

# Columbia Department of Physics PhD Graduates

April 2017

## **Andrea Petri**

*"Non-Gaussian information in cosmology with weak gravitational lensing."*

Dissertation Sponsor and Research Advisors: Professors Lam Hui and Morgan May

## **David Kaleko**

*"MicroBooNE: The search for the MiniBooNE low energy excess."*

Dissertation Sponsor and Research Advisor: Professor Mike Shaevitz

## **Andrey Vlasov**

*"Outflows from compact objects in supernovae and novae."*

Dissertation Sponsor and Research Advisor: Professor Brian Metzger

May 2017

## **Steven Alkire**

*"ATLAS levels up: Early Searches for diboson resonances in semi-hadronic decay channels at  $\sqrt{s} = 13$  TeV center of mass energy."*

Dissertation Sponsor and Research Advisor: Professor Emlyn Hughes

## **Ting Ting Wang**

*"Heavy flavor jet quenching in relativistic heavy ion collisions at the LHC."*

Dissertation Sponsor and Advisor: Professor Brian Cole

May 2017

**Ori Weiner**

*"Gamma-ray burst science in the era of IACT arrays."*

Dissertation Sponsor: Professor Gustaaf Brooijmans

Research Advisor: Professor Reshmi Mukherjee

June 2017

**Andrew Brainerd**

*"Topics in cosmology and quantum mechanics: Entanglement harvesting and cosmic bubble collisions"*

Dissertation Sponsor and Research Advisor: Professor Brian Greene

**Yuran "Alex" Chen**

*"Particle-in-cell simulation and its applications to magnetosphere problems in astrophysics."*

Dissertation Sponsor and Research Advisor: Professor Andrei Beloborodov

**Ziyuan Bai**

*"Neutral kaon mixing from lattice QCD."*

Dissertation Sponsor and Research Advisor: Professor Norman Christ

**Derek Araujo**

*"Data analysis for the E and B Experiment and instrumentation development for cosmic microwave background polarimetry."*

Dissertation Sponsor and Research Advisor: Professor Amber Miller

July 2017

**Carlos Forsythe**

*"Fractal magnetic subband structure in dielectric superlattice graphene systems."*

Dissertation Sponsor and Research Advisor: Professor Cory Dean

August 2017

**David Murphy**

*"Precision light flavor physics from lattice QCP."*

Dissertation Sponsor and Research Advisor: Professor Robert Mawhinney

**Antonio Levy**

*"Optical spectroscopy of emergent phases in the second Landau Level."*

Dissertation Sponsor and Research Advisor: Professor Aron Pinczuk

September 2017

**Ryne Carbone**

*"A search for new diboson resonances in the boosted semi-leptonic final state at  $\sqrt{s} = 13$  TeV with the ATLAS detector."*

Dissertation Sponsor and Research Advisor: Professor John Parsons

October 2017

**Sky Cheung**

*"Understanding iron-pnictide superconductors using Muon spin rotation and scanning tunneling microscopy with nonconvex optimization."*

Dissertation Sponsor and Research Advisor: Professors Abhay Pasupathy and Yasutomo Uemura

November 2017

**Suk Hyun Kim**

*"Probing transition metal dichalcogenide monolayers and heterostructures by polarization-resolved spectroscopy."*

Dissertation Sponsor and Research Advisor: Professors Tony Heinz

December 2017

## **David Caratelli**

*"Study of electromagnetic interactions in the microBooNE liquid argon time projection chamber."*

Dissertation Sponsor and Research Advisor: Professor Tony Heinz

## **Shuyuan "Joseph" Wang**

*"Mathematically modelling the mechanics of cell division."*

Dissertation Sponsor: Professor Ozgur Sahin

Research Advisor: Professor Ben O'Shaughnessy

## **Sathish Thiyagarajan**

*"Cell wall growth regulation and maintenance of stability in actomyosin structures in cells."*

Dissertation Sponsor: Professor Ozgur Sahin

Research Advisor: Professor Ben O'Shaughnessy

## **Runzhi Wang**

*"Dynamical mean-field theory on pyrochlore iridates: A study of electron interaction and spin-orbit coupling."*

Dissertation Sponsor and Research Advisor: Professor Andy Millis

## **Matthew Anthony**

*"Understanding low-energy nuclear recoils in liquid xenon for dark matter searches and the first results of XENON1T."*

Dissertation Sponsor and Research Advisor: Professor Elena Aprile

January 2018

**Daniel Flanigan**

*"Kinetic inductance detectors for measuring the polarization of the cosmic microwave background."*

Dissertation Sponsor and Research Advisor: Professor Bradley Johnson

**Geoffrey Iwata**

*"A cryogenic buffer-gas cooled beam of abrium monohyride for laser slowing, cooling and trapping."*

Dissertation Sponsor and Research Advisor: Professor Tanya Zelevinsky

March 2017

**Zizhou Gong**

*"Muon spin relaxation study of MnGe and development of pair distribution function methods."*

Dissertation Sponsor and Research Advisor: Professor Tomo Uemura

April 2018

**Jonghee Kang**

*"Generalizations of solid inflation."*

Dissertation Sponsor and Research Advisor: Professor Alberto Nicolis

**Angelo Esposito**

*"Low energy physics for the high energy physicist."*

Dissertation Sponsor and Research Advisor: Professor Alberto Nicolis

April 2018

**Yun Tian**

*"Open Heavy Flavor Production in Relativistic Heavy Ion Collisions at LHC."*

Dissertation Sponsor and Research Advisor: Professor Brian Cole

May 2018

**Erick Andrade**

*"Visualizing quasiparticle scattering nematicity in NaFeAs and of topological surface states in MoTe<sub>2</sub>."*

Dissertation Sponsor and Research Advisor: Professor Abhay Psupathy

**Zhengan Gao**

*"Phase diagrams of water confined by hydrophobic and hydrophilic plates."*

Dissertation Sponsor and Research Advisor: Professor Ozgur Sahin