MSU team introduction

Ronggian Qian,Binbin Dong,Reinhard Schwienhorst

Oct 28, 2026
TREASURE weekly

MSU team

- We are from Michigan State University's and members of ATLAS's experiment
- Our main focus are precise SM measurement, BSM search in multitop physics and the application of ML to increase the sensitivity

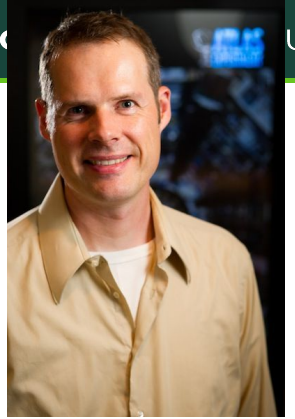


Computation resources

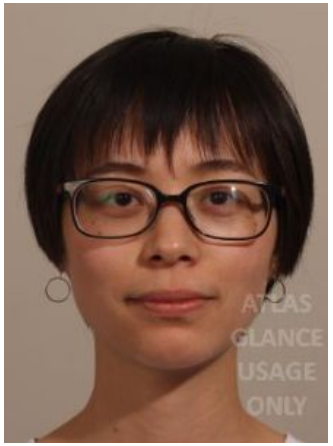
- We utilize the GPU resource from MSU's High-Performance Computing Center (HPCC) housed by Institute for Cyber-Enabled Research (ICER)
  - A mixture of v100, a100 and h200 nodes with 4/8 GPU per node
  - 10k free GPU hours for each person annually and purchase more by request
- MSU tier 3 offer ~ 150 TB disk space and run computation job using CPU



Team member



- Reinhard Schwienhorst
  - Advisor, based at MSU campus, expert in top physics
- Binbin Dong
  - Postdoc, based at CERN
  - Converner of Top+X until Sep 2026, b-tagging expert
- Rongqian Qian
  - Fifth-year Phd student
  - Analysis contact of BSM search in multitop
- Potential undergraduate student
  - Change year to year

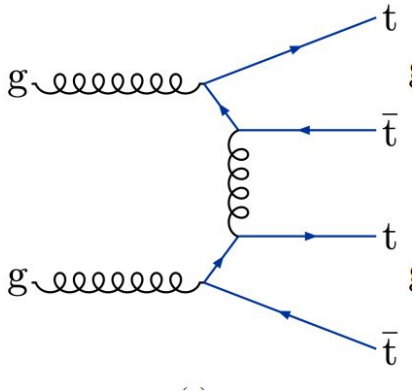


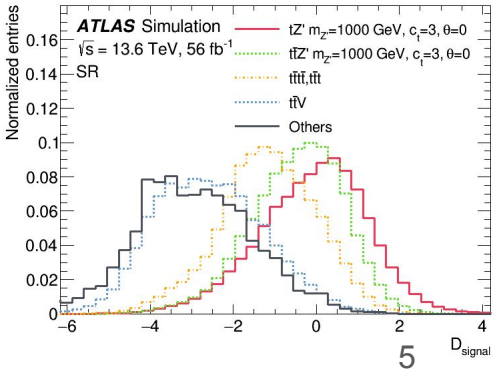


Fourtop

- Work on ALTAS multitop physics supervised by Reinhard
  - BSM multitop (published on arxiv:2609.24950) Rongqian and Binbin as analysis contact, graduated student Hieu as team member
  - Run 3 SM 4 top measurement

    Binbin as analysis contact, Rongqian and another graduate Cecilia as team member
- New BSM search result application of transformer in S/B discrimination
- Study ongoing for ML's potential in more task like background estimation and event selection in multitop study





Outlook

- We are becoming familiar with the pipeline while already testing different tokenizers (FSQ, PQ).
- We are delighted to dive into more aspects of the TREASURE project!
- We are interested in working at the frontier of AI in particle physics