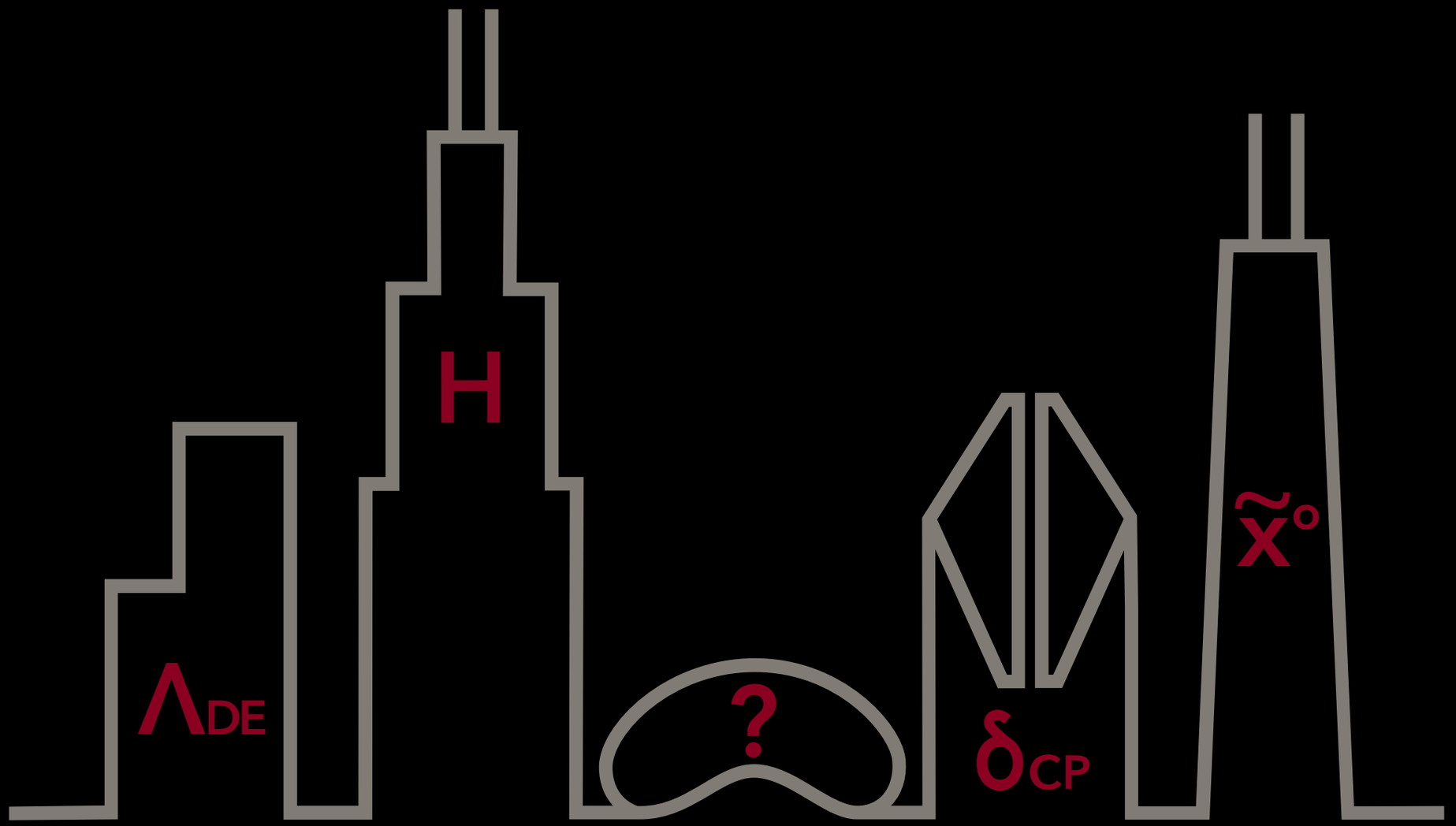
Elevator
Poster Presentations



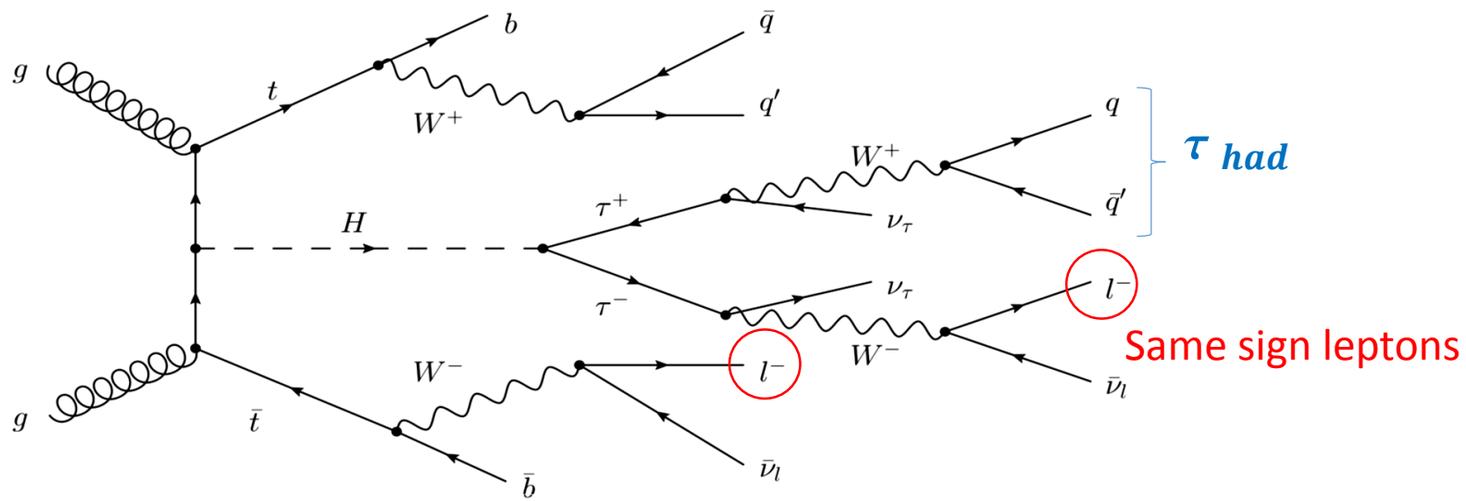
ICHEP2016CHICAGO

Babar Ali

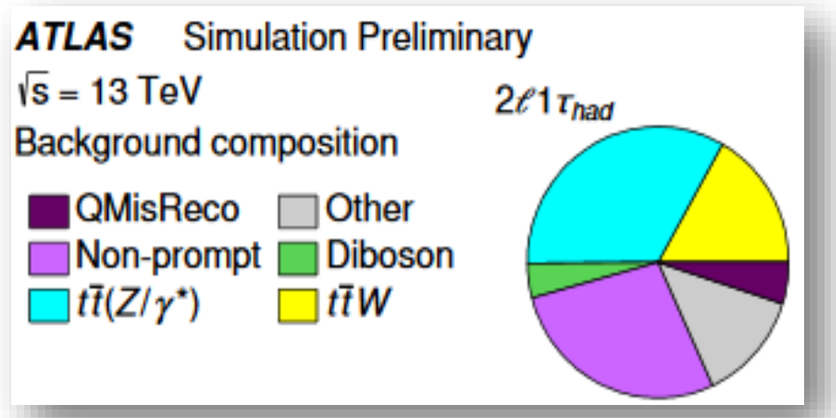
Institute of Experimental And Applied Physics
Czech Technical University

