THE UNIVERSITY OF CHICAGO

DEPARTMENT OF PHYSICS

Chicago, Illinois 60637

Students Accepted For Degree	FIELDS		
	Physics	Astronomy	Related Fields
Doctorate	X		
Master's			

1. General

President: Robert J. Zimmer
Dean, Division of Physical Sciences: Robert A. Fefferman
Department Chairman: Robert M. Wald
Department Telephone Number: (773) 702-7007
Department e-mail: physics@uchicago.edu URL: http://physics.uchicago.edu/
Type of Institution: University
Control: Private
Setting: Urban
Total Faculty: 2,111
Total Graduate Faculty: 2,050
Total Students: 14,957
Total Graduate Students: 10,027
Annual Graduate Tuition:
All Graduate Students: $38,502
Tuition rates for: 2008–09
Deferred tuition plan: No
Other Fees: Student Health Service and Activities Fees: $226/quarter
University student health plan: $615/qtr basic; $937/qtr comprehensive/advantage
Term: Quarter

2. Number of Faculty in Department

The combined total of full-time faculty in the three professorial ranks is 40. The combined total of full-time, part-time, and other faculty at all ranks is 54.

3. Admission, Financial Aid, and Housing

Address admission inquiries to: physics@uchicago.edu or Graduate Admissions, Department of Physics, 5720 S. Ellis Ave. (60637-1434), or apply online.
Graduate application fee required: $55
Admission deadline: December 28 for fall admission. No mid-year admissions.
Admission information: For fall admission, 2008–09, 94 students were accepted from 382 applicants.
Admission requirements: For admission to the doctoral program, a bachelor's degree in any physical science or engineering is required. The General GRE and the Advanced Physics GRE tests are both required. The average GRE Advanced score for 2008–09 admissions was 829. Students from non-English-speaking countries are required to demonstrate proficiency in English via the TOEFL exam.
Undergraduate preparation assumed: Equivalent of Marion and Thornton, *Classical Dynamics of Particles and Systems*; Reif, *Statistical and Thermal Physics*; Wangsness, *Electromagnetic Fields*: Shankar, *Principles of Quantum Mechanics*; Eisberg and Resnick, *Quantum Physics of Atoms, Molecules, Solids, Nuclei and Particles*; Kittel, *Introduction to Solid State Physics*, 8th ed.
Financial aid: All admitted graduate students are appointed as Teaching or Research Assistants with full financial aid. No aid application is necessary.
FAFSA application required: No
Loans available: Yes
Address housing inquiries to: Graduate Student Housing Office, 5316 S. Dorchester Ave., Chicago, IL 60615-5360
On-campus, graduate student housing available: Yes
Cost/month: Furnished—$685–995
Unfurnished—$710–1,526

Table A—Faculty, Enrollments, and Degrees Granted

Research Specialty	2007–08 Faculty	Enrollment[1] Fall 2007		No. of Degrees Granted[2] 2007–08 (2003–08)			Median No. of Years for 2007–08 Ph.D.'s
		Master's	Doctorate	Master's	Terminal Master's	Doctorate	
Astrophysics	8	–	24	0(0)	0(0)	2(17)	5.1
Atomic, Molecular, & Optical Physics	2	–	4	0(0)	0(0)	0(0)	–
Biophysics	2	–	5	0(0)	0(0)	0(0)	–
Chemical Physics	–	–	2	0(0)	0(0)	1(3)	5.2
Condensed Matter Physics	12	–	41	0(0)	0(0)	11(57)	6.5
Energy Sources & Environ.	0	–	0	0(0)	0(0)	0(1)	–
Nuclear Physics	1	–	2	0(0)	0(0)	0(0)	–
Particles & Fields	13	–	31	0(0)	0(0)	7(27)	5.7
Physics of Beams	1	–	0	0(0)	0(0)	0(0)	–
Relativity & Gravitation	1	–	4	0(0)	0(0)	0(5)	–
Other (specify) Electron/Ion Microscopy	0	–	0	0(0)	0(0)	0(3)	–
Non-specialized	0	–	18	27(61)	1(4)	0(0)	–
Total		–	131	27(61)	1(4)	21(110)	
Full-time Grad. Stud.		–	131				
Part-time Grad. Stud.		–	0				
First-year Grad. Stud.		–	26				
Median Years in Grad. Study (2007–08 Degrees)				1.5	1.5	–	5.6

Undergraduate Degrees, 2007–08 (2003–08): 39(152)

[1]Students not yet committed to a research specialty are entered under non-specialized.
[2]Five-year totals in parentheses.

