



# CCTVal

## Chilean HEP research at CERN



Sebastian Tapia, CCTVal  
14/11/2025



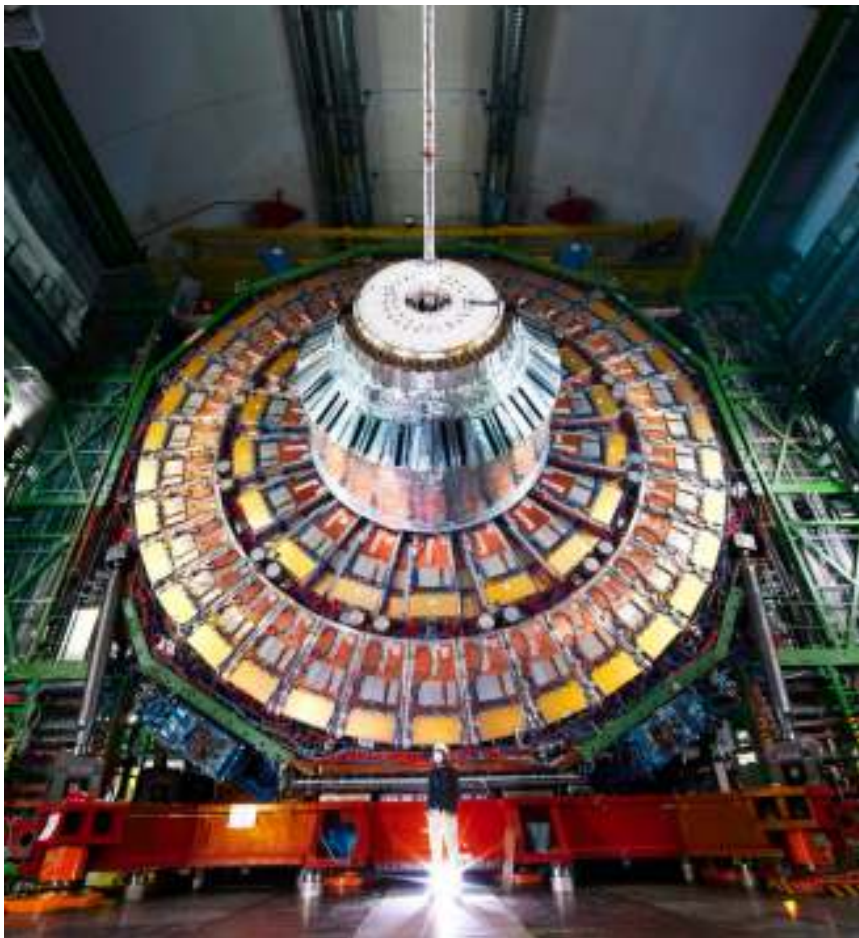
UNIVERSIDAD TECNICA  
FEDERICO SANTA MARIA



# CMS

Join in 2022

- One faculty, several students
- Research projects together with Fermilab
  - 4D tracking using LGAD
  - Data-Analysis
  - Students exchange
- >200.000 USD invested
- Looking to increase the local group, postdoc hiring, and PhD thesis





# ATLAS

- Join in 2007
- Many faculties; More than 100 students and engineers trained
- Participation in nSW construction, 33 sTGC modules
- Strong involvement in the Higgs, exotics, and heavy-ion group
- Institutional commitment to JetEtMiss for reconstruction software development
- Contribute to GRID Hosting a Tier2 cluster



# ATLAS - Today

## Main research areas and technical work:



### **Higgs boson and Dark matter**

Edson Carquin

Students: 1 PhD, 1 Ms, 1 Bs

#### **Technical work and service:**

- ATLAS DAQ/HLT System Run Coordinator
- ITk Strip Offline Software Contact



### **Top-Tagger ML development**

Raquel Pezoa

Students: 3 MS engenieurs

#### **Technical work and service:**

- JetEtMiss ML tagging research



### **Heavy-Ions physics**

Sebastian Tapia

Students: 2 PhD, 2 Ms, 1 Bs

#### **Technical work and service:**

- JetEtMiss software convener
- HI Jets convener
- HI software coordinator
- DP-Prompt Reconstruction Operation Coordination