Search for $t\bar{t}H$ production in $2l + 1\tau_{had}$ channel at $\sqrt{}13$ TeV with the ATLAS experiment

Babar Ali on behalf of the ATLAS collaboration

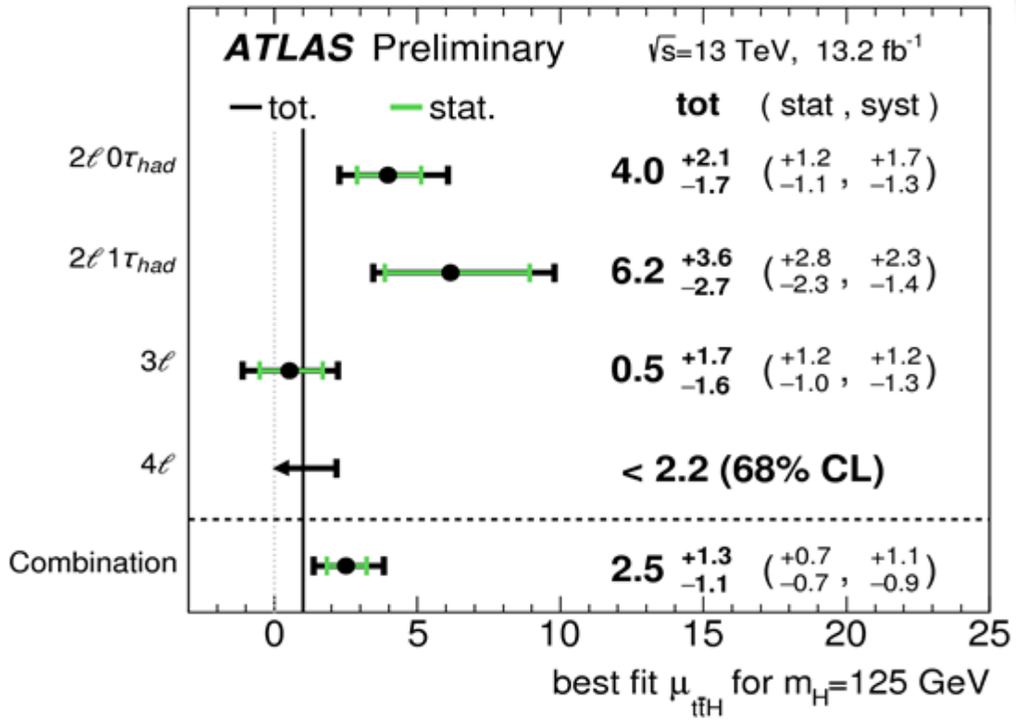


Same sign leptons



- **Fake background estimation**
  (ABCD) Method

	2 Tight Leptons	1 Tight Lepton 1 Loose Lepton
Njet >= 4	**A**	**B**
Njet {2, 3}	**C**	**D**



Best Fit $\mu = \frac{\sigma^{t\bar{t}H}}{\sigma^{t\bar{t}H}_{SM}} = 2.5^{+1.3}_{-1.1}$

ATLAS-CONF-2016-58

https://indico.cern.ch/event/432527/contributions/1072245/

Brenda Fabela

Universidad Autónoma de Zacatecas

The REDTOP experiment

Brenda Fabela – Universidad Autónoma de Zacatecas

The physics

η/η' factory, *K* and *μ* beams

Decay products not expected or suppressed at the 10^{-11} level

~ 10^{12} *η* / 10^{10} *η'* per year

Symmetry violations

- CP Violation
- CP and C Violation (Dalitz plot)
- T Violation
- CPT Violation
- Single and double lepton flavor violation

Searches for new particles and forces

- True muonium
- Dark photons
- Leptoquarks
- New scalar particles
- New baryonic forces

Further studies

- Proton radius anomaly
- High precision studies on physics BSM
- Nuclear and intermediate energy physics

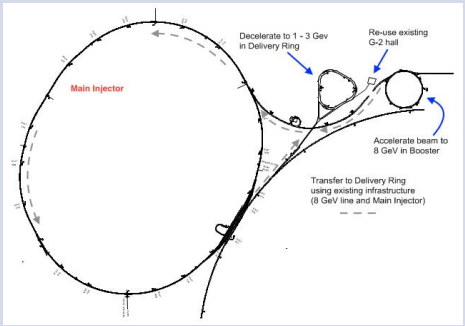
The experiment

New experiment proposed at Fermilab

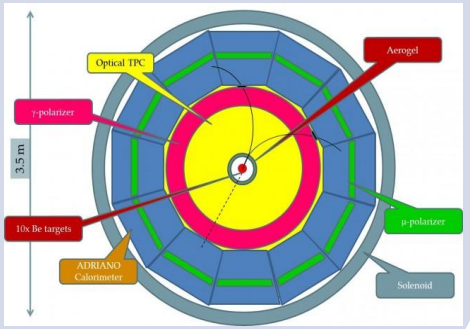
High intensity class – preparing for PIP-II

Fixed target

Novel detector technologies mostly based on Cherenkov light



The accelerator



The detector

38th INTERNATIONAL CONFERENCE ON HIGH ENERGY PHYSICS
AUGUST 3 - 10, 2016
CHICAGO
ICHEP2016CHICAGO

Further details @ redtop.fnal.gov or visit our poster!

Christine McLean
University of California, Davis
CMS Collaboration

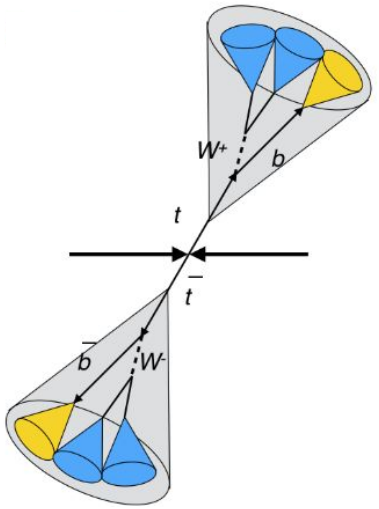
Search for High-Mass $t\bar{t}$ Resonances at CMS

