

29th Geant4 Collaboration Meeting

Report of Contributions

Contribution ID: 1

Type: **not specified**

CUP/IBS

Wednesday 9 October 2024 09:00 (18 minutes)

Presenter: JEON, Eun Ju (Center for Underground Physics, IBS)

Session Classification: Plenary: Computing Performance

Contribution ID: 2

Type: **not specified**

ALICE

Wednesday 9 October 2024 09:18 (18 minutes)

Presenter: HRIVNACOVA, Ivana (Université Paris-Saclay (FR))

Session Classification: Plenary: Computing Performance

Contribution ID: 3

Type: **not specified**

ATLAS

Wednesday 9 October 2024 09:36 (18 minutes)

Presenter: BANDIERAMONTE, Marilena (University of Pittsburgh (US))

Session Classification: Plenary: Computing Performance

Contribution ID: 4

Type: **not specified**

CMS

Wednesday 9 October 2024 09:54 (18 minutes)

Presenter: Prof. IVANTCHENKO, Vladimir (CERN)

Session Classification: Plenary: Computing Performance

Contribution ID: 5

Type: **not specified**

IMCC

Wednesday 9 October 2024 10:12 (18 minutes)

Presenter: BARTOSIK, Nazar (Universita e INFN Torino (IT))

Session Classification: Plenary: Computing Performance

Contribution ID: 6

Type: **not specified**

Welcome/Hosts Opening Remarks

Monday 7 October 2024 09:00 (30 minutes)

Presenters: PANDOLA, Luciano (INFN Laboratori Nazionali del Sud, Italy); GAMMINO, Santo (INFN/LNS); Prof. ROMANO, Stefano (Physics Department, University of Catania); CUTTONE, Giacomo

Session Classification: Plenary: Opening addresses & Open requirements

Contribution ID: 7

Type: **not specified**

Spokes Opening Remarks

Monday 7 October 2024 09:30 (5 minutes)

Presenters: RIBON, Alberto (CERN); MORGAN, Benjamin (University of Warwick (GB))

Session Classification: Plenary: Opening addresses & Open requirements

Contribution ID: 8

Type: **not specified**

Open and new requirements - LHC and other HEP Energy Frontier experiments

Monday 7 October 2024 09:35 (14 minutes)

Presenter: BANDIERAMONTE, Marilena (University of Pittsburgh (US))

Session Classification: Plenary: Opening addresses & Open requirements

Contribution ID: 9

Type: **not specified**

Open and new requirements - HEP intensity and cosmic frontier experiments

Monday 7 October 2024 09:50 (14 minutes)

Presenter: GENSER, Krzysztof (Fermi National Accelerator Laboratory (US))

Session Classification: Plenary: Opening addresses & Open requirements

Contribution ID: **10**

Type: **not specified**

Open and new requirements - Nuclear Physics experiments

Monday 7 October 2024 10:05 (14 minutes)

Presenter: SARMIENTO PICO, Luis Gerardo

Session Classification: Plenary: Opening addresses & Open requirements

Contribution ID: 11

Type: **not specified**

Open and new requirements - Medical and biological science

Monday 7 October 2024 10:20 (14 minutes)

Presenters: Dr CORTES-GIRALDO, Miguel Antonio (Universidad de Sevilla); GUATELLI, Susanna

Session Classification: Plenary: Opening addresses & Open requirements

Contribution ID: 12

Type: **not specified**

Open and new requirements - Space science and engineering

Monday 7 October 2024 10:35 (14 minutes)

Presenter: SANTIN, Giovanni

Session Classification: Plenary: Opening addresses & Open requirements

Contribution ID: 13

Type: **not specified**

Status of EM physics

Thursday 10 October 2024 09:18 (18 minutes)

Presenter: Prof. IVANTCHENKO, Vladimir (CERN)

Session Classification: Plenary: Electromagnetic Physics

Contribution ID: 14

Type: **not specified**

News from G4-Med project

Thursday 10 October 2024 09:00 (18 minutes)

Presenter: GUATELLI, Susanna

Session Classification: Plenary: Electromagnetic Physics

Contribution ID: 15

Type: **not specified**

Progress in Geant4 DNA

Thursday 10 October 2024 09:36 (18 minutes)