### **Data Center and GRID**

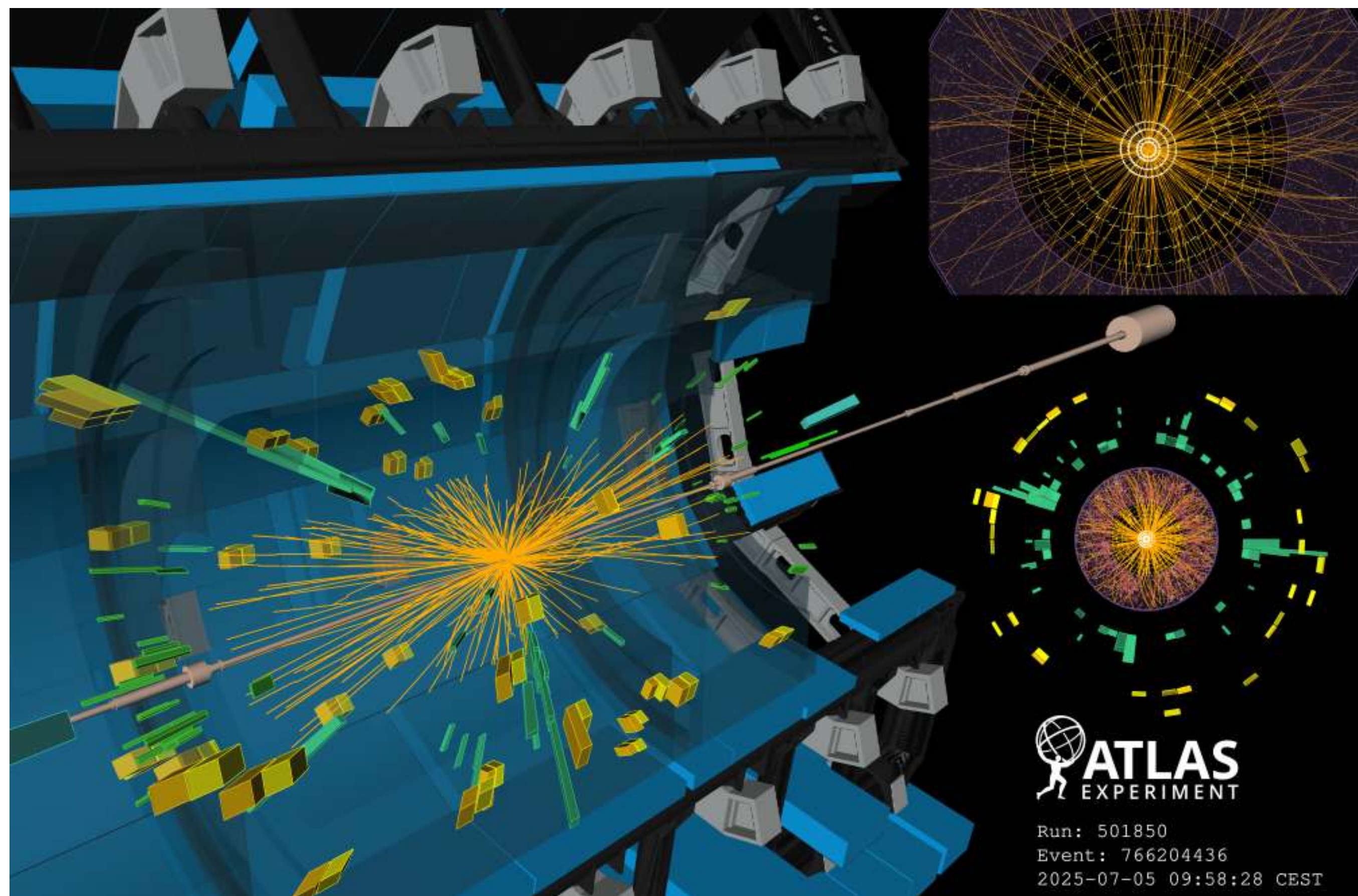
Dennis Juarez

#### **Technical work and service:**

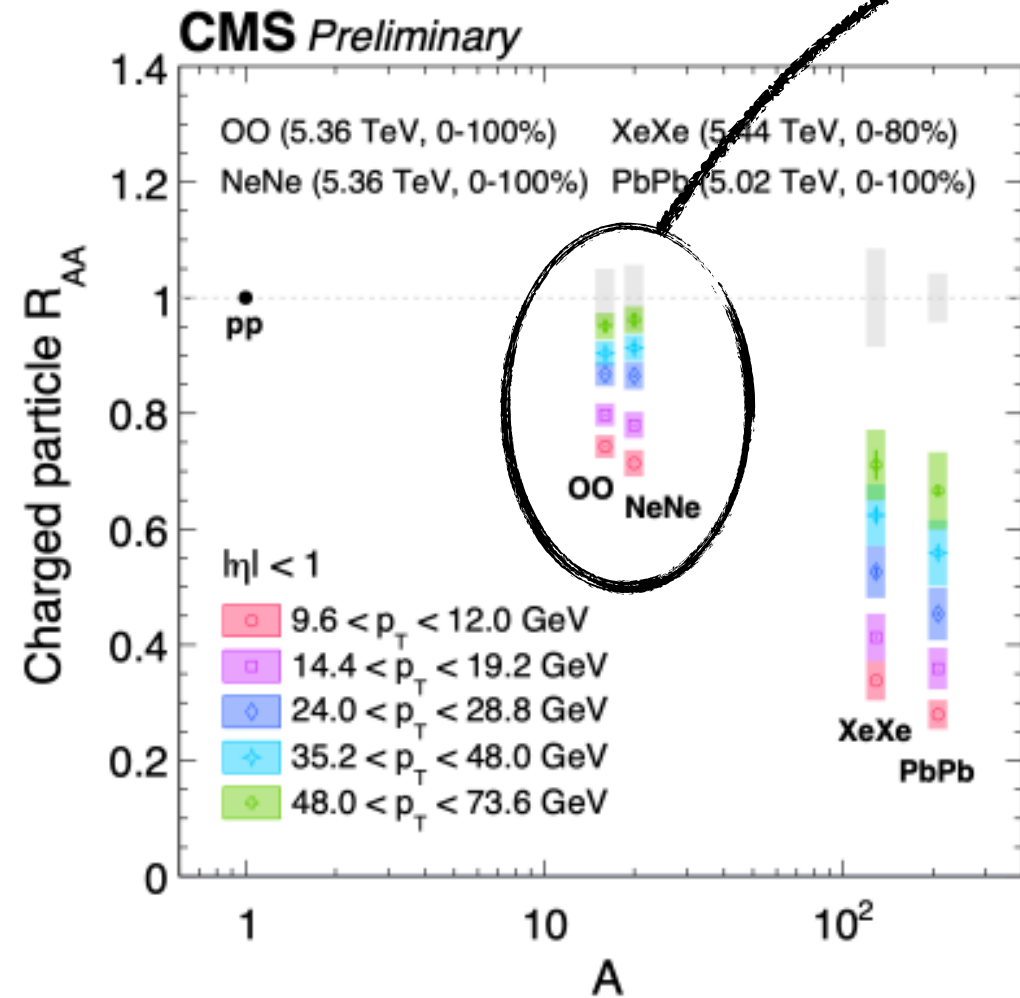
- Tier2 and GRID maintaince



