

# GGI Workshop

## Report of Contributions

Contribution ID: 1

Type: **not specified**

## Muon Collider Overview

*Monday, 30 June 2025 11:15 (1h 45m)*

**Presenter:** SCHULTE, Daniel (CERN)

Contribution ID: 2

Type: **not specified**

## Introduction to Accelerators

*Monday, 30 June 2025 14:00 (1 hour)*

**Presenter:** ROGERS, Chris

Contribution ID: 3

Type: **not specified**

## Detector Challenges 1

*Tuesday, 1 July 2025 09:30 (45 minutes)*

**Presenter:** Prof. BLACK, Kevin (University of Wisconsin-Madison)

Contribution ID: 4

Type: **not specified**

## Machine Detector Interface 1

*Tuesday, 1 July 2025 10:15 (45 minutes)*

**Presenters:** LECHNER, Anton (CERN); CALZOLARI, Daniele (Universita e INFN, Padova (IT))

Contribution ID: 5

Type: **not specified**

## Detector Challenges 2

*Tuesday, 1 July 2025 11:15 (45 minutes)*

**Presenter:** Prof. BLACK, Kevin (University of Wisconsin-Madison)

Contribution ID: 6

Type: **not specified**

## Luminosity

*Tuesday, 1 July 2025 12:00 (45 minutes)*

**Presenter:** SCHULTE, Daniel (CERN)

Contribution ID: 7

Type: **not specified**

## Magnets

*Tuesday, 1 July 2025 14:00 (1 hour)*

**Presenter:** BOTTURA, Luca (CERN)

Contribution ID: **8**Type: **not specified**

## Microscopic physics at the TeV scale

*Wednesday, 2 July 2025 15:30 (1 hour)*

**Presenters:** MURAYAMA, Hitoshi (University of Tsukuba); MURAYAMA, Hitoshi (University of California Berkeley (US)); MURAYAMA, Hitoshi

Contribution ID: 9

Type: **not specified**

**tbb**

Contribution ID: **10**

Type: **not specified**

**RF**

*Wednesday, 2 July 2025 09:30 (45 minutes)*

**Presenter:** SCHULTE, Daniel (CERN)

Contribution ID: 11

Type: **not specified**

## **Detector challenges for the next generation of particle colliders**

*Wednesday, 2 July 2025 10:15 (45 minutes)*

**Presenter:** Prof. BLACK, Kevin (University of Wisconsin-Madison)

Contribution ID: **12**

Type: **not specified**

## High field magnets

*Wednesday, 2 July 2025 11:15 (45 minutes)*

**Presenter:** BOTTURA, Luca (CERN)

Contribution ID: 13

Type: **not specified**

## High field magnets

*Wednesday, 2 July 2025 12:00 (45 minutes)*

**Presenter:** BOTTURA, Luca (CERN)

Contribution ID: **14**

Type: **not specified**

## Machine Detector Interface 2

*Wednesday, 2 July 2025 14:00 (1 hour)*

**Presenter:** CALZOLARI, Daniele (Universita e INFN, Padova (IT))

Contribution ID: 15

Type: **not specified**

## Microscopic physics at the TeV scale

*Tuesday, 1 July 2025 15:30 (1 hour)*

**Presenters:** MURAYAMA, Hitoshi (University of Tsukuba); MURAYAMA, Hitoshi (University of California Berkeley (US)); MURAYAMA, Hitoshi

Contribution ID: **16**Type: **not specified**

## Challenges of SM and QFT at future colliders

*Thursday, 3 July 2025 09:30 (45 minutes)*

**Presenter:** PAGANI, Davide (INFN, Bologna (IT))

Contribution ID: 17

Type: **not specified**

## Challenges of SM and QFT at future colliders

*Thursday, 3 July 2025 10:15 (45 minutes)*

**Presenter:** PAGANI, Davide (INFN, Bologna (IT))

Contribution ID: **18**

Type: **not specified**

## **(Theory of) Ionisation Cooling**

*Thursday, 3 July 2025 11:15 (45 minutes)*

**Presenter:** ROGERS, Chris

Contribution ID: 19

Type: **not specified**

## Microscopic physics at the TeV scale

*Thursday, 3 July 2025 12:00 (45 minutes)*

**Presenters:** MURAYAMA, Hitoshi (University of Tsukuba); MURAYAMA, Hitoshi (University of California Berkeley (US)); MURAYAMA, Hitoshi