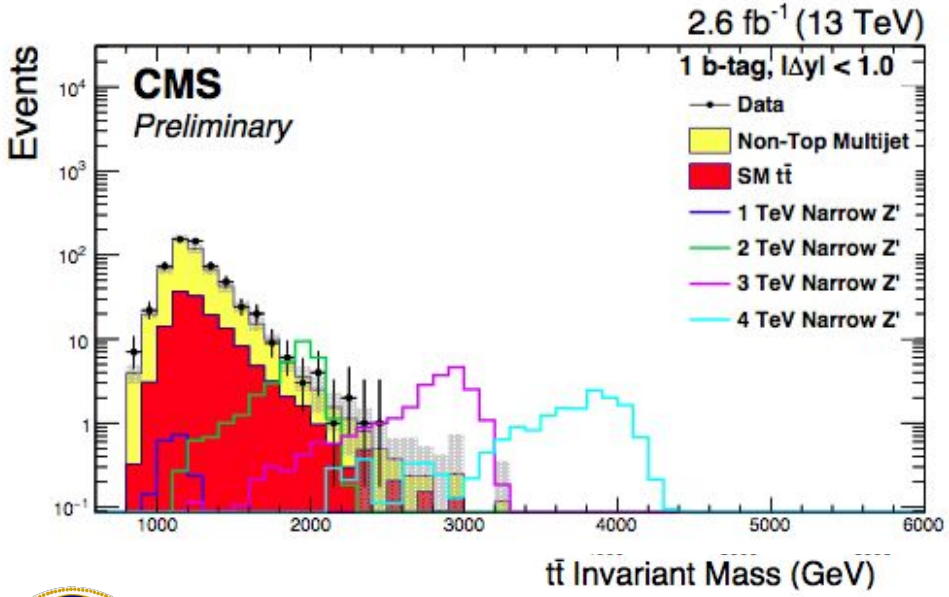
Christine McLean, UC Davis; on behalf of the CMS Collaboration

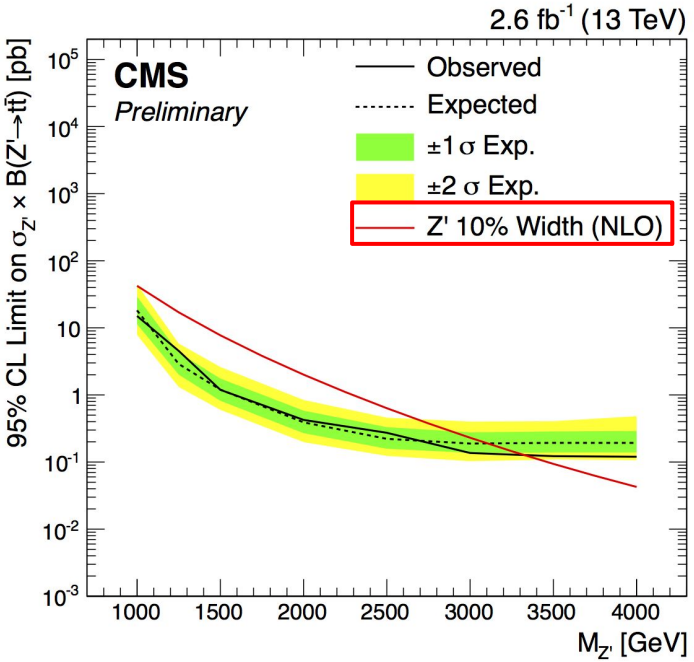
CMS-PAS-B2G-15-002, CMS-PAS-B2G-15-003

- New physics search: **Z' → $t\bar{t}$**
- Limits set with $M_{t\bar{t}}$ spectrum
  - No excess observed!
  - Already improving upon 8 TeV results!

Boosted Tops!







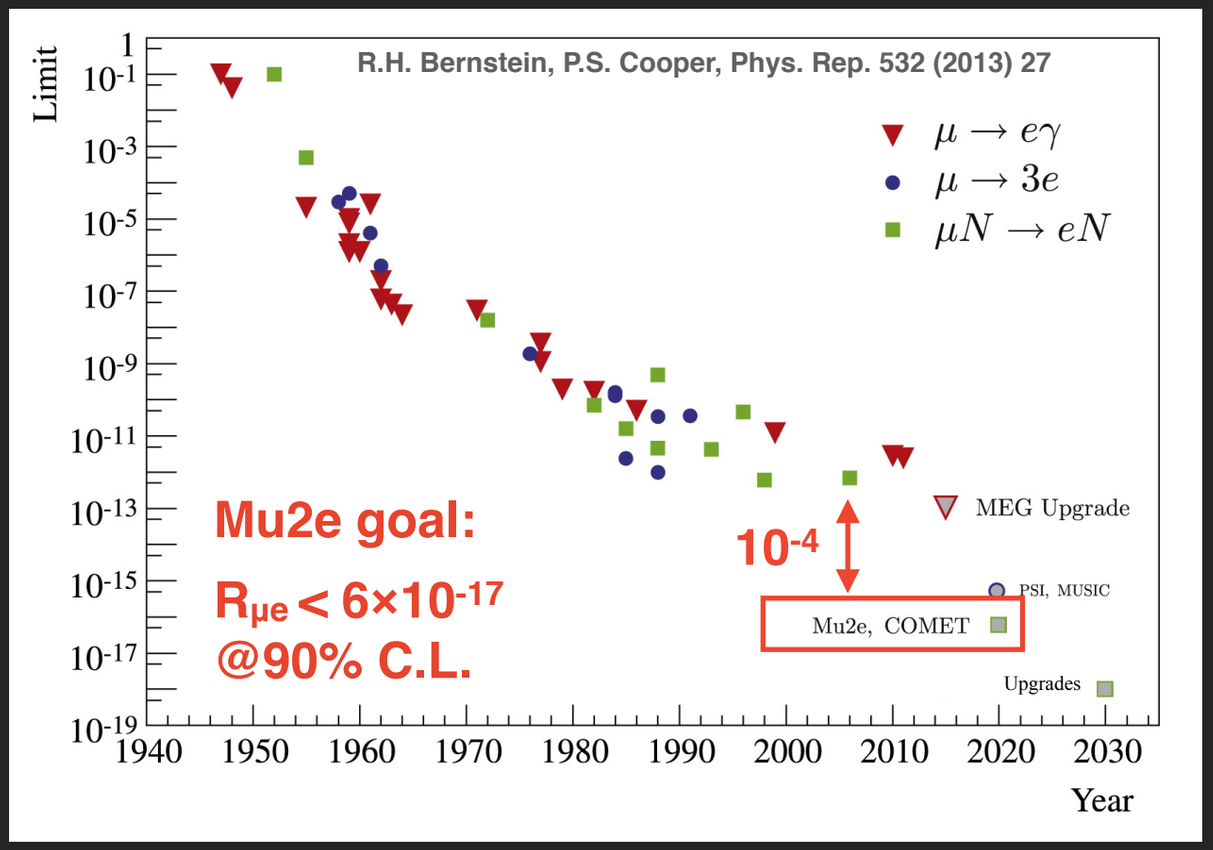
See poster for more decay channels!