# ATLAS - O+O collisions and incoming Pb+Pb



# ATLAS - Studies

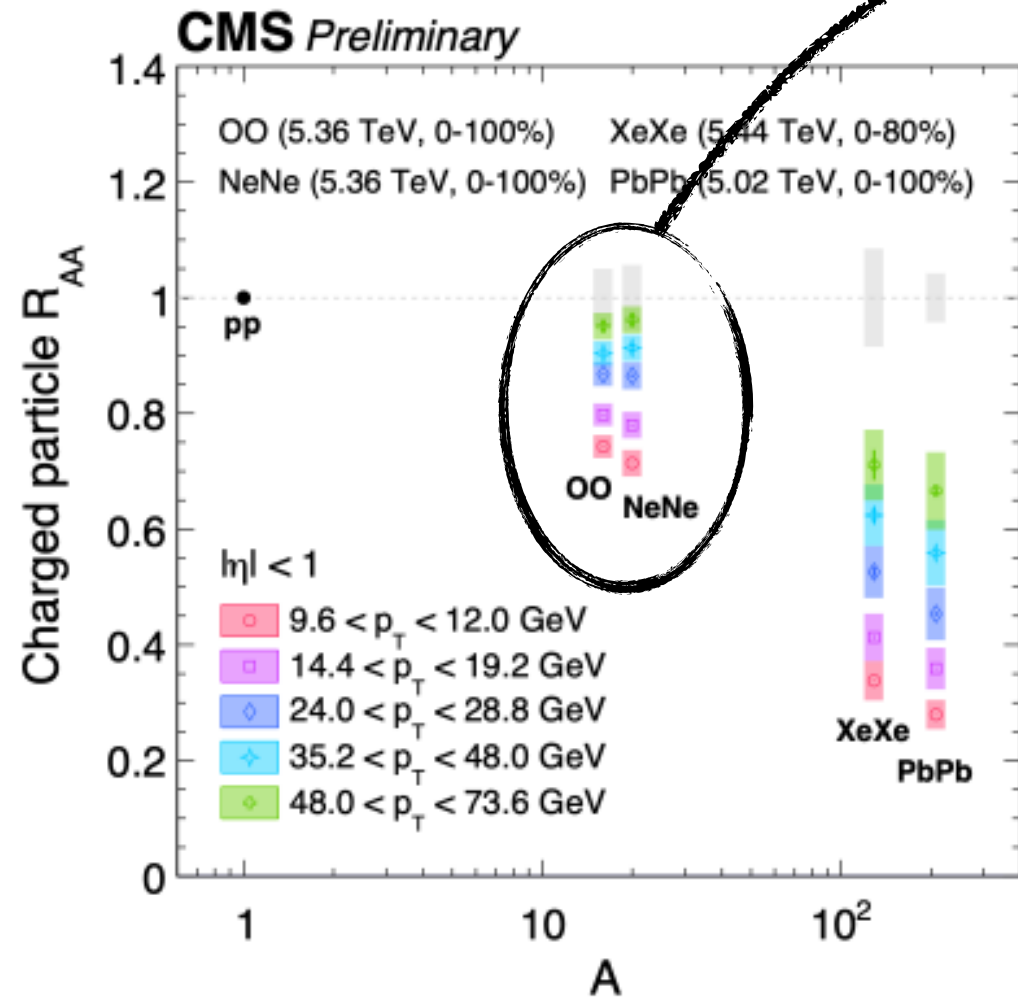


**Can Quark-Gluon-Plasma form in Oxygen collisions?**

- Long Range Correlation
- Jet Quenching (energy loss)
- $J/\psi$  dissociation (Debye screening)

