authors: sami9999@hotmail.com, andrej.filipcic@ijs.si

Track 2 / 71**FLES: First Level Event Selection Package for the CBM Experiment**

Author: Ivan Kisel¹

Co-authors: Igor Kulakov ¹; Maksym Zyzak ¹; Valentina Akishina ¹

¹ *University of Frankfurt*

Corresponding Author: i.kisel@gsi.de

Track 1 / 72

Flexible data transport for the online reconstruction of FAIR experiments

Authors: Dennis Klein¹; Mohammad Al-Turany¹

¹ *GSI Darmstadt*

Corresponding Author: m.al-turany@gsi.de

Track 1 / 73

The FairRoot Framework

Authors: Denis Bertini¹; Dmytro Kresan¹; Florian Uhlig¹; Mohammad Al-Turany¹; Radoslaw Karabowicz¹

¹ *GSI Darmstadt*

Corresponding Author: m.al-turany@gsi.de

Track 1 / 74

Analysis of performance improvements for host and gpu interface of the APENet+ 3D Torus network.

Authors: Alessandro Lonardo¹; Andrea Biagioni¹; Davide Rossetti¹; Francesca Lo Cicero¹; Francesco Simula¹; Laura Tosoratto¹; Ottorino Frezza¹; Pier Stanislao Paolucci¹; Piero Vicini¹; Roberto Ammendola²

¹ *INFN Roma*

² *INFN Roma Tor Vergata*

Corresponding Authors: piero.vicini@roma1.infn.it, roberto.ammendola@roma2.infn.it

Poster Presentation / 75

Experiance of ROOF cluster maintenance and operation at Joit Institute for Nuclear Research for ALICE data analysys.

Author: Galina Shabratova¹

Co-authors: Gleb Stiforov ¹; Lucia Valova ¹; Martin Vala ¹; Roman Semenov ²

¹ *Joint Institute for Nuclear Research*

² *Joint Institute for Nuclea Research*

Corresponding Authors: martin.vala@cern.ch, galina@mail.cern.ch

Track 1 / 76

Influence of distributing a Tier-2 data storage on physics analysis

Author: Jiri Horky¹

Co-authors: Lokajicek Milos ¹; Peisar Jakub ²

¹ *Institute of Physics of the Academy of Sciences of the Czech Republic*

² *CESNET a.l.e.*

Corresponding Author: horky@fzu.cz

Poster Presentation / 77

Flasher Identification at Daya Bay

Author: Qingwang Zhao¹

¹ *IHEP*

Corresponding Author: zhaoqw@ihep.ac.cn

Track 1 / 78

Experience, Use, and Performance Measurement of the Hadoop File System in a Typical Nuclear Physics Analysis Workflows

Authors: Evan Sangaline¹; Jerome Lauret²

¹ *UC Davis*

² *BNL*

Corresponding Author: esangaline@gmail.com

Track 1 / 79

Performance quality monitoring system(PQM) for the Daya Bay reactor neutrino experiment

Author: Yingbiao Liu¹

¹ *IHEP*

Corresponding Author: liuyb@ihep.ac.cn

Track 2 / 80

Maximum likelihood reconstruction in the Daya Bay Reactor Antineutrino Experiment

Author: Dongmei Xia¹

¹ *IHEP*

Corresponding Author: xiadm@ihep.ac.cn

Track 3 / 82

Recent developments on FORM

Author: Takahiro Ueda¹

Co-author: Jos Vermaseren²

¹ *Karlsruhe Institute of Technology*

² *NIKHEF*

Corresponding Author: takahiro.ueda@kit.edu

Track 1 / 85

CMS Use of a Data Federation

Authors: Daniele Bonacorsi¹; Ian Fisk²

¹ *University of Bologna*

² *Fermilab*

Corresponding Authors: peter.elmer@cern.ch, bonacorsi@bo.infn.it

Track 1 / 86

Usage of the CMS Higher Level Trigger Farm as a Cloud Resource

Authors: Daniele Bonacorsi¹; David Colling²

¹ *University of Bologna*

² *Imperial College*

Corresponding Author: bonacorsi@bo.infn.it

Track 2 / 87

A Wavelet Based Analysis System for Monitoring Information

Author: Iosif Legrand¹

¹ *CALTECH / CERN*

Corresponding Author: iosif.legrand@cern.ch

Track 3 / 88

Generators BCVEGPY and GENXICC for doubly heavy mesons and baryons

Author: Xing-Gang Wu¹

¹ *China Democratic League*

Corresponding Author: wuxg@cqu.edu.cn

Track 3 / 92

The BlackHat Library for One-Loop Amplitudes

Author: David Kosower¹

Co-authors: Daniel Maître ²; Fernando Febres Cordero ³; Harald Ita ⁴; Kemal Ozeren ⁵; Lance Dixon ⁶; Stefan Hoeche ⁶; Zvi Bern ⁵