Federica Bradascio

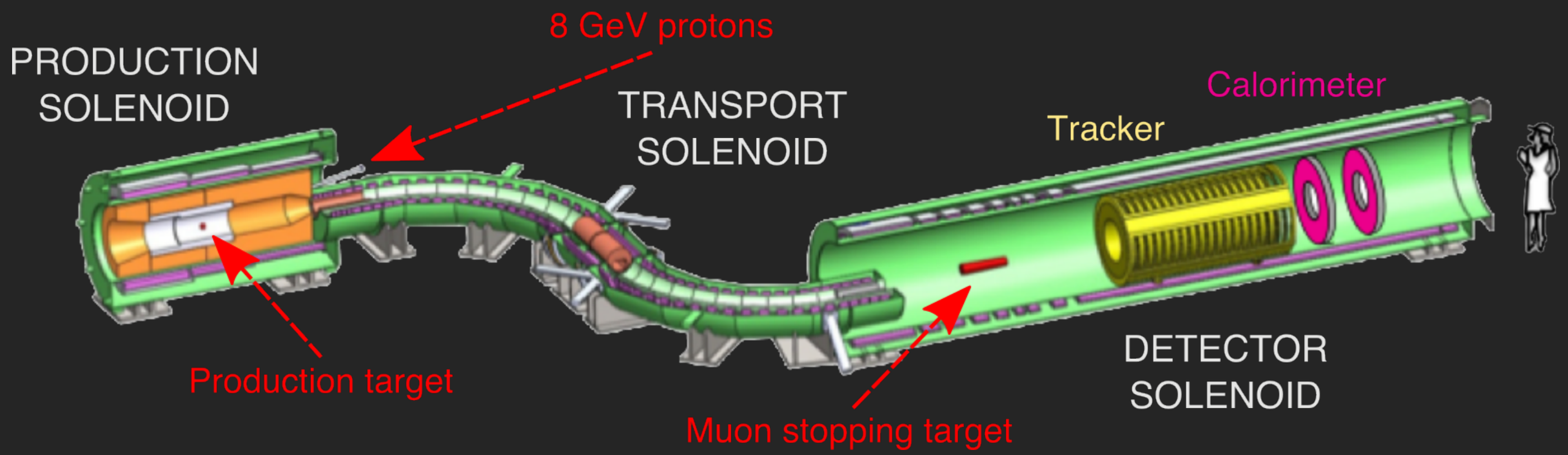
University of Pisa
Mu2e Collaboration

Studies of the impact of magnetic field uncertainties on the physics parameters of the Mu2e experiment

Federica Bradascio, University of Pisa, on behalf of the Mu2e Collaboration



- Mu2e will search for muons changing into electrons with no neutrinos involved, with a sensitivity 10^4 better than the current World's best limit
- Mu2e solenoid system is designed to provide the most intense muon beam in the World
- My work was to study how tiny misalignments in a 13 m long superconducting solenoid can be found and how they can affect the field, thus the signal and backgrounds of the experiment

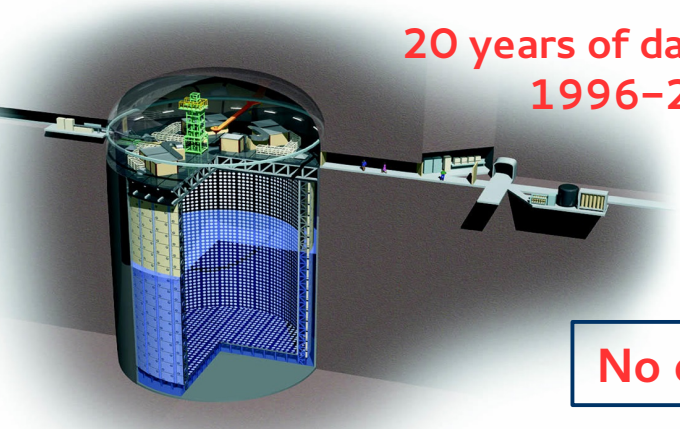


Katarzyna
Frankiewicz

National Centre
for Nuclear Research, Poland

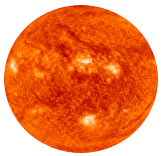
Dark Matter searches with the Super-Kamiokande detector

Katarzyna Frankiewicz
National Centre for Nuclear Research



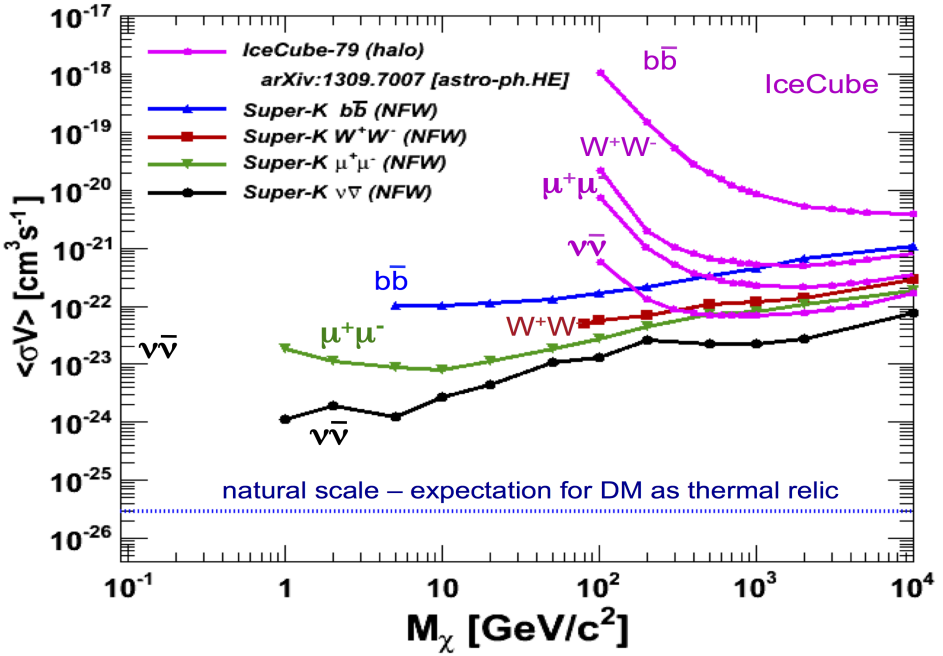
20 years of data taking !!!
1996–2016

Looking for excess of DM induced ν's from the Milky Way, Sun or Earth core

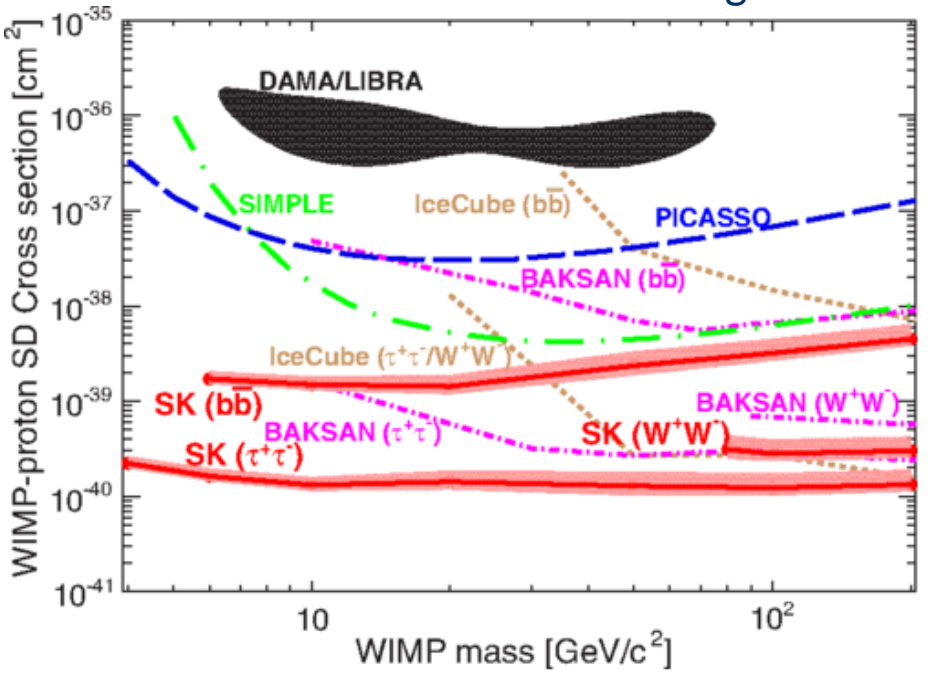




No excess has been observed as compared to atmospheric ν bkg

90% CL limits on DM self-annihilation x-section



90% CL limits on WIMP-nucleon scattering x-section



- wide range of tested DM masses
- unique sensitivity for low energies
- various DM annihilation channels considered