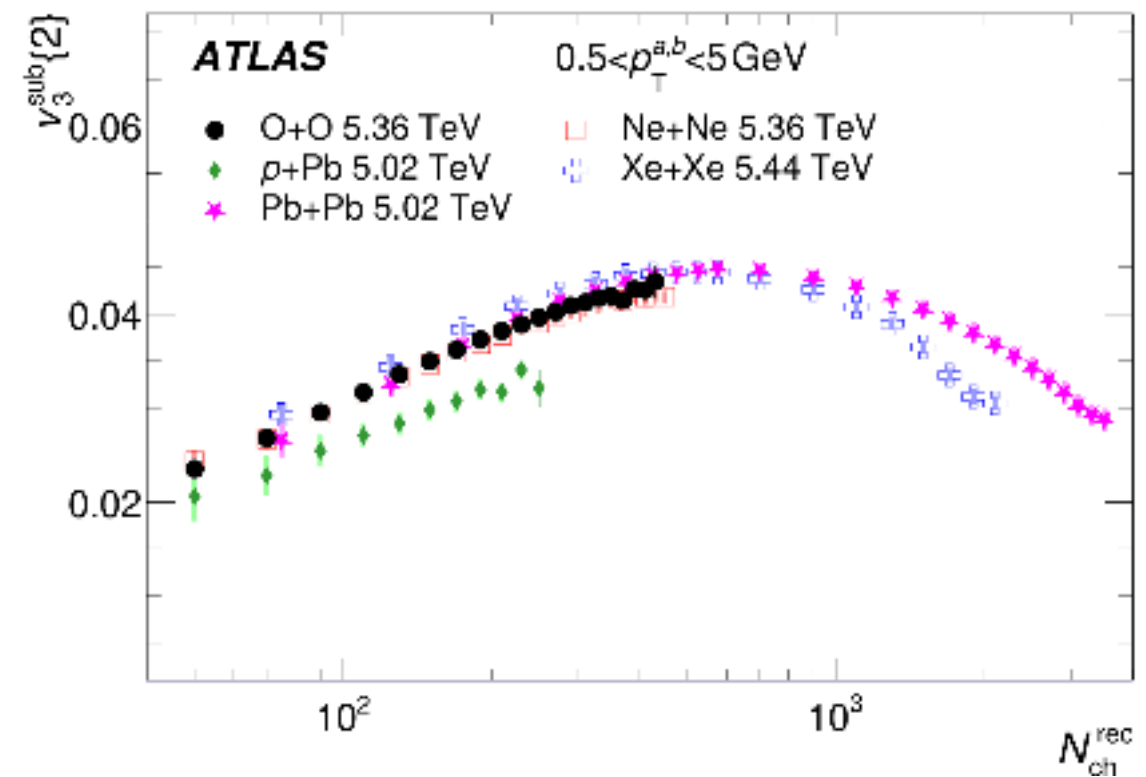
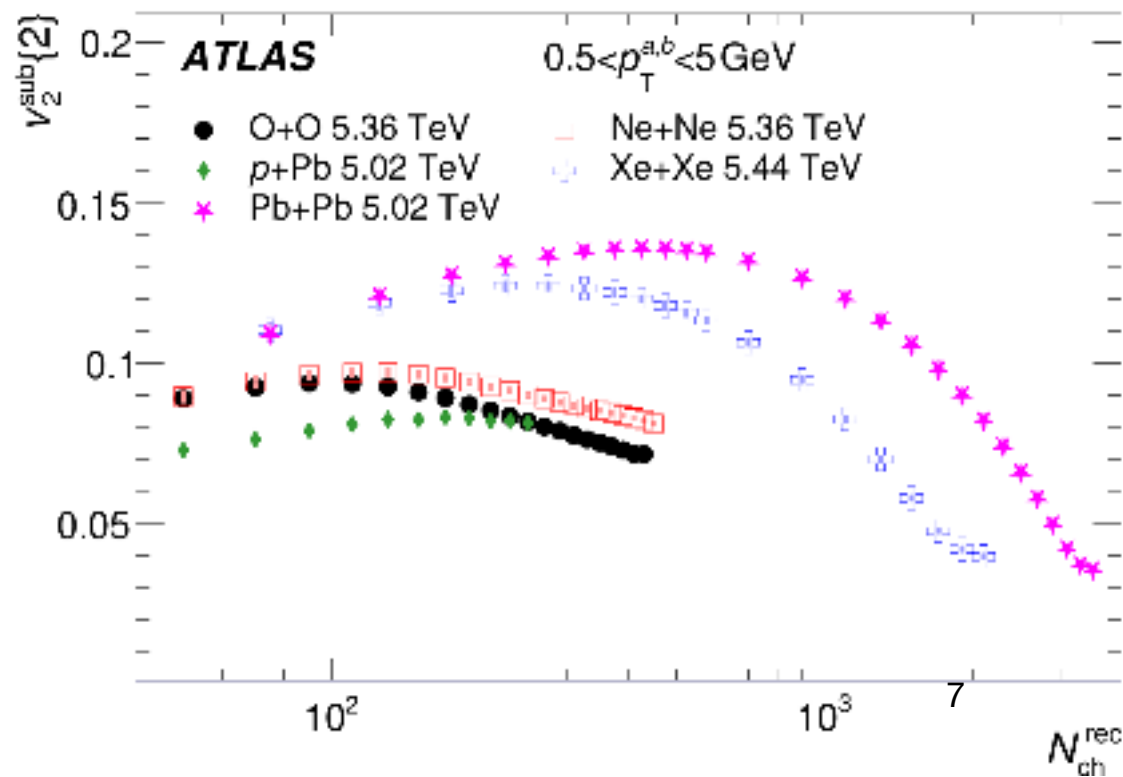
