Graduate Studies in Quantum Field Theory and Particle Physics at
University of Connecticut

Physics People
Faculty: 27
Graduate Students: 88
Undergraduate Students: 95

Ph. D. Program:
http://www.phys.uconn.edu/academics/graduate-programs

Application deadline:
Applicants are advised to apply by **January 15** for admission in the following Fall semester.

Departmental web site:
http://www.phys.uconn.edu/

Application site:
http://www.phys.uconn.edu/academics/graduate-programs/graduate-applications

Contact for Particle Physics and Quantum Field Theory:
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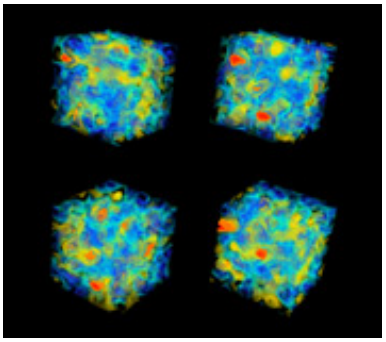
About the Physics Department
The Physics Department offers a wide range of graduate and undergraduate courses. The Observatory and Planetarium supplement the excellent training opportunities. The graduate program provides research opportunities in numerous fields including atomic and molecular physics, quantum optics, laser physics, nuclear physics, particle and astro-particle physics, cosmology, quantum field theory, condensed matter physics, polymer physics, geophysics, computational physics (http://www.phys.uconn.edu/research).

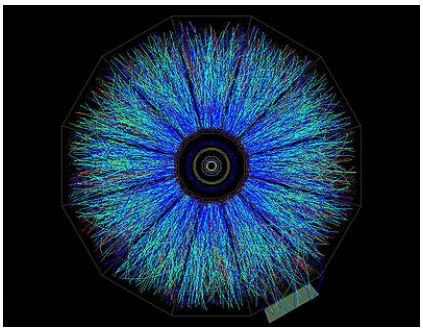
About the University
UConn is the #1 public university in New England, and among the top 30 public universities in the nation. Founded in 1881, UConn has today 21,500 undergraduates and 8,000 graduate students. It pays off to graduate from UConn: the Payscale.com Public College Salary Report ranks UConn in the top 16% for both average starting and mid-career salary of the alumni. An unprecedented $3 billion investment in UConn's infrastructure has made University life more enjoyable than ever. We invite to tour the UConn Graduate School website http://www.grad.uconn.edu/prospective/why.html, and "UConn Today" http://www.today.uconn.edu/ for the latest news. The UConn website is http://www.uconn.edu/.

About Storrs
The Physics Department is located in Storrs, CT in scenic New England, surrounded by intact nature, about half way between Boston and New York. Hartford is about 1/2 h away. About 12,000 students live on Campus or in Storrs, and enjoy the rich cultural and recreational opportunities. Storrs has a unique community that is stimulated by numerous outreach activities which provide valuable engagement opportunities for students.

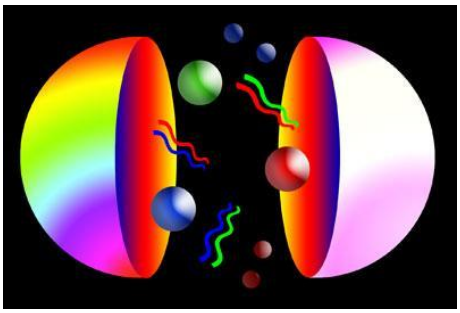
Quantum Field Theory and Particle Physics at UConn



Lattice Gauge Theory probes the QCD vacuum



Collisions at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven



Quarks and confinement

Astrophysics, Cosmology and Black Holes

Faculty: Tom Blum, Fedor Bezrukov, Gerald Dunne, Alex Kovner, Philip Mannheim, Peter Schweitzer

Lattice Gauge Theory

We study lattice QCD to investigate Quantum Chromodynamics (QCD), the fundamental theory of the strong force that binds quarks and gluons together to form protons and neutrons, the building blocks of matter that make up our world. These calculations involve large scale numerical simulations of the QCD vacuum, performed on the world's biggest supercomputers. (Blum)

Particle Physics and Quantum Chromodynamics

How are quarks confined? How is chiral symmetry broken? How are these features of QCD reflected in experiments? We study implications of symmetries for the phase diagram of QCD, properties of high energy collisions of heavy ions and also of nucleons, and the question of how quarks and gluons contribute to the nucleon spin. (Bezrukov, Blum, Dunne, Kovner, P. Schweitzer)

Quantum Field Theory

We study non-perturbative and strong-coupling properties of quantum field theories, and in particular gauge theories such as quantum chromodynamics (QCD) and quantum electrodynamics (QED), which provide the fundamental quantitative description of elementary particle physics. These theories have remarkable properties including topological structures such as instantons, monopoles and vortices. (Bezrukov, Blum, Dunne, Kovner, P. Schweitzer)

Astro-Particle Physics, Gravity and Cosmology

A new frontier is emerging that relates particle physics with astrophysics and cosmology, driven by a flood of new astrophysical data from recent satellites. We study fundamental questions related to inflationary cosmology, dark matter, symmetry breaking, cosmic acceleration, black holes, and properties and extensions of general relativity, including conformal gravity. (Bezrukov, Mannheim)

Mathematical Physics

We study mathematical properties of string theory, semiclassical methods in quantum field theory, quantum fields on fractals, and non-perturbative physics in ultra-intense laser and gravitational fields. (Dunne)