Learn more: arXiv:1503.0485, arXiv:1510.07999
http://www.fuw.edu.pl/~kfrankiewicz/ichep.pdf
Contact: katarzyna.frankiewicz@ncbj.gov.pl

Menglei Sun

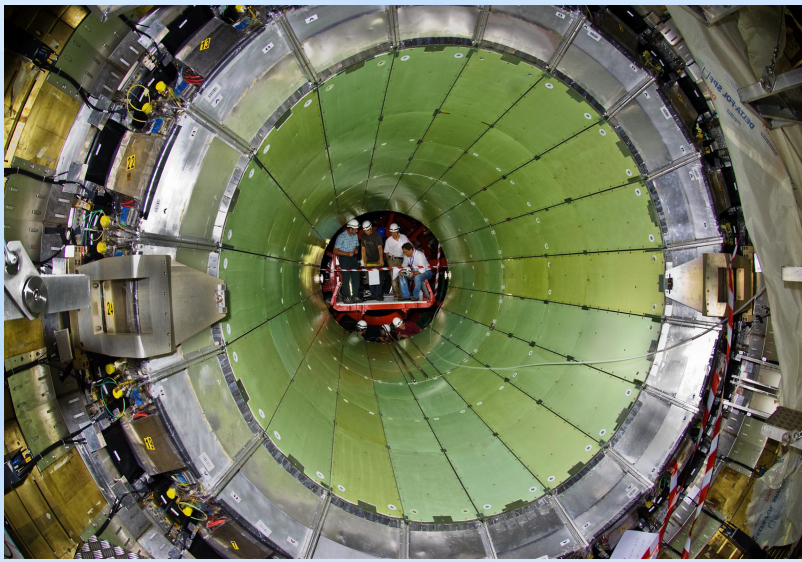
Carnegie Mellon University
CMS Collaboration

Achieving the optimal performance of the CMS ECAL in Run II

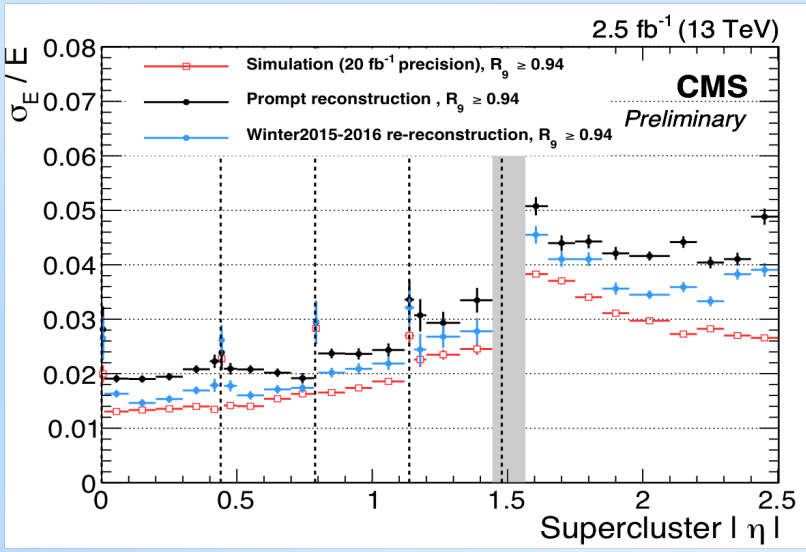
Menglei Sun on behalf of the CMS Collaboration
Carnegie Mellon University

- **The CMS electromagnetic calorimeter (ECAL) is made of 75,848 $PbWO_4$ crystals.**

  Its performance relies on:
  - **precise calibration**
  - **accurate reconstruction**
  - **good alignment**



- **The ECAL has achieved excellent performance in Run II:**
  energy resolution for unconverted photons is 1.4 ~ 3% in the barrel, and 3~4% in the endcaps.