Contribution ID: 20

Type: **not specified**

## Microscopic physics at the TeV scale

*Thursday, 3 July 2025 14:00 (1 hour)*

**Presenters:** MURAYAMA, Hitoshi (University of Tsukuba); MURAYAMA, Hitoshi (University of California Berkeley (US)); MURAYAMA, Hitoshi

Contribution ID: 21

Type: **not specified**

## **Detector challenges for the next generation of particle colliders**

*Thursday, 3 July 2025 15:30 (1 hour)*

**Presenter:** Prof. BLACK, Kevin (University of Wisconsin-Madison)

Contribution ID: 22

Type: **not specified**

## **Challenges of SM and QFT at future colliders**

*Friday, 4 July 2025 09:30 (45 minutes)*

**Presenter:** PAGANI, Davide (INFN, Bologna (IT))

Contribution ID: 23

Type: **not specified**

## Challenges of SM and QFT at future colliders

*Friday, 4 July 2025 10:15 (45 minutes)*

**Presenter:** PAGANI, Davide (INFN, Bologna (IT))

Contribution ID: 24

Type: **not specified**

## **(Theory of) Ionisation Cooling**

*Friday, 4 July 2025 11:15 (45 minutes)*

**Presenter:** ROGERS, Chris

Contribution ID: 25

Type: **not specified**

## Collective Effects

*Friday, 4 July 2025 12:00 (45 minutes)*

**Presenter:** METRAL, Elias (CERN)

Contribution ID: **26**

Type: **not specified**

## Collective Effects

*Friday, 4 July 2025 14:00 (1 hour)*

**Presenter:** METRAL, Elias (CERN)

Contribution ID: 27

Type: **not specified**

## **(Theory of) Ionisation Cooling**

*Friday, 4 July 2025 15:30 (1 hour)*

**Presenter:** ROGERS, Chris

Contribution ID: **28**

Type: **not specified**

## Questions

*Tuesday, 1 July 2025 16:30 (1 hour)*

Contribution ID: 29

Type: **not specified**

## Questions

*Thursday, 3 July 2025 16:30 (1 hour)*

Contribution ID: **30**

Type: **not specified**

## **Apericena Dinner**

*Thursday, 3 July 2025 18:30 (1 hour)*

Contribution ID: 31

Type: **not specified**

## Gong show

*Monday, 7 July 2025 15:30 (1h 30m)*

Contribution ID: 32

Type: **not specified**

## **Geant/Fluka shop kick-off**

*Monday, 7 July 2025 17:00 (45 minutes)*

Contribution ID: 33

Type: **not specified**

## Precision phenomenology at colliders: what are the limits?

*Tuesday, 8 July 2025 11:00 (1 hour)***Presenter:** MELNIKOV, Kirill (KIT)

Contribution ID: 34

Type: **not specified**

## Precision phenomenology at multi-TeV muon colliders

*Tuesday, 8 July 2025 15:00 (1 hour)*

**Presenter:** PAGANI, Davide (INFN, Bologna (IT))

Contribution ID: 35

Type: **not specified**

## **The neutrino content of the muon**

*Wednesday, 9 July 2025 11:00 (1 hour)*

**Presenters:** GAROSI, Francesco (SISSA); GAROSI, Francesco

Contribution ID: **36**

Type: **not specified**

## **Partons and muons**

*Thursday, 10 July 2025 11:00 (1 hour)*

**Presenter:** RUIZ, Richard (Institute of Nuclear Physics (IFJ) PAN)

Contribution ID: 37

Type: **not specified**

## **New developments in the Whizard event generator or work in progress**

*Thursday, 10 July 2025 15:00 (1 hour)*

**Presenter:** REUTER, Juergen (DESY Hamburg, Germany)

Contribution ID: 38

Type: **not specified****Discussion: "muCol for precision: do we need it? can we attain it? only at low energy stages?"***Wednesday, 9 July 2025 15:00 (1h 30m)*

