

# Columbia Department of Physics PhD Graduates 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

## **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

## **Ori Weiner**

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

Dissertation Sponsor: Professor Gustaaf Brooijmans

Research Advisor: Professor Reshmi Mukherjee

## **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

## **Carlos Forsythe**

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

Dissertation Sponsor and Research Advisor: Professor Cory Dean

## **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

## **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

## **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

## **Suk Hyun Kim**

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

Dissertation Sponsor and Research Advisor: Professors Tony Heinz

## **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