KaeM, Future Lepton Colliders, CMS, Medical Physics

Particle Physics Experiment Lab.

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Past, Current, Future

Past

D0, DREAM, CMS

- **D0 and CMS**: top quark (cross-section, CP violation)
- **DREAM**: Dual-REAdout Method Calorimeter

Current

CMS, Future Colliders, KaeM, Medical physics

- **CMS**: top quark (CP violation), SUSY, Excited Leptons (e^*, μ^*)
- **Future Colliders**: calorimeter R&D for muon and e^+e^- colliders
- **KaeM**: Magnetic Monopoles
- **Medical physics**: beam monitoring
- **Quantum Machine Learning**

Future

CMS, Future Colliders, KaeM, Medical Physics

- **CMS**: top quark (CP violation), ttHH, SUSY, and ?
- **Future Colliders** (muon, e^+e^-): Calorimeter R&D, Flux return superconducting solenoid, 50 T superconducting solenoid
- **KaeM**: Magnetic Monopoles
- **Neutron-antineutron oscillation**
- **Medical physics**: diagnostic equipment (digital X-ray, beam monitoring)
- **Quantum Machine Learning**

Are you ready to take these chances?

- International collaborations: CERN, US, Italy, Turkey, …
- Research opportunities:
  - Tabletop scale to the largest collider experiments
  - Particle detector R&D for nuclear and particle physics
  - Medical diagnostic equipment (detector R&D, image reconstruction)
  - Quantum computing
- Recruit 2 graduate students