Muon Physics WG Introduction

WG4 conveners:
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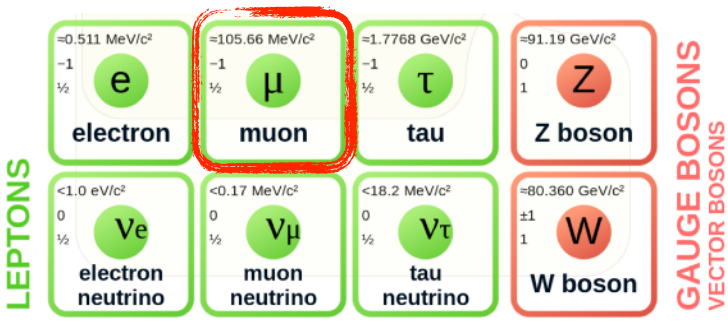
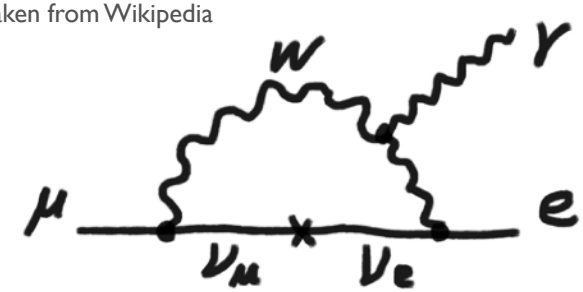
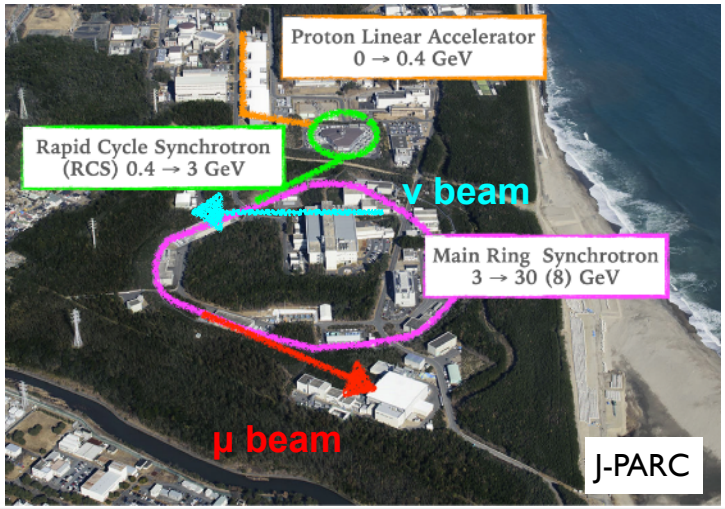
Why μ in NuFact?

- **Physics**
  - Same lepton family in the SM
  - LFV, mass ordering, ν mass origin
- **Beam-lines & facilities**
  - Neutrino source = Muon source
    - PIP-II @ Fermilab, MR @ J-PARC
    - Future projects
- **Technologies**
  - Targetry
  - Detectors
  - Future muon storage ring (= muon collider and more)
  - Etc..



Taken from Wikipedia





Plenary Talks

- 1 talk on Tuesday (Joint with WG3)

New suggestion from China for the new muon beam-ling building plan	*Nikolaos Vassilopoulos*
Natural Science Lecture Center (building-28), Seoul National University, Korea	12:15 - 12:40

- 3 talks on Wednesday

New result **from g-2 @Fermilab !**

Muon g-2 and other precision measurements	*Matteo Sorbara*
Natural Science Lecture Center (building-28), Seoul National University, Korea	08:30 - 08:55
Muon CLFV and g-2 theories	*Dr Innes Bigaran*
Natural Science Lecture Center (building-28), Seoul National University, Korea	08:55 - 09:20
Muon CLFV experiments	*Satoshi Mihara*
Natural Science Lecture Center (building-28), Seoul National University, Korea	09:20 - 09:45

Parallels

- 1.5 CLFV sessions
- 1 g–2 session
- 1 collider and precision measurement session
- 1 WG3–WG4 joint session
- 1 WG4–WG5 joint session ☜ New!
- 0.5 WG4–WG6 joint session

Parallel Talks on Tuesday

CLFV session 14:00 - 16:00

Searching for physics beyond the Standard model with the MEG II Experiment at PSI	AM Baldini
Status of Mu3e Phase 1	M Müller
The Mu2e Experiment at Fermilab	S Boi
COMET Muon conversion experiment at J-PARC	MJ Lee

WG3 + WG4 Joint session 16:30 - 18:30

High purity and high brightness muon beam for next generation muon-electron conversion experiments	A Sato
Update on the targetry and bealines of MELODY	N Vassilopoulos
High - Intensity Muon Beams (HIMB) project or how to improve the most intense continuous muon source in the world	GD Maso
Status of the ultra-slow muon beamline at J-PARC MUSE	S Kanda
Progress in design of a muon source for muon to electron conversion based on an FFA ring - PRISM	J Pasternak

Parallel Talks on Friday morning

CLFV, WG4 + WG6 joint session 9:00 - 10:30

Status of the DeeMe experiment to search for the muon to electron conversion at J-PARC MLF	Y Higashino
COMET Phase-Alpha Experiment to Investigate COMET's New Muon Beamline at J-PARC	C Wu
Development of a muon entrance detector for the muEDM experiment at PSI	GM Wong

Muon g-2 session 11:00 - 12:30

Beam dynamics corrections to measurements of the muon anomalous magnetic moment	KS Khaw
Measurement of the precession magnetic field in the Fermilab Muon g−2 experiment	S Corrodi
Measurement of the muon anomalous precession frequency in the Fermilab muon g−2 experiment	P Girotti
Status of muon g-2/EDM experiment at J-PARC	Y Okazaki

Parallel Talks on Friday afternoon + Posters

WG4 + WG5 joint session (New in this year) 14:00 - 16:00

Complementarity of low- and high-energy probes for lepton flavour physics	M Schmidt
Vector leptoquark $U3$: A possible solution to the recent discrepancy between NOvA and T2K results on CP violation	R Mohanta
Charged lepton flavor violation for a probe to the neutrino masses and their hierarchy	M Yamanaka

Collider LFV/LFU + Muon precision measurements 16:30 - 18:30

Search for a muon EDM at PSI using the frozen-spin technique	L Morvaj
Recent LFV Results From CMS	Y Kim
Muonium and Muonic Helium Hyperfine Structure Precision Measurements at J-PARC MUSE	P Strasser
Recent results on flavour physics from LHCb	F Dordei

Posters

Proposal for multi-stage cooling of muon beams	S Kanda
Study of Beam Effects for Muon Entrance Detector for the muEDM Experiment at PSI	JK Ng

Summary

- Why muons?
  - We share a lot with neutrinos!
  - 3 joint sessions in this workshop
- WG4 covers many different topics related to muons
  - **4** plenary talks, **24** parallel talks, **2** posters
- This year's special topic; g−2 → Plenary on Wednesday by Matteo Sorbara, four related parallels on Friday
- Even more to come, hear more details in WG4 related talks