Presenters: TRAN, Ngoc Hoang; INCERTI, Sebastien (CNRS/IN2P3)

Session Classification: Plenary: Electromagnetic Physics

Contribution ID: 16

Type: **not specified**

Geant4 ab-initio models on channeling, channeling radiation and coherent pair production in oriented crystals

Thursday 10 October 2024 09:54 (18 minutes)

Presenter: SYTOV, Alexei (INFN, Ferrara (IT))

Session Classification: Plenary: Electromagnetic Physics

Contribution ID: 17

Type: **not specified**

Simulation of positronium decay

Thursday 10 October 2024 10:12 (18 minutes)

Presenter: BERNARD, Denis Robert Leon (Centre National de la Recherche Scientifique (FR))

Session Classification: Plenary: Electromagnetic Physics

Contribution ID: **18**

Type: **not specified**

Problems in EM physics

Wednesday 9 October 2024 17:12 (18 minutes)

Presenter: Prof. IVANTCHENKO, Vladimir (CERN)

Session Classification: Breakout 1: Electromagnetic Physics

Contribution ID: 19

Type: **not specified**

On the Gamma-Ray Conversion pdf: Towards a Direct 5D Event Generation

Wednesday 9 October 2024 16:00 (18 minutes)

Presenter: BERNARD, Denis Robert Leon (Centre National de la Recherche Scientifique (FR))

Session Classification: Breakout 1: Electromagnetic Physics

Contribution ID: 20

Type: **not specified**

New extended examples to explore Channeling effects in oriented crystals and their applications

Wednesday 9 October 2024 16:18 (18 minutes)

Presenter: PATERNO, Gianfranco (Universita e INFN, Ferrara (IT))

Session Classification: Breakout 1: Electromagnetic Physics

Contribution ID: 21

Type: **not specified**

First integration of annihilation gamma quantum decoherence in Geant4

Wednesday 9 October 2024 16:36 (18 minutes)

Presenter: BORDES, Julien

Session Classification: Breakout 1: Electromagnetic Physics

Contribution ID: 22

Type: **not specified**

Geant4-DNA Development for Atmospheric Applications

Wednesday 9 October 2024 16:54 (18 minutes)

Presenter: NICOLANTI, Francesca

Session Classification: Breakout 1: Electromagnetic Physics

Contribution ID: 23

Type: **not specified**

4th Geant4 general paper

Monday 7 October 2024 11:20 (35 minutes)

Presenter: RIBON, Alberto (CERN)

Session Classification: Plenary: Collaboration Matters 1

Contribution ID: 24

Type: **not specified**

Thinking towards the next Geant4 Major Release

Monday 7 October 2024 11:55 (35 minutes)

Presenter: MORGAN, Benjamin (University of Warwick (GB))

Session Classification: Plenary: Collaboration Matters 1

Contribution ID: 25

Type: **not specified**

Status of Hadronic Physics

Thursday 10 October 2024 11:00 (30 minutes)

Presenters: RIBON, Alberto (CERN); SARMIENTO PICO, Luis Gerardo

Session Classification: Plenary: Hadronic Physics

Contribution ID: 26

Type: **not specified**

Physics improvements in neutronHP and comparison with standard codes for neutronics

Thursday 10 October 2024 11:30 (30 minutes)

Presenter: THULLIEZ, Loïc (CEA-Saclay)

Session Classification: Plenary: Hadronic Physics

Contribution ID: 27

Type: **not specified**

INCLXX: status and plans for the treatment of antibaryons, neutrinos, and uncertainties/errors

Presenter: DAVID, Jean-Christophe

Session Classification: Plenary: Hadronic Physics

Contribution ID: 28

Type: **not specified**

RAON beam simulation

Wednesday 9 October 2024 16:20 (20 minutes)

Presenter: Prof. CHO, Kihyeon (KISTI (South Korea))

Session Classification: Breakout 2: Hadronic Physics

Contribution ID: 29

Type: **not specified**

Update on the emulation of QMD/BLOB models with Deep Learning

Wednesday 9 October 2024 16:40 (20 minutes)

Presenter: ARSINI, Lorenzo ("Sapienza" University of Rome)