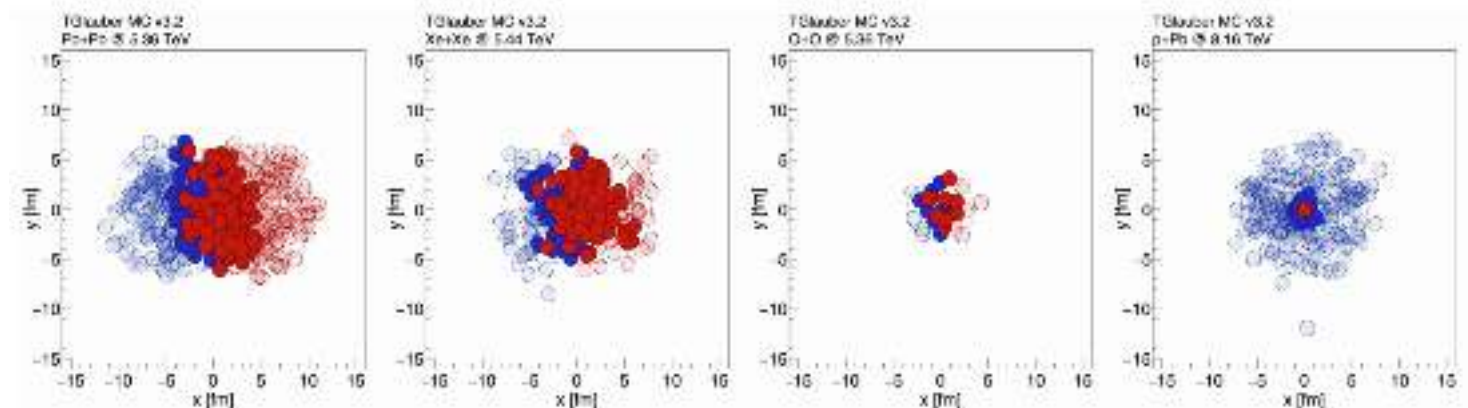


