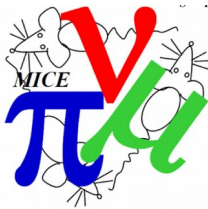


# **System papers**

S. Wilbur - P. Franchini

MICE Analysis Workshop  
April, 13 2018

# Introduction



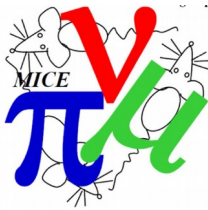
- Two system papers in preparation

The MICE Analysis and User Software Framework	D. Rajaram	Apr18 w/s	
Performance of the MICE diagnostic systems	S. Wylbur/P. Franchini		Apr18 w/s
Muon Ionization Cooling Experiment (h/w)	C. Whyte/P. Franchini		Apr18 w/s
The MICE Initial Technical Design Report	C. Whyte/P. Franchini		Apr18 w/s

K.L. - 12/4 VC

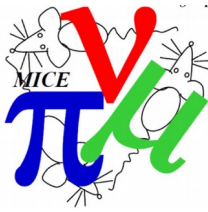
- Performance of the MICE diagnostic systems
  - Muon Ionization Cooling Experiment
- Target journal: JINST?

# Muon Ionization Cooling Experiment



- Description of the apparatus
- Hardware constructed for the cooling demo
  - Conceptual design (K. Long)
  - Magnetic channel (A. Bross)
  - Focus coils (J. Cobb)
  - Absorbers (C. Whyte, A. Bross)
  - Cavities and RF systems (K. Ronald)
  - Control and monitoring (A. Kurup)
  - **Detector systems (various)**
  - Data acquisition (D. Rajaram)
  - Operations (S. Boyd)

# Performance of the MICE diagnostic systems



- Detectors
- Detector alignment
- Beam optics
- PID
- Track matching
- Cooling channel magnets
- Absorbers

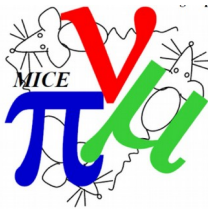
# TOFs



- Authors:
  - Maurizio: hardware description
  - Viktor and Scott:
    - performances (few issues to be solved)
    - stability from Step I till Step IV
    - importance of the TOFs in many analysis

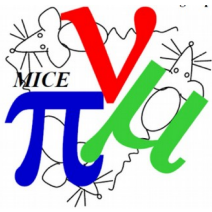
# Cherekov

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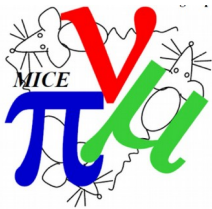


- Authors:
  - Lucien and David: hardware description
  - Efficiency plots: Tanaz has some code

# KL



- Authors:
  - Domizia: hardware description
  - Marian: performances on data



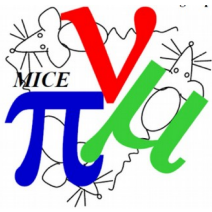
# Tracker

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- Authors:
  - Melissa, Paul K., Chris H.
- Performance of the tracker during Step IV
- Tracker resolution in magnetic field
- Structure of the contribution been defined



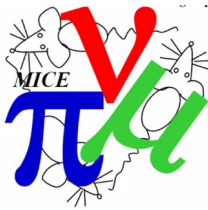
# EMR



- Author: Francois
- Update of the paper studies on Step IV data

# Detector alignment

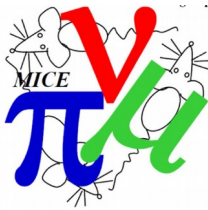
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- Author: Francois
- MICE Note reviewed by Paul K.
- Contribution needs to be on the data

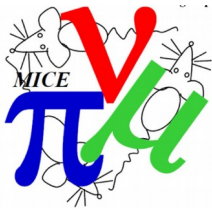
# Beam line optics

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- Melissa: diffuser study
- Tom: study of the target pion generation
- MC

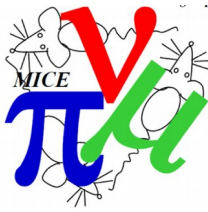
# PID



- Authors:
  - Melissa, Scott

# Track matching

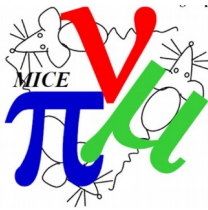
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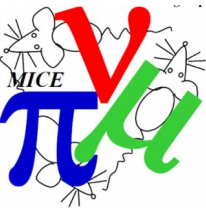
- Authors:
  - Melissa, Chris R.
- Globals are been used in several analysis
  - How are they used
  - Common characteristics and performances

# Cooling channel magnets

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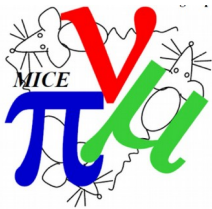
- Joe: magnets field mapping
  - Improvement of the MAUS model
  - Systematic studies
- Beam based magnets alignment: ?



# Absorber

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- Ajits study on the LiH absorber to improve the MC
- Scott study on the energy loss to validate the MC



# Conclusion

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- Materials updated on GitHub
- [https://micewww.pp.rl.ac.uk/projects/analysis/wiki/Publications\\_WIP#System-Performance-Paper](https://micewww.pp.rl.ac.uk/projects/analysis/wiki/Publications_WIP#System-Performance-Paper)