Session Classification: Breakout 2: Hadronic Physics

Contribution ID: **30**

Type: **not specified**

How much precise can Geant4 be for proton-therapy, without QGSP_BIC_HP

Wednesday 9 October 2024 17:00 (20 minutes)

Presenter: ARCE, Pedro (CIEMAT)

Session Classification: Breakout 2: Hadronic Physics

Contribution ID: 31

Type: **not specified**

Benchmarking Monte Carlo codes for the modelling of low-energy neutron production target reactions

Wednesday 9 October 2024 16:00 (20 minutes)

Presenter: MACLEOD, Sherryn (University Wollongong, Australia)

Session Classification: Breakout 2: Hadronic Physics

Contribution ID: 32

Type: **not specified**

Update on Opticks/CaTS

Wednesday 9 October 2024 11:00 (25 minutes)

Presenter: WENZEL, Hans-Joachim

Session Classification: Plenary: R&D

Contribution ID: **33**

Type: **not specified**

AdePT status report

Wednesday 9 October 2024 11:25 (25 minutes)

Presenter: GONZALEZ CAMINERO, Juan

Session Classification: Plenary: R&D

Contribution ID: **34**

Type: **not specified**

Celeritas status report

Wednesday 9 October 2024 11:50 (25 minutes)

Presenter: JOHNSON, Seth (Oak Ridge National Laboratory (US))

Session Classification: Plenary: R&D

Contribution ID: 35

Type: **not specified**

Discussion on AdePT/Celeritas delta review

Wednesday 9 October 2024 12:15 (15 minutes)

Session Classification: Plenary: R&D

Contribution ID: **36**

Type: **not specified**

Discussion

Friday 11 October 2024 11:00 (1 hour)

Presenters: RIBON, Alberto (CERN); MORGAN, Benjamin (University of Warwick (GB))

Session Classification: Plenary: Free for discussion, Closeout

Contribution ID: 37

Type: **not specified**

Release Schedule

Friday 11 October 2024 12:00 (10 minutes)

Presenter: Dr COSMO, Gabriele (CERN)

Session Classification: Plenary: Free for discussion, Closeout

Contribution ID: **38**

Type: **not specified**

Closing Remarks

Friday 11 October 2024 12:10 (5 minutes)

Presenters: RIBON, Alberto (CERN); MORGAN, Benjamin (University of Warwick (GB))

Session Classification: Plenary: Free for discussion, Closeout

Contribution ID: 39

Type: **not specified**

Announcement of 30th Geant4 Collaboration Meeting

Friday 11 October 2024 12:15 (5 minutes)

Presenter: ASAI, Makoto

Session Classification: Plenary: Free for discussion, Closeout

Contribution ID: 40

Type: **not specified**

Host closing remarks

Friday 11 October 2024 12:20 (10 minutes)

Presenter: Prof. TRICOMI, Alessia (INFN-Catania)

Session Classification: Plenary: Free for discussion, Closeout

Contribution ID: 41

Type: **not specified**

Update on Geometry developments

Tuesday 8 October 2024 09:00 (20 minutes)

Presenter: GHEATA, Andrei (CERN)

Session Classification: Plenary: Geometry

Contribution ID: 42

Type: **not specified**

The VecGeom surface modeller - update

Tuesday 8 October 2024 09:20 (25 minutes)

Presenter: DIEDERICHS, Severin (CERN)

Session Classification: Plenary: Geometry

Contribution ID: 43

Type: **not specified**

The Orange surface modeller - update

Tuesday 8 October 2024 09:55 (25 minutes)

Presenter: JOHNSON, Seth (Oak Ridge National Laboratory (US))

Session Classification: Plenary: Geometry

Contribution ID: 44

Type: **not specified**

User and Developer Systems and Tools: Update

Monday 7 October 2024 14:00 (18 minutes)

Covering Geant4's website, Discourse forum, and Bugzilla instance for user support. Developer tools of Coverity/CMake/CI are updated.

