# Vassili Papavassiliou

**Current and planned research projects**

1. Studying aspects of the internal spin structure of the nucleon in collisions of polarized protons with the PHENIX at the Relativistic Heavy Ion Collider in Brookhaven National Lab.
2. Measurement of the neutral-current, neutrino-proton cross section with the MicroBooNE experiment at Fermi National Accelerator Lab using a 87-ton fiducial-volume, liquid-argon, time-projection chamber, with the goal of determining the polarization of strange quarks in the proton.
3. Participation in the commissioning of the E-1039/SeaQuest experiment, a Drell-Yan, dimuon experiment with a transversely polarized target at Fermilab.

**Research Accomplishments**

***Publications***

2019: Currently working on three papers from PHENIX data:

1. "Nuclear dependence of transverse single-spin asymmetry of charged hadrons at forward rapidity in polarized $p$+$p$, $p$+Al, and $p$+Au collisions at 200 GeV", with the PHENIX collaboration (member of the paper preparation group — based on the Ph.D. research of my graduate student Jeongsu Bok; status: submitted to *Phys*. *Rev*. *Lett*.).
2. "$J/\psi$ and $\psi(2S)$ production at forward rapidity in $p$+$p$ collisions at $\sqrt{s}$ = 510 GeV", with the PHENIX collaboration (chair of the Internal Review Committee; status: finalizing aspects of the analysis).
3. Correlations of $\mu\mu$, $e\mu$, and $ee$ pairs in $p$+$p$ collisions at $\sqrt{s}$ = 200 GeV and implications for $c\bar{c}$ and $b\bar{b}$ production mechanisms (member of the Internal Review Committee; status: submitted to *Phys*. *Rev*. **D**, responding to referee comments).
4. Five papers published in *Nature*, *Phys. Rev. Lett., Phys. Rev.* **C**, *Phys. Rev.* **D**, *Eur*. *Phys*. *J*., and *JINST*.

2018: Fourteen papers published in *Phys. Rev. Lett., Phys. Rev.* **C**, *Phys. Rev.* **D**, and *JINST*.

***Doctoral Dissertations***

1. Katherine Woodruff, defended on Nov. 2, 2018.
2. Jeongsu Bok, defended on Nov. 27, 2018.

***Presentations***

- Oral presentation at CIPANP 2018.
- Oral and poster presentations by supervised graduate students Jeongsu Bok and Katherine Woodruff.

***Proposals***

- DOE Office of Science, Medium Energy Physics Program, "Experimental Studies of the Quark-Gluon Structure of Nucleons and Nuclei" (co-PI; S. Pate, PI); granted, $1,260,000 (Apr. 1, 2018 – Mar. 31, 2021).

***Collaborators***

- PHENIX collaboration (approx. 500 scientists)
- MicroBooNE collaboration (approx. 200 scientists)
- SeaQuest collaboration (approx. 50 scientists).

**Service**

Since Fall 2017 (return from sabbatical leave)

- Physics Graduate Program Director (admissions, advising, graduate exams)
- Departmental committees: Tenure and Promotion; Lab Equipment; Qualifying Exam (chair); Comprehensive Exam.