# ATLAS - Studies

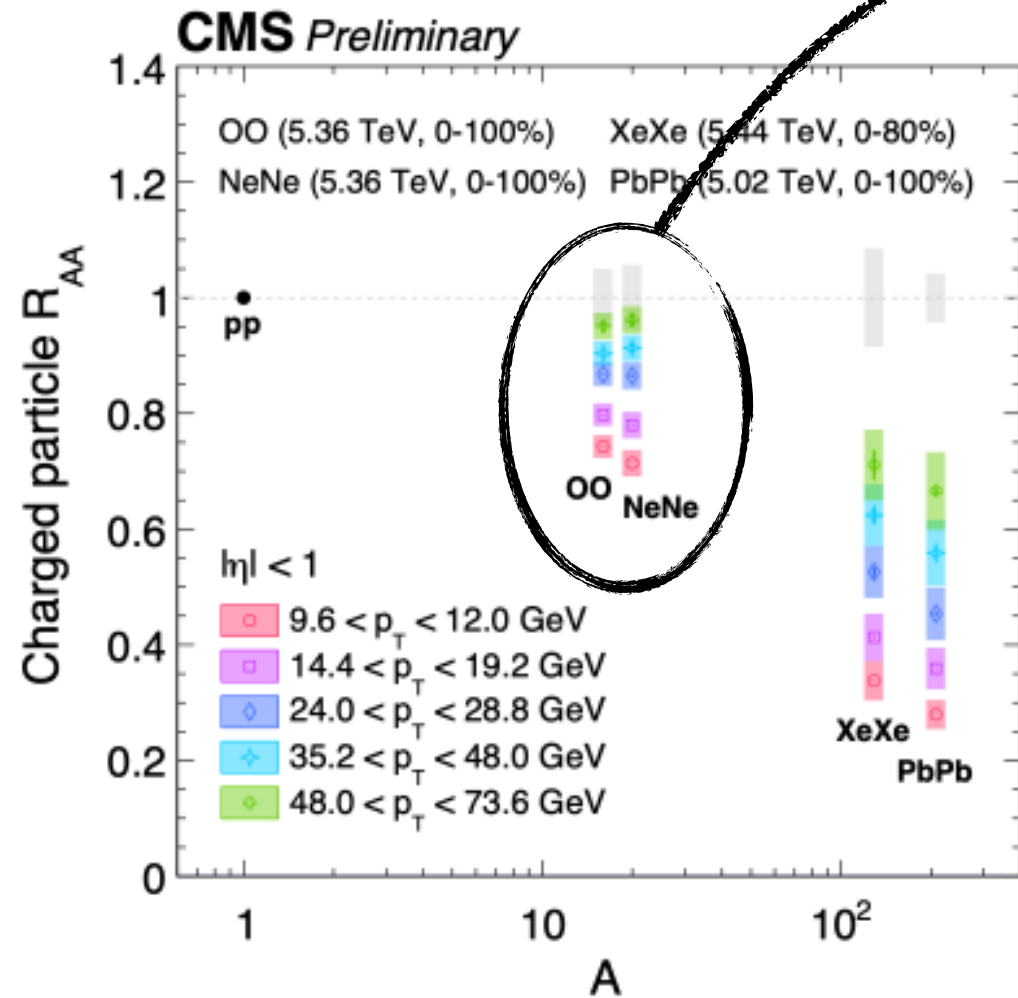


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