Presenters: MORGAN, Benjamin (University of Warwick (GB)); Dr COSMO, Gabriele (CERN); FOLGER, Gunter

Session Classification: Plenary: Development Tools

Contribution ID: 45

Type: **not specified**

Development/Testing Tools and Systems for Geant4

Update on CMake/CTest, Jenkins, Coverity

Author: MORGAN, Benjamin (University of Warwick (GB))

Co-authors: Dr COSMO, Gabriele (CERN); FOLGER, Gunter

Presenters: MORGAN, Benjamin (University of Warwick (GB)); Dr COSMO, Gabriele (CERN); FOLGER, Gunter

Session Classification: Plenary: Development Tools

Contribution ID: 46

Type: **not specified**

Prototype Git-based database for Geant4 papers and presentations

Monday 7 October 2024 14:18 (18 minutes)

Presenter: KONSTANTINOV, Dmitri (Chulalongkorn University (TH))

Session Classification: Plenary: Development Tools

Contribution ID: 47

Type: **not specified**

geant-val: Status and challenges

Monday 7 October 2024 14:54 (18 minutes)

Presenter: KONSTANTINOV, Dmitri (Chulalongkorn University (TH))

Session Classification: Plenary: Development Tools

Contribution ID: 48

Type: **not specified**

Discussion Time

Monday 7 October 2024 15:12 (18 minutes)

Session Classification: Plenary: Development Tools

Contribution ID: 49

Type: **not specified**

Test

Session Classification: Plenary: Generic Processes and Materials

Contribution ID: 50

Type: **not specified**

ML fast sim developments

Wednesday 9 October 2024 14:00 (20 minutes)

Author: MCKEOWN, Peter (CERN)

Presenter: MCKEOWN, Peter (CERN)

Session Classification: Plenary: Generic Processes and Materials

Contribution ID: 51

Type: **not specified**

Improvements in GFLASH fast simulation

Wednesday 9 October 2024 14:20 (20 minutes)

Author: SEMENIOUK, Igor (Centre National de la Recherche Scientifique (FR))

Presenter: SEMENIOUK, Igor (Centre National de la Recherche Scientifique (FR))

Session Classification: Plenary: Generic Processes and Materials

Contribution ID: 52

Type: **not specified**

Discussion points on Generic Biasing

Wednesday 9 October 2024 14:40 (20 minutes)

Author: VERDERI, Marc (Centre National de la Recherche Scientifique (FR))

Presenter: VERDERI, Marc (Centre National de la Recherche Scientifique (FR))

Session Classification: Plenary: Generic Processes and Materials

Contribution ID: 53

Type: **not specified**

A.O.B

Wednesday 9 October 2024 15:00 (30 minutes)

Session Classification: Plenary: Generic Processes and Materials

Contribution ID: 54

Type: **not specified**

New classes for Field Configuration

Tuesday 8 October 2024 10:25 (20 minutes)

Presenter: HRIVNACOVA, Ivana (Université Paris-Saclay (FR))

Session Classification: Plenary: Geometry

Contribution ID: 55

Type: **not specified**

G4CPT: Protocol Evolution

Monday 7 October 2024 14:36 (18 minutes)

Presenters: YARBA, Julia; JUN, Soon Yung (Fermi National Accelerator Lab. (US))

Session Classification: Plenary: Development Tools

Contribution ID: 56

Type: **not specified**

Recap of multithreading and tools for thread-safety check

Monday 7 October 2024 16:00 (20 minutes)

Presenter: MORGAN, Benjamin (University of Warwick (GB))

Session Classification: Plenary: Geant4 Kernel

Contribution ID: 57

Type: **not specified**

Update on sub-event parallelism

Monday 7 October 2024 16:20 (20 minutes)

Presenter: ASAI, Makoto

Session Classification: Plenary: Geant4 Kernel

Contribution ID: 58

Type: **not specified**

Updates on Analysis

Monday 7 October 2024 16:40 (20 minutes)

Presenter: HRIVNACOVA, Ivana (Université Paris-Saclay (FR))

Session Classification: Plenary: Geant4 Kernel

Contribution ID: 59

Type: **not specified**

The RNTuple Storage Format

Monday 7 October 2024 17:00 (15 minutes)

Presenter: HAHNFELD, Jonas (CERN & Goethe University Frankfurt)

Session Classification: Plenary: Geant4 Kernel

Contribution ID: **60**

Type: **not specified**

Status and recent developments in QSS in Geant4

Monday 7 October 2024 17:15 (15 minutes)

Presenter: CASTRO, Rodrigo Daniel (Universidad de Buenos Aires (AR))