¹ *IPhT, CEA-Saclay*

² *IPPP Durham*

³ *Simon Bolivar*

⁴ *Freiburg*

⁵ *UCLA*

⁶ *SLAC*

Corresponding Authors: david.kosower@cea.fr, daniel.maitre@durham.ac.uk

Track 1 / 93

Use of Checkpoint-Restart for Complex HEP Software on Traditional Architectures and Intel MIC

Author: Peter Elmer¹

Co-authors: Andrea Dotti ²; Gene Cooperman ³; Kapil Arya ³

¹ *Princeton University*

² *SLAC*

³ *College of Computer and Info. Science, Northeastern University*

Corresponding Author: peter.elmer@cern.ch

Track 3 / 101

Feynman Loop Integral Computation on Hybrid Platforms

Author: Elise de Doncker¹

Co-authors: Fukuko Yuasa²; Rida Assaf¹

¹ *Western Michigan University*

² *High Energy Accelerator Research Organization (KEK), Japan*

Corresponding Author: elise.dedoncker@wmich.edu

Track 2 / 102

Concepts and Plans towards fast large scale Monte Carlo production for ATLAS

Authors: Elmar Ritsch¹; Philip Clark^{None}

¹ *University Innsbruck/Austria, CERN*

Corresponding Author: elmar.ritsch@cern.ch

Track 2 / 106

Simulations of nuclear experiments framework

Authors: Bartlomiej Hnatio¹; Paul Papka²; Pavel Sharov³; Vratislav Chudoba⁴

¹ *FLNR JINR, Dubna, Russia && AGH, Cracow, Poland*

² *Department of Physics, Stellenbosch University, Stellenbosch, South Africa*

³ *FLNR JINR, Dubna, Russia*

⁴ *FLNR JINR, Dubna && Institute of Physics, SU in Opava*

Corresponding Author: bartlomiej.hnatio@gmail.com

Track 1 / 112

JAliEn - A new interface between the AliEn jobs and the central services

Author: Alina Gabriela Grigoras^{None}

Co-authors: Costin Grigoras ; Miguel Martinez Pedreira

Poster Presentation / 120

Documenting through activity diagrams

Author: Juan Jose Lopez Villarejo¹

¹ *CERN*

Plenary / 121

Large-Scale Application on TianHe-1A and HPC in China

Author: Xiangfei Meng¹

¹ *NSCC-TJ, China*

Plenary / 122

Lessons learned from the Kei computer project

Author: Yoshio Oyanagi¹

¹ *Kobe University*

Corresponding Author: oyanagi@people.kobe-u.ac.jp

Plenary / 123

Future Storage Architectures for Large Data-Analysis Systems

Plenary / 124

Grid AND Cloud evolution from now onward

Author: Ian Bird¹

¹ *CERN*

Plenary / 125

Opportunities and choice in a new vector era

Author: Andrzej Nowak¹

¹ *CERN openlab*

Plenary / 126

Advances in tracking and trigger concepts

Corresponding Author: i.kisel@gsi.de

Plenary / 127

Role of Multivariate Analysis in LHC physics

Author: Pushpalatha Bhat^{one}

Plenary / 131

Opening

Corresponding Author: chenhs@ihep.ac.cn

Plenary / 132

Summary Track 1

Corresponding Author: axel.naumann@cern.ch

Plenary / 133

Summary Track 2

Authors: Katharine Leney¹; Weidong Li²

¹ *University of the Witwatersrand*

² *IHEP*

Corresponding Authors: katharine.leney@cern.ch, liwd@ihep.ac.cn

Plenary / 134

Summary Track 3

Corresponding Authors: daniel.maitre@durham.ac.uk, arbuzov@theor.jinr.ru

Plenary / 135

Summary

Corresponding Author: federico.carminati@cern.ch

Plenary / 136

Data-intensive High Performance Computing and Analysis in Solid Earth Sciences

Author: Jean-Pierre Vilotte¹

¹ *Institut de Physique du Globe de Paris (CNRS - UMR7154)*

Corresponding Author: vilotte@ipgp.fr

Plenary / 137

From Black Holes to Cosmology : The Universe in the Computer

Author: J.P Luminet^{one}

Corresponding Author: jean-pierre.luminet@obspm.fr

Plenary / 141

XData: Sugon all-in-one BigData Machine

Co-author: Huaiming Song ¹

¹ *Sugon*

Corresponding Author: songhm@sugon.com

Plenary / 142

Round Table:Open-source, knowledge sharing and scientific collaboration

Corresponding Authors: tord.riemann@desy.de, denis.perret-gallix@in2p3.fr

Plenary / 145

Visit to BEPCII