Sean Dobbs

Northwestern University

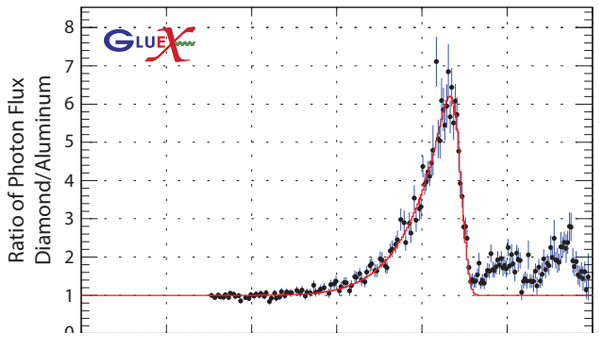
The GlueX Experiment at Jefferson Lab

Sean Dobbs (Northwestern U.) for the GlueX Collaboration

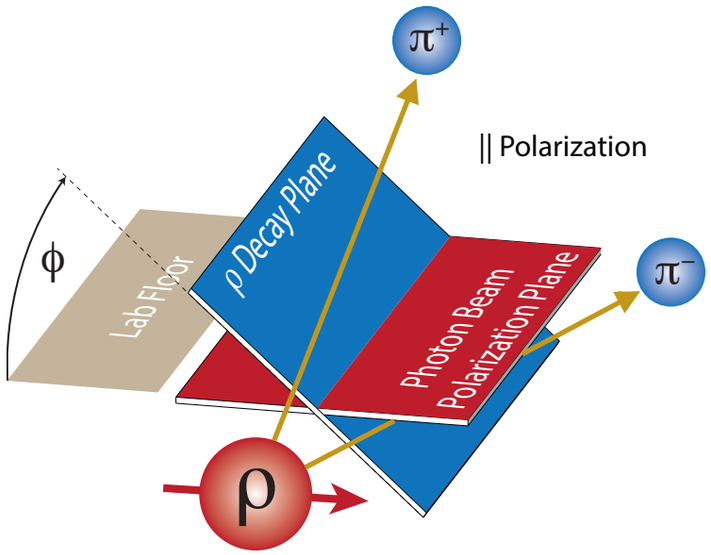
GLUEX

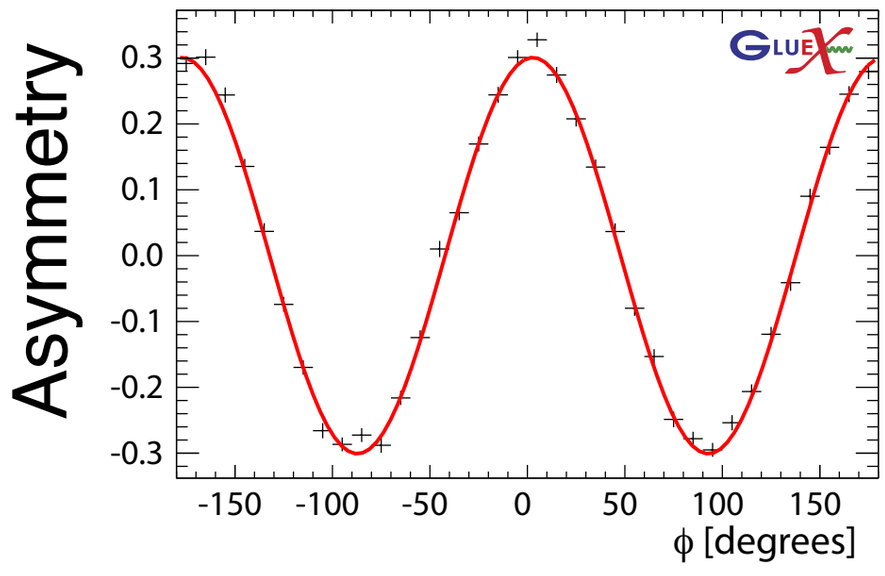
Photoproduction of hybrids, light-quark mesons, strangeonia, and more!

Polarized Photons



E(γ) = 4 8 12 GeV





GlueX has finished commissioning and is ready to take physics data in Fall 2016!

Initial measurements of $\gamma p \to \rho^0 p$, $\rho^0 \to \pi^+ \pi^-$ show large polarization transfer to ρ meson, with >10^3 times more data than previous measurements.

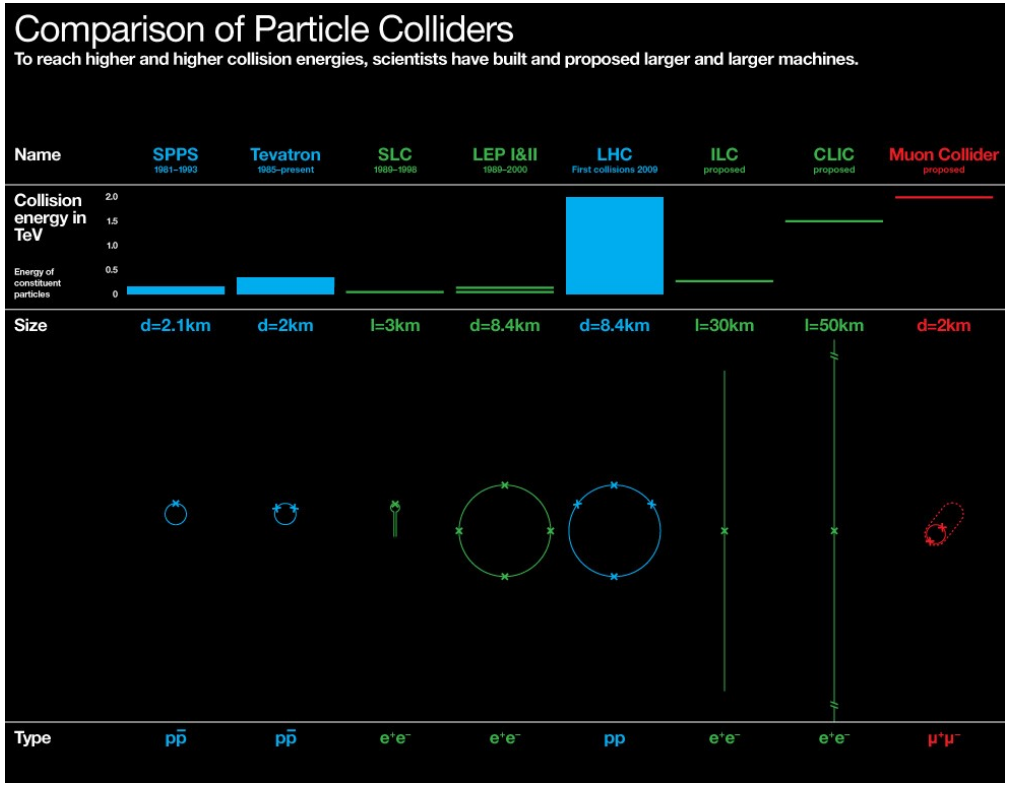
See poster this afternoon for more details! Also: http://gluex.org/ and https://www.jlab.org/Hall-D/

Tanaz Angelina Mohayai

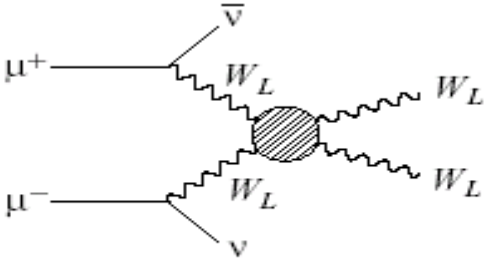
Illinois Institute of Technology

MICE Demonstration of Muon Ionization Cooling

Tanaz Angelina Mohayai

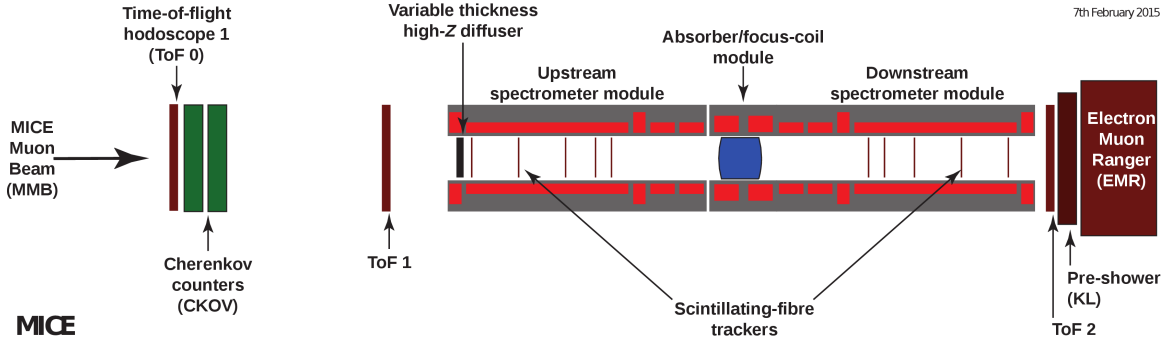


- **Muon Collider** & **Neutrino Factory**.
- Why **Muon Collider**?
  - e+e- machines radiatively limited as new-physics mass scale ↑. Muon Colliders more compact for a multi-TeV machine.



- Why **Neutrino Factory**?
  - **Intense flux** of muon-decay $\bar{\nu}_e$ and ν_μ in **equal numbers**.

