UNIVERSIDAD SERGIO ARBOLEDA

REQUEST TO JOIN THE DUNE COLLABORATION

LUZ STELLA GÓMEZ FAJARDO

ON BEHALF OF THE UNIVERSITY SERGIO ARBOLEDA

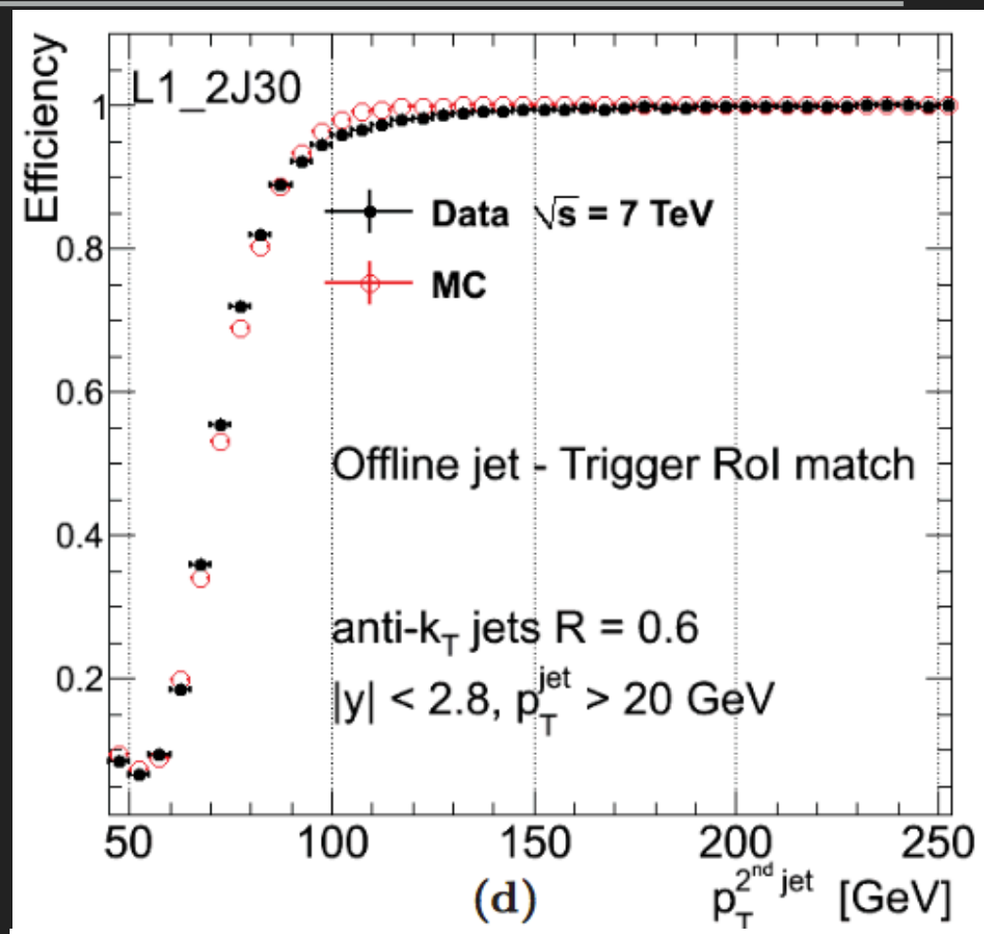
DUNE – IB MEETING, MAY

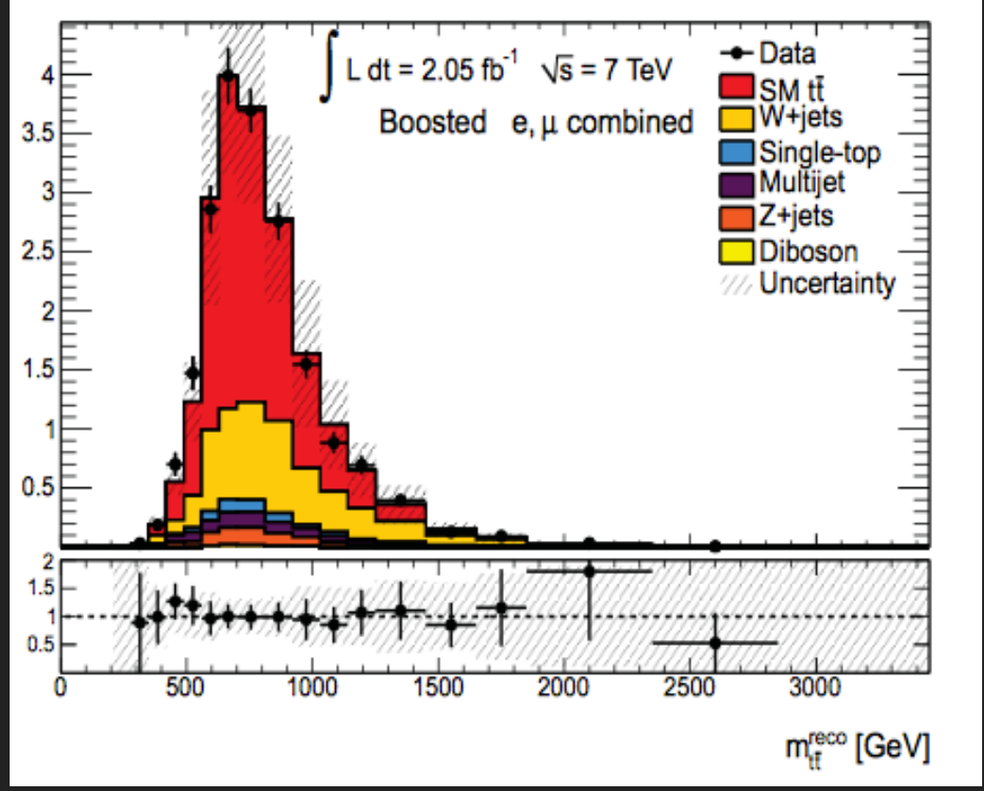
2017

EXPERIENCE ON EXPERIMENTAL HIGH ENERGY PHYSICS

The ATLAS Experiment - LHC

- Pattern recognition software for finding particle tracks in the detector
- Develop reconstruction algorithms
- Trigger performance studies on data and MC
- Calibration studies
- Standard Model Measurements
- Search for new particles decay into top quark pairs





TEAM

- Luz Gómez: Dr. rer. nat. im Fach Physik. Humboldt University - Berlin. Experimental particle physics, data analysis, MC-simulation, detector physics, distributed computing.
- Carlos Peña: Ph.D. in Engineering, Universidad Nacional de Colombia. Experience in physics modelling and data analysis.
- Hermes Martínez: Ph.D. in Mathematics. Bonn University. Data analysis, Machine learning applications: biology, credit risk and susceptibility models for disaster threats
- Nestor Pachón: student
- New people interested

INTENDED CONTRIBUTION TO DUNE

- Photon detection system: studies based on simulation to better tie technical requirements to scientific requirements
- Calibration and commissioning of the time projection chamber
- MC simulation: optimize aspects of the detector, data taking strategy.
- Reconstruction and identification tasks: based on MC.
- Development of analysis software: to search for heavy neutral leptons.
- Analyses to measure interaction kinematics and cross-sections
- Data acquisition, timing and trigger. DAQ simulation

MANY THANKS