Temple University
Expression of Interest
to join
sPHENIX Collaboration

Bernd Surrow
(PI)

TEMPLE UNIVERSITY®

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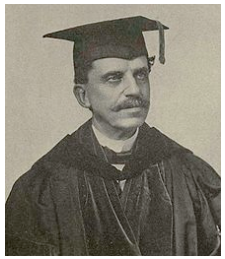
TU - Temple University / Department of Physics

- Temple University is a comprehensive state-related, but independently governed research institution in Philadelphia, PA (Main Campus) - Carnegie Research 1 (R1) University
- Temple University was founded in 1884 by Dr. Russell Conwell as Temple College which became Temple University in 1907 with currently more than 38,000 students over nine locations
- Over 2,000 full-time and 1,500 part-time faculty members spread over 17 schools and colleges including 3 hospitals



- The College of Science and Technology (CST) receives strong support to enhance education and research programs, e.g. the new Science Education and Research Center housing the Department of Physics providing outstanding lab and workshop support
- Nuclear Physics research programs are carried out by seven faculty members (Theory: M. Constantinou, A. Metz / Experiment: J. Martoff, Z. Meziani, J. Napolitano, N. Sparveris and B. Surrow)

TU - High-Energy Nuclear Physics group

- Group members:
  - 2 Faculty members: M. Posik (Research Assistant Professor), B. Surrow (Professor of Physics, PI)
  - 1 Postdoc: A. Quintero
  - 4 Graduate students: D. Gunarathne, A. Kraishan, J. Nam, D. Olvitt
  - 4 Undergraduate students
- Funding:
  - DOE NP grant
  - EIC R&D detector sub-contract
- Current research program by High-Energy Nuclear Physics group:
  - STAR high-energy polarized p+p program: W/Z production and Jet production, in particular di-jet production
  - Detector R&D: Micro-pattern gas detector, in particular GEM detector R&D
  - EIC: Kinematic reconstruction methods / Interest in low-x physics both in eA and ep collider mode / Imaging
- Infrastructure for High-Energy Nuclear Physics group:
  - Micro-pattern clean room facility: 2000 sq. ft. permanent clean room facility (Class 1,000) supported by CST with complete GEM assembly and testing tooling incl. large CCD scanner of GEM foils / Leakage current setup / Large storage units
  - Detector R&D lab: DAQ system, Cosmic-ray test stand, Optical table, Gas system. X-ray scanner, Large ultra-sonic bath
  - Engineering support: Mechanical engineer for nuclear physics research supported by CST
  - Workshop: Full mechanical machine shop and electrical shop with three technicians

TU - Future research interests

- RHIC / JLab
  - Completion and publication of various STAR polarized p+p analyses of Run 12+13: W/Z Run / Incl. Jet and Di-Jet
  - Analyses and publication of Run 17 data: W (Cross-section ratio - ubar/dbar ratio and ATT) / Z production (ATT)
  - sPHENIX: Cold QCD program a) Spin program and pA program (low-x physics) at mid-rapidity in particular at 200GeV focusing on jet production and b) Development of potential forward physics program focusing on low-x forward di-jet measurements c) Interest to join tracking detector efforts - Not decided yet!
  - Explore physics opportunities at JLab with SoLID and Hall-B
- Detector R&D program:
  - Completion of various R&D detectors of large triple-GEM detectors including testing based on commercially produced components incl. new SBIR proposal
  - Design, assembly and test of full-scale EIC prototypes in collaboration with other EIC R&D groups and SoLID GEM R&D detector program
- EIC:
  - Interests: 1 Kinematic reconstruction methods / 2 Low-x physics / 3 Imaging of proton
  - EIC User group involvement
  - Formation of forward GEM tracking sub-group in collaboration with other EIC R&D groups