Current and Pending Support: Kaushik De

Support: ☒ Awarded ☐ Pending	
Sponsor: NSF	**Award Number**: NSF PHY-1119200
Title of the Funded Research Project: The U.S. ATLAS Research Program: Empowering U.S. Universities for Discoveries at the Energy Frontier	
Total Award Amount for the Entire Award Period (including indirect costs): $1,611,368	
Award Period: 10/01/15 - 9/30/16	
Number of Person-months per year to be devoted to the project by the PI: 2.0	

Abstract: UTA is a sub-contractor of the NSF US ATLAS Operations program cooperative agreement managed by Columbia University. This cooperative agreement supports M&O, S&C and R&D activities on the ATLAS experiment at the LHC. Activities at UTA include the operation of the SouthWest Tier 2, PanDA software development, US Computing Operations, Analysis support and documentation, and TileCal detector operation and upgrade R&D. These support activities are critical to the success of the ATLAS physics program.

Support: ☒ Awarded ☐ Pending	
Sponsor:	**Award Number**: BNL Contract #229206
Title of the Funded Research Project: The U.S. ATLAS Research Program	
Total Award Amount for the Entire Award Period (including indirect costs): $282,000	
Award Period: 10/01/14 - 9/30/16 (NCE)	
Number of Person-months per year to be devoted to the project by the PI: 0	

Abstract: UTA receives DOE funding for M&O and S&C activities in support of the US ATLAS Research Program through Brookhaven National Laboratory. Supported activities at UTA include the operation of the SouthWest Tier 2, and TileCal detector operation and upgrade R&D. These support activities are critical to the success of the ATLAS physics program.

Support: ☒ Awarded ☐ Pending	
Sponsor: DOE	**Award Number**: DOE DE-SC0011686
Title of the Funded Research Project: High Energy Physics Base Funding	
Total Award Amount for the Entire Award Period (including indirect costs): $890,000	
Award Period: 05/01/16 - 04/31/17	
Number of Person-months per year to be devoted to the project by the PI: 2.0	

Abstract: This proposal requests support for a program of research in elementary particle physics at The University of Texas at Arlington. We propose studies of the recently discovered Higgs boson, and searches for new particles in nature which may be responsible for dark matter, at the ATLAS Experiment at the European Center for Nuclear Research (CERN) in Geneva, Switzerland, and the Silicon Detector (SiD) at the proposed International Linear Collider. The SiD is a novel concept for a future experiment in particle physics. Our program of work involves detector research and development, and distributed computing innovations. Together, the ATLAS Experiment and SiD can provide a deep understanding of two fundamental forces of nature: electromagnetism and the weak nuclear force, in addition to allowing for the discovery of associated new particles suggested by theory. In a new direction for the group, support is also requested for participation in the future Long Baseline Neutrino Experiment (LBNE), which will explore the masses of the neutrinos that are involved in the weak nuclear interactions and search for low-mass dark matter in the beam, and the ORKA Experiment, that will search for signs of new physics in the rare decays of the K-meson, a particle only produced in high energy collisions. Finally, we propose to carry out theoretical studies of the dark matter that exists in large quantities around and between galaxies, in terms of its interactions with astrophysical objects, and its possible creation in low-energy, high beam intensity experiments.

Support: ☒ Awarded ☐ Pending
Sponsor: DOE   **Award Number**: DOE DE-SC008635
Title of the Funded Research Project: Next Generation Workload Management and Analysis System for Big Data
Award Period: 9/01/12 - 08/31/16 (NCE)
Total Award Amount for the Entire Award Period (including indirect costs): $746,908
Number of Person-months per year to be devoted to the project by the PI: 1.0
Abstract: One of the largest scientific collaborations ever assembled, the ATLAS experiment at the Large Hadron Collider (LHC), is designed to explore the fundamental properties of matter for the next decade. An important foundation underlying the impressive success of ATLAS data processing and analysis is the Production and Distributed Analysis (PanDA) workload management system. We propose here a program to develop a generic version of PanDA which can be easily used by many data intensive sciences. With a modest investment of effort, we can enable easy adoption of PanDA by others. We propose generalizing PanDA as a meta-application, providing location transparency of processing and data access, for High Energy Physics, other data-intensive sciences, and a wider exascale community.

Support: ☒ Awarded ☐ Pending
Sponsor: DOE   **Award Number**: DOE DE-SC0016280
Title of the Funded Research Project: Big PanDA Workflow Management on Titan for High Energy and Nuclear Physics and for Future Extreme Scale Scientific Applications
Award Period: 7/01/16 - 06/30/18
Total Award Amount for the Entire Award Period (including indirect costs): $1.063,000
Number of Person-months per year to be devoted to the project by the PI: 1.0
Abstract: Scientific priorities in High Energy and Nuclear Physics continue to serve as drivers of integrated computer and data infrastructure. The lack of scalable and extensible workload management capabilities across heterogeneous computing infrastructure, however presents a barrier to the scientific progress. BigPanDA represents important conceptual advances and novel capabilities to workload management. We propose to deploy and bring into production BigPanDA workflow management techniques on the Oak Ridge Leadership Computing Facility (OLCF) Titan supercomputer. This will significantly and positively impact scientific communities in High Energy and Nuclear Physics, and beyond, for current and future leadership computing facilities.