

# Proposal to join the EPIC Collaboration

---

Deepa Thomas

**EPIC Collaboration Meeting**

12 January 2024



The University of Texas at Austin

# Who we are

---

## ❖ Prof. Deepa Thomas

- New faculty at UT Austin.
- Member of the ALICE Collaboration.
- Expert in heavy-flavor particle measurements in pp and heavy-ion collisions.
- Convener of heavy-flavor correlation analysis group in the ALICE collaboration.
- Actively involved in ALICE data taking operations and Data Preparation Group.

## ❖ Prof. Christina Markert

- Member of STAR, ALICE and sPHENIX Collaborations
- Expert in resonance and strange particle measurements in pp and heavy-ion collisions
- Part of the ALICE ITS upgrades and sPHENIX MVTX detector R&D.
  - Fabrication: Support Structure for Forward Calorimeter in STAR, End Plates of sPHENIX Hadronic Calorimeter (iHCAL)

## ❖ The University of Texas at Austin

- A premier research university with rich and diverse pool of undergraduate and graduate students.
- The Physics Machine Shop used for design and fabrication of instruments for research.
  - Recently used for fabrication of sPHENIX Hadronic Calorimeter (iHCAL) end plates.



# Plans at EPIC

---

- ❖ Contribute to the development of heavy-flavor particle reconstruction techniques
  - ❖ single electron measurements for heavy-flavor identification via semi-leptonic decay channels
  - ❖ secondary vertex reconstruction for heavy-flavor identification via hadronic decay channels
- ❖ Perform physics performance studies for heavy-flavor measurements with the EPIC detector
  - ❖ Cross-section measurements
  - ❖ Angular correlations of heavy quark and anti-quark pairs
  - ❖ Heavy-flavor jet measurements
- ❖ Plans to have undergraduate and graduate students to contribute to the work.
- ❖ Explore ways to use the UT Austin Physics Machine shop for fabrication of detector parts.
  - ❖ CNS machines of different dimensions
  - ❖ Standard manual machines, mills, lathes, drill presses, large shear, saws, grinders, etc