

PHY445/515

Methods of Experimental Research

“Senior Lab” or “Grad Lab”

Students choose experiments in each of three major areas.

- Atomic, Molecular and Optical Physics

Dr. Eden Figueroa

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- Condensed Matter Physics

Dr. Mengkun Liu

mengkun.liu@stonybrook.edu

- Nuclear and Particle Physics

Dr. Clark McGrew

clark.mcgrew@stonybrook.edu

- Special projects

Dr. Peter Koch

peter.koch@stonybrook.edu

Key	Experiment	Group	Faculty	TA
A1	Quantum Entanglement	AMO	Figueroa	TBD
A2	Optical Pumping and Atomic Resonance	AMO	Figueroa	TBD
A3	Diode Laser Saturation Spectroscopy	AMO	Figueroa	TBD
A4	X-ray Physics	AMO	Figueroa	TBD
B1	Hall Effect	Condensed Matter	Liu	TBD
B2	Nuclear Magnetic Resonance (NMR)	Condensed Matter	Liu	TBD
B3	Second Order Phase Transitions	Condensed Matter	Liu	TBD
B4	Superconductivity	Condensed Matter	Liu	TBD
C1	Compton Effect	Nuclear/Particle	McGrew	TBD
C2	Gamma-Gamma Angular Corelations	Nuclear/Particle	McGrew	TBD
C3	Lifetime of the Muon	Nuclear/Particle	McGrew	TBD
C4	Mössbauer Spectroscopy	Nuclear/Particle	McGrew	TBD
D1	Granular Physics		Koch	TBD

Goal: provide experience in the scientific method

- Statistical and systematic analysis of data in comparison to theory
- Hands-on experience in a variety of modern experimental techniques
- Presentation of experimental results at a professional level
- Writing of publication ready scientific manuscripts