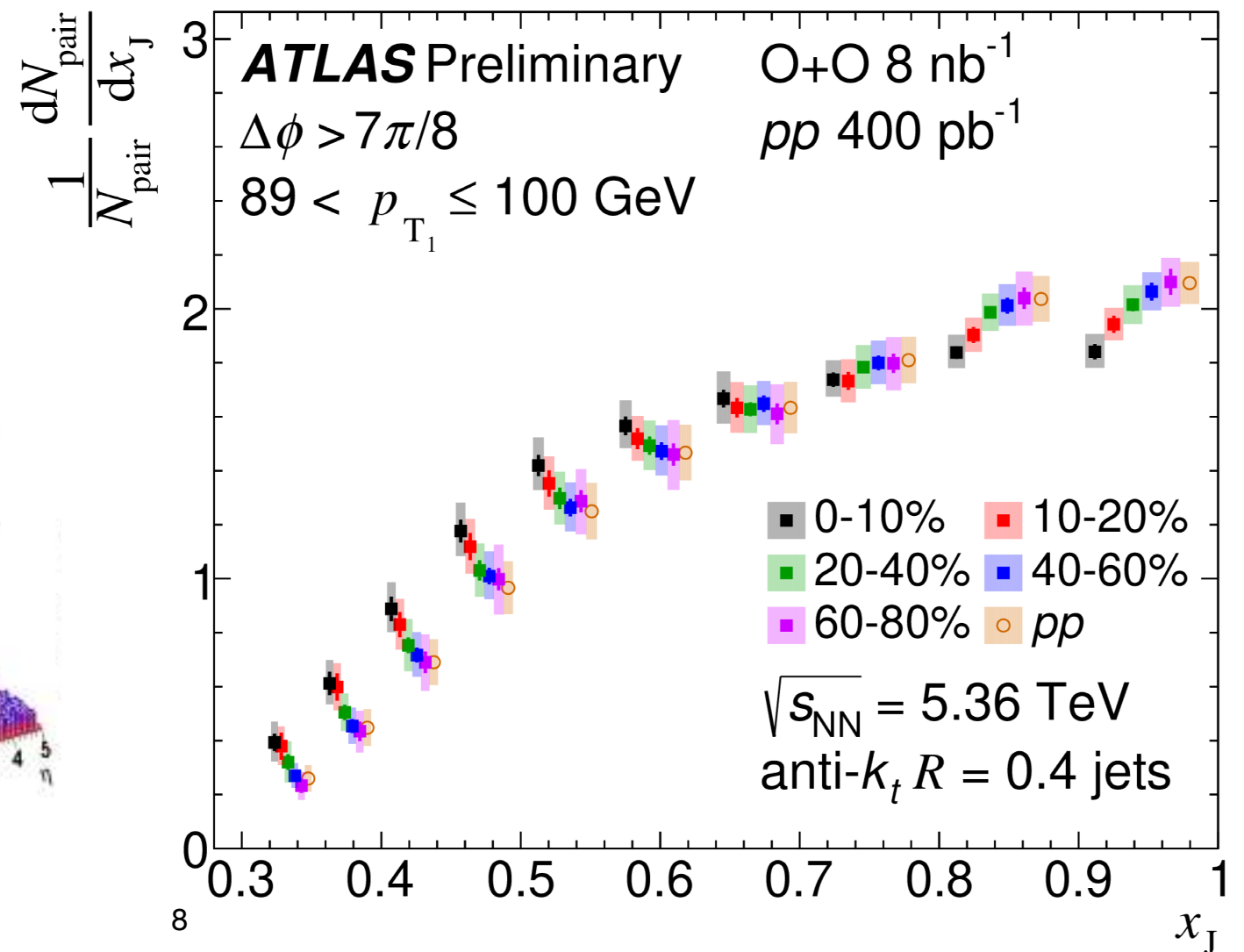
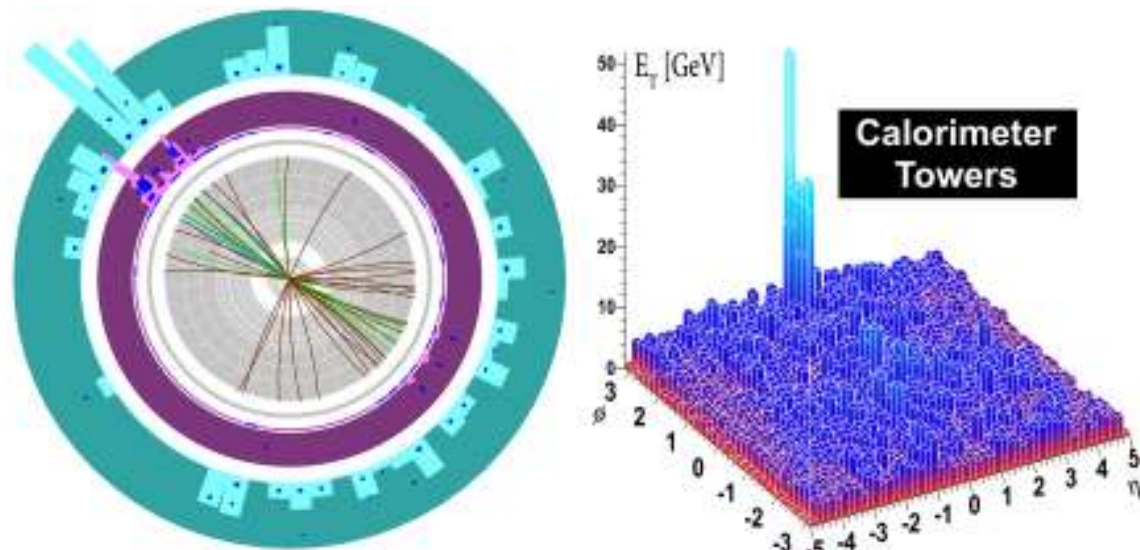