- Challenge:
  - Pion-decay muon beam is **diffuse**.
- Solution:
  - **Muon Ionization Cooling Experiment** → **rapid beam cooling** – phase-space volume reduction – through **ionization energy loss of muons in material.**



References

"Neutrino beams from muon storage rings: Characteristics and physics potential", S. Geer (Fermilab). Dec 1997. 23 pp. Published in Phys.Rev. D57 (1998) 6989-6997, Erratum: Phys.Rev. D59 (1999) 039903

"Recent progress in neutrino factory and muon collider research within the Muon collaboration", Neutrino Factory and Muon Collider Collaboration, Mohammad M. Alsharoa (IIT, Chicago) et al.. 2002. 103 pp. Published in Phys.Rev.ST Accel.Beams 6 (2003) 081001

Status of muon collider research and development and future plans, Charles M. Ankenbrandt (Fermilab) et al.. Aug 1999. 95 pp. Published in Phys.Rev.ST Accel.Beams 2 (1999) 081001

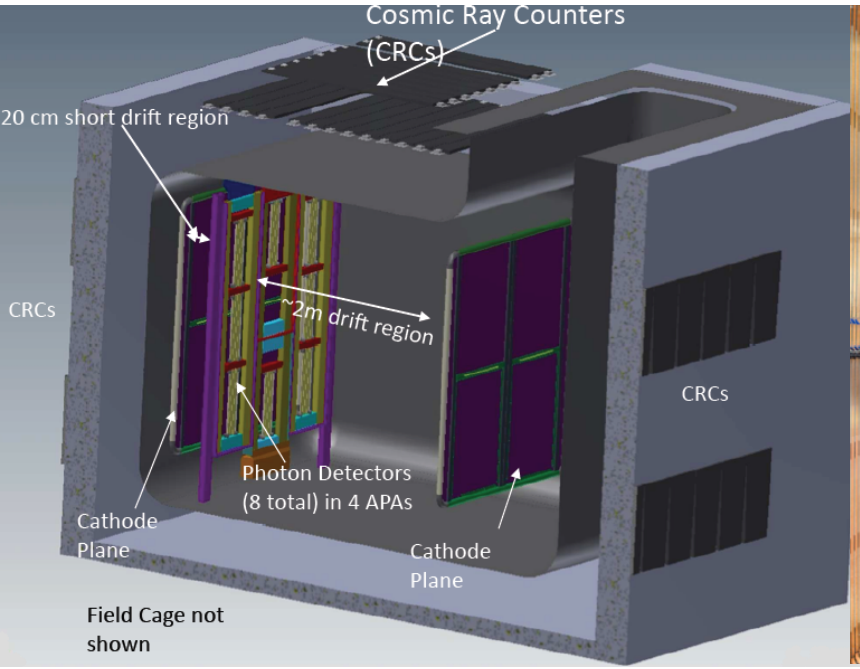
Karl Warburton

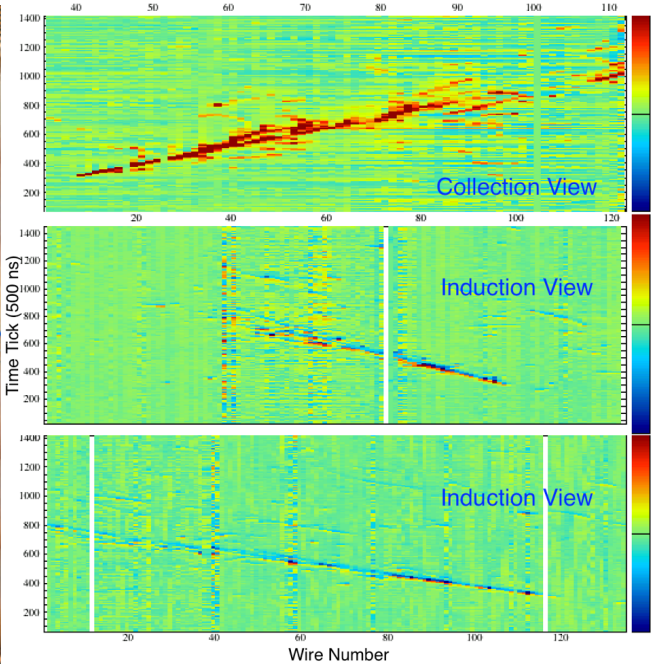
University of Sheffield
Dune Collaboration

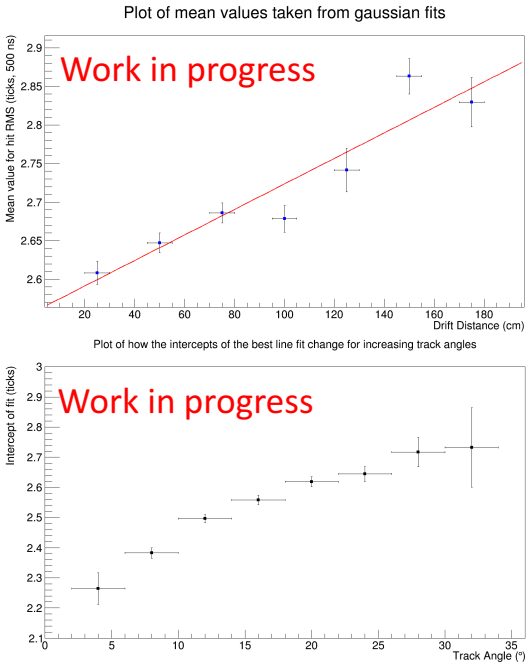
The design goals of the DUNE 35-ton Liquid Argon prototype and the first results from operation

Thomas Karl Warburton, University of Sheffield, for the DUNE collaboration

Poster 413 – shown on Saturday 6th August







- **The 35 ton is the first DUNE single phase LArTPC prototype and has many features of a full 10 kton module.**
- Run 1 showed membrane cryostat can hold high purity Lar
- Run 2 showed purity is not limited by detector components and that reconstruction is possible across multiple drift volumes.
- Many analyses underway including measuring the effect of electron diffusion in liquid argon which is the subject of my poster.
  - The Gaussian width of hits is observed to increase with drift distance and track angle, shown in the plots above.

