Michael C. Abramczyk

Graduate Institution: University of Connecticut

Graduate Discipline: Theoretical Particle Physics

Hometown: Storrs, CT

Relevant SC Research: High Energy Physics

Research Interest:

My research in lattice quantum chromodynamics (LQCD) seeks to understand the non-perturbative strong interactions between quarks through Monte Carlo simulations by using a discrete space-time lattice. Specifically, I've studied possible CP symmetry breaking mechanisms involving the strong force. One study has looked at asymmetry in a quark-gluon plasma in an external magnetic field, a phenomenon known as the chiral magnetic effect. Another project which is of ongoing interest is the search for a nonzero electric dipole moment of the neutron. The heavily computational nature of my work means I am also interested in improvements in algorithms that can aid in doing these calculations more efficiently.

About Me:

As a second-year graduate student in physics, I've been able to utilize the DOE SCGF to facilitate participating in various activities during the past two years. I've attended the Lattice 2011 conference held in California, spent time at Brookhaven National Laboratory collaborating with other researchers in lattice gauge theory, and will be attending the INT Summer School on Lattice QCD for Nuclear Physics in August 2012. Prior to graduate school I was active in the University of Connecticut chapter of Sigma Pi Sigma, attending the 2008 Quadrennial Congress at Fermilab and serving as the chapter's vice president for the 2009-2010 academic year.

In the future I plan on attending more Lattice conferences, and I hope to take advantage of opportunities to attend workshops, present my research, and go to other meetings to interact with other scientists. After obtaining my PhD I hope to continue on in a research career. Beyond physics, I enjoy learning in just about any form and am an avid reader. I am also an alumnus of the National Youth Science Camp.