**Presenters:** WULZER, Andrea (IFAE and ICREA – Barcelona, Spain); ROSSER, Benjamin John (University of Chicago (US)); NEUFFER, David; PESKIN, Michael

Contribution ID: 39

Type: **not specified**

## Geant/Fluka shop intermediate meeting

*Friday, 11 July 2025 09:00 (9 hours)*

**Presenters:** CALZOLARI, Daniele (Universita e INFN, Padova (IT)); FRANCESCHINI, Roberto (Rome 3 U.)

Contribution ID: **40**

Type: **not specified**

## **Gong show**

*Monday, 14 July 2025 15:30 (30 minutes)*

Contribution ID: 41

Type: **not specified**

## Intro to BSM week

*Monday, 14 July 2025 16:00 (44 minutes)*

**Presenter:** MEADE, Patrick

Contribution ID: 42

Type: **not specified**

## **Muon collider probes of Majorana neutrino dipole moments and masses**

*Tuesday, 15 July 2025 11:00 (1 hour)***Presenters:** VIGNAROLI, Natascia; VIGNAROLI, Natascia; VIGNAROLI, Natascia

Contribution ID: 43

Type: **not specified**

## **Registration for newcomers**

*Monday, 14 July 2025 09:00 (3 hours)*

Contribution ID: 44

Type: **not specified**

## Exploring the Flavor Symmetry Landscape

*Tuesday, 15 July 2025 15:00 (1 hour)*

**Presenter:** GLIOTI, Alfredo (IPhT)

Contribution ID: 45

Type: **not specified**

## Z'boson mass reach and model discrimination at muon colliders

*Wednesday, 16 July 2025 11:00 (1 hour)*

**Presenters:** LOESCHNER, Maximilian; LOESCHNER, Maximilian (CERN)

Contribution ID: 46

Type: not specified

## Electroweak scattering at the muon shot and the EWfit

*Thursday, 17 July 2025 11:00 (1 hour)*

**Presenter:** WANG, Xing (Università and INFN Roma Tre)

Contribution ID: 47

Type: **not specified**

## **Discussion on BSM at muCol: Keys to unlock BSM at muCol. Why 10 TeV? Energy or Precision for BSM? Neutrino and BSM?**

*Wednesday, 16 July 2025 15:00 (2 hours)*

**Presenters:** WULZER, Andrea (IFAE and ICREA – Barcelona, Spain); QUIGG, Chris (Fermi National Accelerator Lab. (US)); PESKIN, Michael; KITANO, Ryuichiro