Session Classification: Plenary: Geant4 Kernel

Contribution ID: **61**

Type: **not specified**

Discussion: parallelisation of geometry voxelisation

Tuesday 8 October 2024 16:00 (30 minutes)

Presenter: APOSTOLAKIS, John (CERN)

Session Classification: Breakout 1: Parallelisation of Initialisation

Contribution ID: 62

Type: **not specified**

Discussion: parallelisation of physics initialisation phase

Tuesday 8 October 2024 16:30 (30 minutes)

Presenters: RIBON, Alberto (CERN); NOVAK, Mihaly (CERN); Prof. IVANTCHENKO, Vladimir (CERN)

Session Classification: Breakout 1: Parallelisation of Initialisation

Contribution ID: **63**

Type: **not specified**

Discussion: handling of physics data files

Tuesday 8 October 2024 17:00 (30 minutes)

Presenters: RIBON, Alberto (CERN); NOVAK, Mihaly (CERN); Prof. IVANTCHENKO, Vladimir (CERN)

Session Classification: Breakout 1: Parallelisation of Initialisation

Contribution ID: **64**

Type: **not specified**

Basic and Extended Examples Summary

Tuesday 8 October 2024 14:00 (15 minutes)

Presenter: HRIVNACOVA, Ivana (Université Paris-Saclay (FR))

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 65

Type: **not specified**

New Extended Channeling Examples

Tuesday 8 October 2024 14:15 (7 minutes)

Presenter: SYTOV, Alexei (Universita e INFN, Ferrara (IT))

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 66

Type: **not specified**

The Radiobiology Example: A Flexible Framework for Machine Learning, Phase Space testing and beyond in Monte Carlo Applications

Tuesday 8 October 2024 14:22 (7 minutes)

Presenter: SCIUTO, Alberto

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 67

Type: **not specified**

Effects of Oxygen depletion in extremely high dose rate proton irradiation investigated through the Scavenger example

Tuesday 8 October 2024 14:29 (7 minutes)

Co-author: FAROKHI, Fateme (INFN LNS)

Presenters: FAROKHI, Fateme (INFN LNS); FATTORI, Serena

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: **68**

Type: **not specified**

'moleculardna' example update

Presenter: CHATZIPAPAS, Konstantinos (University of Brest, Inserm UMR-1101, LaTIM, F-29200, Brest, France)

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: **69**

Type: **not specified**

UHDR example update

Tuesday 8 October 2024 14:36 (7 minutes)

Author: FATTORI, Serena

Presenters: ANH TUAN, Le (IRSN); TRAN, Ngoc Hoang; FATTORI, Serena

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 70

Type: **not specified**

Advanced Examples Summary

Tuesday 8 October 2024 14:43 (12 minutes)

Presenter: ROMANO, Francesco

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 71

Type: **not specified**

eFLASH_radiotherapy and exp_microdosimetry examples: status and recent developments

Tuesday 8 October 2024 14:55 (8 minutes)

Presenter: MILLUZZO, Giuliana

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 72

Type: **not specified**

Hadrontherapy example: Current Status and Future Perspectives

Tuesday 8 October 2024 15:03 (8 minutes)

Presenter: PETRINGA, Giada

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 73

Type: **not specified**

Status and new developments for the Medical Linac Example

Tuesday 8 October 2024 15:11 (8 minutes)

Presenter: POZZI, Silvia (INFN Roma1)

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 74

Type: **not specified**

IAEA Phase Space file status

Tuesday 8 October 2024 15:19 (5 minutes)

Presenter: Dr CORTES-GIRALDO, Miguel Antonio (Universidad de Sevilla)

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 75

Type: **not specified**

Contributions to Advanced Examples for ICRP Reference Phantoms

Tuesday 8 October 2024 15:24 (5 minutes)

Presenter: YEOM, Yeon Soo

Session Classification: Plenary: Basic, Extended, and Advanced Examples

Contribution ID: 76

Type: **not specified**

INCLXX: status and plans for the treatment of antibaryons, neutrinos, and uncertainties/errors

Friday 11 October 2024 10:00 (30 minutes)

Presenter: DAVID, Jean-Christophe

Session Classification: Plenary: Collaboration Matters 2 & Followup Discussions