Youngju Ko

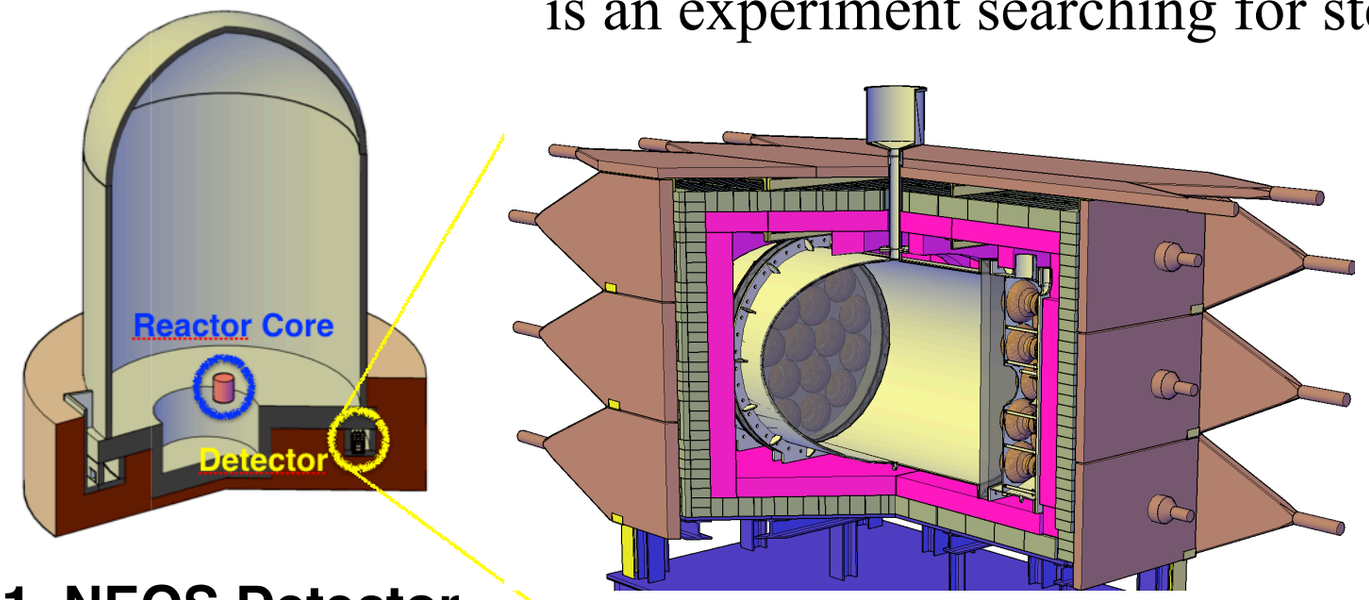
Chung-Ang University

ICHEP 2016 CHICAGO

NEOS Detector for Reactor Antineutrinos

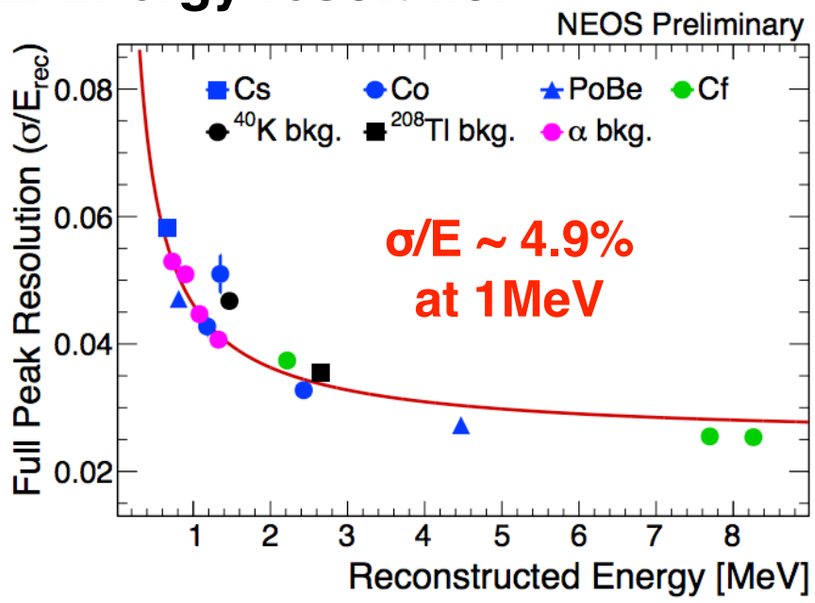
Youngju Ko on behalf of the NEOS Collaboration

NEOS-Neutrino Experiment for Oscillation at very Short baseline-
is an experiment searching for sterile neutrino.

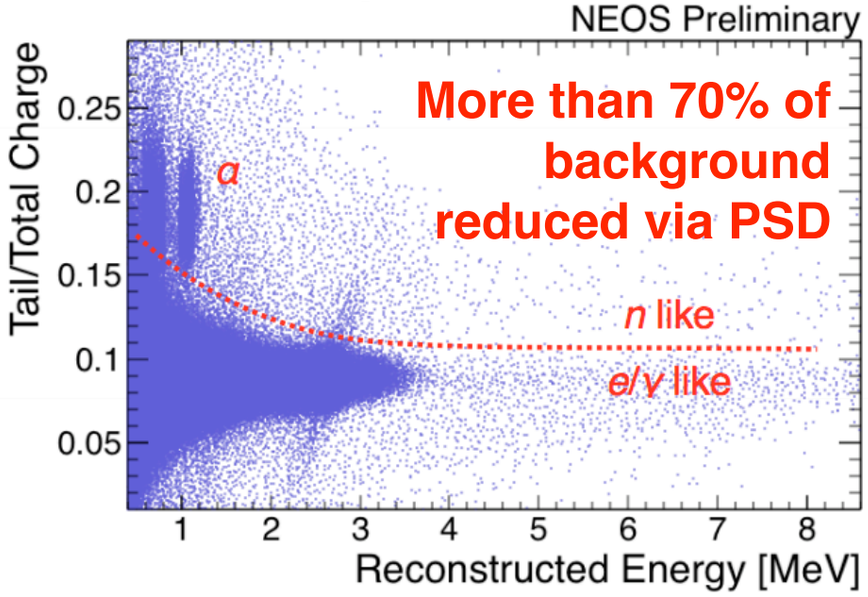


1. NEOS Detector

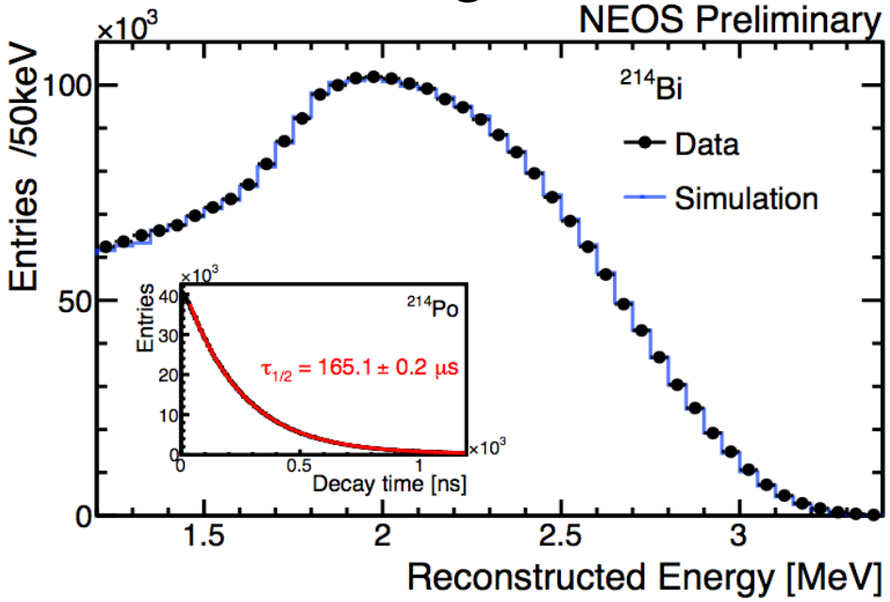
2. Energy resolution



3. Pulse Shape Discrimination



4. MC Tuning



Thank you to our speakers!

- Babar Ali
- Brenda Fabela
- Christine McLean
- Federica Bradascio
- Katarzyna Frankiewicz
- Menglei Sun
- Sean Dobbs
- Tanaz Angelina Mohayai
- Karl Warburton
- Youngju Ko