# ATLAS - Studies



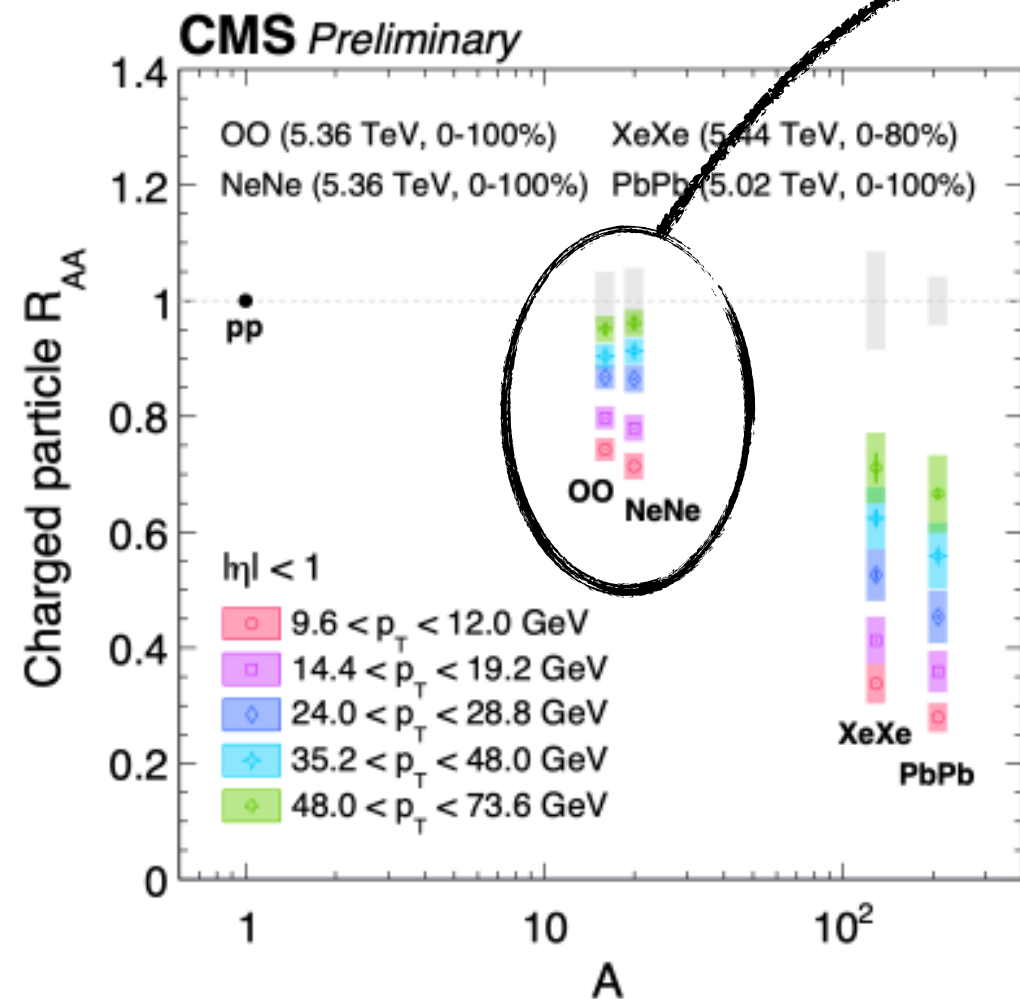
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# ATLAS - Studies



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Work in progress

# Thank you!