Contribution ID: **48**

Type: **not specified**

## **Villa il Gioiello**

*Thursday, 17 July 2025 15:00 (1h 30m)*

Contribution ID: 49

Type: **not specified**

## **Higgs-muon interactions at a multi-TeV muon collider**

*Friday, 18 July 2025 11:00 (1 hour)*

**Presenter:** Dr MA, Yang (UCLouvain)

Contribution ID: 50

Type: **not specified**

## Probing the Origin of Neutrino Mass at Future Muon Collider

*Friday, 18 July 2025 15:00 (1 hour)*

**Presenter:** DEV, Bhupal (Washington University in St. Louis)

Contribution ID: 51

Type: **not specified**

## Introduction: What is the muon collider?

*Monday, 21 July 2025 11:00 (1 hour)*

**Presenter:** WULZER, Andrea (IFAE and ICREA – Barcelona, Spain)

Contribution ID: 52

Type: **not specified**

## The importance of synergy

*Monday, 21 July 2025 15:00 (1 hour)*

**Presenter:** KITANO, Ryuichiro

Contribution ID: 53

Type: **not specified**

## Lepton Flavor Violation

*Tuesday, 22 July 2025 10:00 (1 hour)*

**Presenter:** CALIBBI, Lorenzo (Nankai University)

Contribution ID: 54

Type: **not specified**

## **Muon cooling and experiments at PSI**

*Tuesday, 22 July 2025 11:00 (1 hour)*

**Presenter:** PAPA, Angela

Contribution ID: 55

Type: **not specified**

## **Muon cooling demonstrator for the muon collider**

*Tuesday, 22 July 2025 14:30 (1 hour)*

**Presenter:** NEUFFER, David

Contribution ID: **56**

Type: **not specified**

## **MuTristan**

*Tuesday, 22 July 2025 15:30 (1 hour)*

**Presenter:** MATSUDO, Ryutaro

Contribution ID: 57

Type: **not specified**

## High-intensity experiments with kaons

*Wednesday, 23 July 2025 15:00 (1 hour)*

**Presenters:** MOULSON, Matthew David; MOULSON, Matthew (INFN e Laboratori Nazionali di Frascati (IT))

Contribution ID: 58

Type: **not specified**

## **Report from Fluka/Geant working group (remote)**

*Wednesday, 23 July 2025 16:00 (1 hour)*

Contribution ID: 59

Type: **not specified**

## Dark matter and leptons

*Friday, 25 July 2025 11:00 (1 hour)*

**Presenters:** OKAWA, Shohei (ICCUB, Universitat de Barcelona); OKAWA, Shohei (ICC, University of Barcelona); OKAWA, Shohei (ICCUB); Dr OKAWA, Shohei (University of Victoria); OKAWA, Shohei (KEK)

Contribution ID: **60**Type: **not specified**

## Dark sectors with TeV scale muon beams

*Wednesday, 23 July 2025 10:00 (1 hour)*

**Presenters:** TROJANOWSKI, Sebastian; TROJANOWSKI, Sebastian (National Centre for Nuclear Research, Poland); TROJANOWSKI, Sebastian

Contribution ID: **61**

Type: **not specified**

## Discussion

*Wednesday, 23 July 2025 17:00 (1 hour)*

Contribution ID: **62**

Type: **not specified**

## Discussion

*Tuesday, 22 July 2025 16:30 (1 hour)*

Contribution ID: 63

Type: **not specified**

## The synergy between neutrinos and muon (collider) physics

*Thursday, 24 July 2025 10:00 (1 hour)*

**Presenter:** QUIGG, Chris (Fermi National Accelerator Lab. (US))

Contribution ID: 64

Type: **not specified**

## DUNE+SAND

*Thursday, 24 July 2025 11:00 (1 hour)*

**Presenter:** STANCO, Luca (Universita e INFN, Padova (IT))

Contribution ID: 65

Type: **not specified**

## Using neutrinos for PDFs at muon collider

*Thursday, 24 July 2025 15:00 (1 hour)*

**Presenter:** MORALES ALVARADO, Manuel

Contribution ID: **66**

Type: **not specified**

## **Invisible jets from forward neutrinos**

*Wednesday, 23 July 2025 11:00 (1 hour)*

**Presenter:** Dr REDIGOLO, Diego (CERN-INFN Florence)

Contribution ID: **67**

Type: **not specified**

## Discussion

*Thursday, 24 July 2025 17:00 (1 hour)*

Contribution ID: **68**Type: **not specified**

## High-intensity experiments with kaons

**Presenters:** MOULSON, Matthew David; MOULSON, Matthew (INFN e Laboratori Nazionali di Frascati (IT))

Contribution ID: 69

Type: **not specified**

## Neutrinos, their properties and muons

*Thursday, 24 July 2025 16:00 (1 hour)*

**Presenters:** VIGNAROLI, Natascia; VIGNAROLI, Natascia; VIGNAROLI, Natascia

Contribution ID: **70**

Type: **not specified**

## **Ship, SND, and physics at high-intensity**

*Friday, 25 July 2025 10:00 (1 hour)*

**Presenter:** MIKULENKO, Oleksii (Leiden University (NL))

Contribution ID: 71

Type: **not specified**

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Contribution ID: 72

Type: **not specified**

## Discussion

*Friday, 25 July 2025 12:00 (1 hour)*

Contribution ID: 73

Type: **not specified**

**TBC**

Contribution ID: 74

Type: **not specified**

## What do we learn from colliders?

*Monday, 28 July 2025 15:00 (50 minutes)*

**Presenter:** QUIGG, Chris (Fermi National Accelerator Lab. (US))

Contribution ID: 75

Type: **not specified**

## Gongs

*Monday, 21 July 2025 16:00 (1 hour)*