Chris C. Stoafer

Contact Information

Graduate Student
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Research Interests

Experimental plasma physics and simulation: high energy density physics, inertial confinement fusion, magnetic confinement fusion, collective and non-collective Thomson scattering diagnostics, X-ray Thomson scattering, soft X-ray diagnostics, optical atomic emission diagnostics, and disruption physics in tokamaks.

Education

Columbia University, New York, NY

Ph.D., Dept. of Applied Physics and Applied Mathematics, expected May 2015

- Advisers: Prof. Michael Mauel and Prof. Gerald Navratil
- Area of Study: Plasma Physics

M.S., Dept. of Applied Physics and Applied Mathematics, February 2012

- Adviser: Prof. Michael Mauel
- Area of Study: Plasma Physics

California Polytechnic State University, San Luis Obispo, CA

B.S., Dept. of Chemistry and Biochemistry, June 2008

- Double Major: Chemistry and Biochemistry
- Minor in Physics
- Graduated *Magna cum Laude*

Research Experience

Columbia University, New York, NY

Graduate Researcher **September 2010 to present**

- Research in the plasma laboratory on The High-Beta Tokamak – Extended Pulse (HBT-EP)
- Upgrading the Thomson scattering diagnostic with multiple spatial point measurements to improve equilibrium reconstructions and energy transport analysis.
- Investigating the physics of disruptions and methods to control them on HBT-EP and related to ITER.

Lawrence Livermore National Laboratory, Livermore, CA

Research Intern **May 2010 to September 2010**

- Participated in a high energy density Thomson scattering experiment under the NIF organization.
- Developed data analysis software for X-ray Thomson scattering experiments.

Research Intern **June 2007 to September 2007**

- Designed a high-energy electron spectrometer by developing a 3-D relativistic electron propagation computer simulation.
- Analyzed an experimental setup to troubleshoot the gas puff system used for laser-wakefield electron acceleration in a plasma.

Professional Experience

KLA-Tencor, Milpitas, CA

Applications Engineer **June 2008 to February 2010**

- Conducted technical seminars for more than ten companies worldwide.
- Collaborated with engineering and marketing teams to close industrial gaps with new technology developments.
- Developed and implemented a system testing procedure for system quality assurance.

Teaching Experience

Columbia University, New York, NY

Teaching Assistant **September 2010 to May 2011**

- Assisted for AP E4130: Physics of Solar Energy and AP E3300: Applied Electromagnetism.
- Held office hours for guiding students through the material and to answer questions about the homework.
- Wrote solution sets, as well as graded homework and exams.

Grader **September 2011 to December 2012**

- Graded homework sets and exams for APMA E2101: Introduction to Applied Mathematics.

Private Tutoring

College Course Tutor **September 2006 to Present**

- Provided one on one and small group tutoring for college classes including: introductory physics, calculus, statistics, chemistry, and biology.

Computer Skills

Python, C, IDL, html, D3.js, Mathematica

Co-author Publications

[1] D.A. Maurer, D. Shiraki, J.P. Levesque, J. Bialek, S.M. Angelini, P.J. Byrne, B.A. DeBono, P.E. Hughes, M.E. Mauel, G.A. Navratil, Q. Peng, D.J. Rhodes, N. Rath, and C.C. Stoafer. "High resolution detection and excitation of resonant magnetic perturbations in a wall-stabilized tokamak", Phys. Plasmas **19**, 056123 (2012)

First Author Conference Presentations

[2] C.C. Stoafer, P.J. Byrne, B.A. DeBono, J.P. Levesque, B. Li, M.E. Mauel, D.A. Maurer, G.A. Navratil, Q. Peng, N. Rath, and D. Shiraki. "Multi-Point Thomson Scattering Upgrade for HBT-EP", 53rd APS Division of Plasma Physics Conference, Salt Lake City, Utah, USA, November 14 - 18, 2011.

[3] C.C. Stoafer, B.B. Pollock, G.R. Tynan, J. Meinecke, J.S. Ross, L. Divol, and S.H. Glenzer. "Spatially resolved collective Thomson-Scattering from electron plasma waves", 52nd APS Division of Plasma Physics Conference, Chicago, Illinois, USA, November 8 - 12, 2010.

Professional Memberships

American Physical Society (APS), Member, 2010–present
The New York Academy of Sciences, Member, 2012–present
American Chemical Society (ACS), Member, 2006–2008

Extra-curricular Activities

New York Academy of Sciences STEM Mentoring

Afterschool STEM Mentor **September 2011 to March 2012**

- Assisted in a robotics program for a group of 15 middle school students.
- Guided students in building, designing, and programming robots for specific challenges.

Dept. of Applied Physics and Applied Mathematics, Columbia University

Graduate Student Department Liaison **September 2010 to Present**

- Planned and organized department socials, called APAM Friday, aimed at promoting student and faculty interactions in a social setting.
- Organized graduate student recruitment events and acted as the student liaison for prospective graduate students.

Alpha Chi Sigma (Professional Chemistry Fraternity)

President **June 2007 to June 2008**

- Lead club and officer meetings for organizing and planning events.
- Grew campus and community involvement of the club including: science fairs, chemistry workshops for K-12, science awareness, fundraising, and community service.

Vice-President **June 2006 to June 2007**

- Developed and implemented new recruitment methods. The organization grew from 20 to 60 members in two years.
- Planned and organized science-related community service projects and a career fair dedicated to science and math related jobs on Cal Poly's campus.

Honors and Awards

Cal Poly Dean's List and President's List (2003–2008)
Physical Chemistry Student of the Year (2007)
Analytical Chemistry Student of the Year (2006)
Golden Key International Honour Society Member (2005–2008)
National Society of Collegiate Scholars Member (2004–2008)