

## Current and Pending Support: Jaehoon Yu

<b>Support:</b>	<input checked="" type="checkbox"/> Awarded	<input type="checkbox"/> Pending
<b>Sponsor:</b> DOE	<b>Award Number:</b> 0000209151	
<b>Title of the Funded Research Project:</b> Research on Elementary Particle Physics		
<b>Total Award Amount for the Entire Award Period (including indirect costs):</b> \$2,520,000		
<b>Award Period:</b> 05/01/14 - 03/31/17		
<b>Number of Person-months per year to be devoted to the project by the PI:</b> 2.0		
<b>Abstract:</b> The major goals of this project are to carry out various research topics in understand the fundamental constituents of matter and the forces between them. We focus on ATLAS experiment and the preparation of the International Linear Collider as well as understanding neutrino oscillation behaviors through contribution to the intensity frontier experiments, LArIAT, MiniBooNE and DUNE.		

<b>Support:</b>	<input checked="" type="checkbox"/> Awarded	<input type="checkbox"/> Pending
<b>Sponsor:</b> National Cancer Institute, National Health Institute	<b>Award Number:</b> 1R15CA199020-01A1	
<b>Title of the Funded Research Project:</b> Boosting photo-induced cancer therapies through real-time image guidance		
<b>Total Award Amount for the Entire Award Period (including indirect costs):</b> \$415,336		
<b>Award Period:</b> 04/01/16 - 03/31/19		
<b>Number of Person-months per year to be devoted to the project by the PI:</b> 0.2		
<b>Abstract:</b> We propose to use the position-sensitive gas electron multiplier (GEM) detector and advanced spatiotemporal image processing to enable real-time image guided PITs. The GEM technology is a recent advance of the revolutionary digital imaging of gas detectors using multiwire proportional chambers (MWPC), which won Georges Charpak a Nobel Prize for Physics in 1992. The advantages of GEM-based devices include: intrinsic spatial resolution of 50 $\mu\text{m}$ or better; rate capability larger than $1\text{MHz}/\text{mm}^2$ ; easy achievable gains above $10^5$ ; allowing detection of single electrons; efficiency for minimum ionizing particles close to 100%. In addition to its excellent detection performance, the flexibility of GEM can be used for a miniature device with the easy integration of an NIR fiber for therapeutic purpose. In this project, for the first time, we propose to develop a multifunctional device using GEM technology for PITs, called <b>Beta Image Guided Light-Induced Therapeutic device (BIGLITE)</b> , which can achieve simultaneous imaging and photo-induced therapy.		

<b>Support:</b>	<input checked="" type="checkbox"/> Awarded	<input type="checkbox"/> Pending
<b>Sponsor:</b> NSF	<b>Award Number:</b> 1639157	
<b>Title of the Funded Research Project:</b> Support for Biennial African School of Fundamental Physics 2016		
<b>Total Award Amount for the Entire Award Period (including indirect costs):</b> \$28,215		
<b>Award Period:</b> 07/01/16 - 06/30/17		
<b>Number of Person-months per year to be devoted to the project by the PI:</b> 0.01		
<b>Abstract:</b> This proposal is in support of the forth school in the biennial series. The aim of the school is to build the capacity to harvest, interpret, and exploit the results of current and future physics experiments with particle accelerators, and to increase proficiency in related applications such as medicine, and technologies, such as grid computing. The schools are based on a close interplay between theoretical, experimental and applied physics. The organizing committee consists of a number of people key in the above areas, from both inside and outside Africa. Sub-Saharan Africa is under-represented in sub-atomic physics and this school will serve to provide more opportunities for students to become aware of and to participate in this field.		

<b>Support:</b>	<input checked="" type="checkbox"/> Awarded	<input type="checkbox"/> Pending
<b>Sponsor:</b> CNRS, France	<b>Award Number:</b> 1263101510	
<b>Title of the Funded Research Project:</b> MOU for Research on WA105 Dual Phase Detector and DUNE		
<b>Award Period:</b> 10/01/15 - 12/31/17		
<b>Total Award Amount for the Entire Award Period (including indirect costs):</b> \$36,728		
<b>Number of Person-months per year to be devoted to the project by the PI:</b> 1.0		
<b>Abstract:</b> The major goal of this project is to contribute to the setup of WA105 and understanding DUNE cryostats.		

<b>Support:</b>	<input checked="" type="checkbox"/> Awarded	<input type="checkbox"/> Pending
<b>Sponsor:</b> ETH, Switzerland	<b>Award Number:</b> N/A	
<b>Title of the Funded Research Project:</b> MOU on Research on WA105 dual phase Prototype LAr Detector		
<b>Award Period:</b> 01/01/16 - 12/31/17		
<b>Total Award Amount for the Entire Award Period (including indirect costs):</b> \$10,000		
<b>Number of Person-months per year to be devoted to the project by the PI:</b> 0.5		
<b>Abstract:</b> The major goal of this project is to contribute to the setup of WA105 and understanding DUNE cryostats. These funds enable the PI to buy out teaching for two semesters for an extended stay at CERN.		

<b>Support:</b>	<input checked="" type="checkbox"/> Awarded	<input type="checkbox"/> Pending
<b>Sponsor:</b> Fermi Natinoal Accelerator Laboratory	<b>Award Number:</b> N/A	
<b>Title of the Funded Research Project:</b> Application for Neutrino Physics Center Fellowship		
<b>Award Period:</b> 07/01/16 - 06/30/17		
<b>Total Award Amount for the Entire Award Period (including indirect costs):</b> \$10,000		
<b>Number of Person-months per year to be devoted to the project by the PI:</b> 1.5		
<b>Abstract:</b> The major goals of this project are to understand the behavior of the membrane cryostat, develop and design the beam hadron monitor and optimize the beam line components for DUNE experiment. These funds enable the PI to contribute directly to DUNE experiment through an extended stay at FNAL.		

<b>Support:</b>	<input type="checkbox"/> Awarded	<input type="checkbox"/> Pending
<b>Sponsor:</b> Brookhaven National Lab (DOE)	<b>Award Number:</b>	
<b>Title of the Funded Research Project:</b> Development of SiPM Coupling with Scintillation Counters for Range Stack Detector		
<b>Award Period:</b> 10/01/13 - 09/30/16		
<b>Total Award Amount for the Entire Award Period (including indirect costs):</b> \$46,000		
<b>Number of Person-months per year to be devoted to the project by the PI:</b> 0.1		
<b>Abstract:</b> The Range Stack (RS) in ORKA detector plays an essential role in particle identification, especially the pions from Kaon decays from muons. It must be able to measure the energy, range and decay sequence of charged particles emerging from the target with a good position resolution. In addition, it must be able to assist photon veto (PV) detector by identifying them with good efficiency for the photons converting before getting into the PV system.		