4. Graduate Degree Requirements

Master's: Although students are not admitted to study for a master's, they may receive a master's degree while studying for the Ph.D. For the master's there is a minimum residence requirement of three quarters of full-time registration or the equivalent, nine quarter-length courses. In addition, one must either pass the Candidacy Examination or pass nine approved graduate courses (six of which are the "core" graduate physics courses) and complete the experimental physics requirement, with a GPA of 2.5 or better. There is no thesis or foreign language requirement.

Doctorate: There is a minimum residence requirement of nine quarters of full-time registration. The candidate must pass the advanced physics laboratory course or participate in a first year experimental research experience, and also pass six advanced physics courses. Four of these advanced courses must be selected from course offerings in three general categories associated with active areas of contemporary physics research; the other two must be advanced, seminar-type elective courses. Other requirements include passing the Ph.D. candidacy examination, defending the dissertation before the candidate's Ph.D. committee, and submitting a paper based on the dissertation to a recognized journal.

Special Facilities and Programs: The Department of Physics at the University of Chicago offers Ph.D. programs in many areas of physics. Students' formal classwork takes place in the modern lecture halls, classrooms, and instructional laboratories of the Kersten Physics Teaching Center. This building also houses special equipment and support facilities for student experimental projects, departmental administrative offices, and meeting rooms. The Center is situated on the science quadrangle near the John Crerar Science Library, which holds over 1,000,000 volumes and provides modern literature search and data retrieval systems.

Student participation is crucial to virtually all research projects, and both graduate and undergraduate research and training are given high priority. Most of the experimental and theoretical research of Physics faculty and graduate students is carried out within the Enrico Fermi Institute, the James Franck Institute, and the Institute for Biophysical Dynamics. These research institutes provide close interdisciplinary contact, crossing the traditional boundaries between departments.

In the Enrico Fermi Institute, members of the Department of Physics carry out theoretical research in particle theory, string theory, field theory, general relativity, and theoretical astrophysics and cosmology. There are active experimental groups in high energy physics, nuclear physics, astrophysics and space physics, infrared and optical astronomy, electron and ion microscopy, and atomic physics. Some of this research is conducted at the Fermi National Accelerator Laboratory, at Argonne National Laboratory, and at the European Organization for Nuclear Research (CERN) in Geneva, Switzerland.

Physics faculty in the James Franck Institute study chemical, solid state, condensed matter, and statistical physics. Fields of interest include chaos, chemical kinetics, critical phenomena, high T_c superconductivity, non-linear dynamics, low temperature, disordered and amorphous systems, the dynamics of glasses, fluid dynamics, surface and interface phenomena, non-linear and nanoscale optics, unstable and metastable systems, laser cooling and trapping, and polymer physics. Much of the research utilizes specialized facilities operated by the Institute, including a low temperature laboratory, a materials preparation laboratory, x-ray diffraction and analytical chemistry laboratories, laser equipment, a scanning-tunneling microscope, and extensive shop facilities. Some members of the faculty are involved in research at Argonne National Laboratory.

The Institute for Biophysical Dynamics includes members of both the Physical Sciences and Biological Sciences Divisions, and focuses on the physical basis for molecular and cellular processes. This interface between the physical and biological sciences is an exciting area that we expect to develop rapidly over the next few years, with a bi-directional impact. Initial research topics include the creation of physical materials by biological self-assembly, the molecular basis of macromolecular interactions and cellular signaling, the derivation of sequence-structure-function relationships by computational means, and structure-function relationships in membranes.

In the areas of chemical, atomic, and biophysics, research toward the doctorate may be done in either the Physics or the Chemistry Department. Facilities are available for research in crystal chemistry, degenerate quantum gases, molecular physics, molecular spectra from infrared to far ultraviolet and Raman spectra, both experimental and theoretical, surface physics, statistical mechanics, radio chemistry, and quantum electronics.

Interdisciplinary research leading to a Ph.D. degree in physics may be carried out under the guidance of faculty committees including members of other departments in the Physical Sciences Division, such as Astronomy and Astrophysics, Chemistry, Computer Science, Geophysical Sciences, Mathematics, or related departments in the Biological Sciences Division.

Table B—Appointments to Graduate Students, 2007–08

Title of Appointee[1]	Appointments		Academic Load Allowed in Credit Hours	Hours of Service Per Week	Stipend for Academic Year ($)
	Total	First year			
			Quarter		
Teaching Assistant	35[4]	10	3 courses	16	21,000[2]
Research Assistant	66	2	3 courses	19	25,000–28,000[3]
Other (specify)					
Bloomenthal Graduate Fellow	1	0	3 courses	–	27,000[3]
Chandrasekhar Fellow	2	0	3 courses	–	29,200[3]
Grainger Graduate Fellow	1	0	3 courses	–	27,000[3]
Ledley Fellow	1	0	3 courses	–	27,000[3]
Candian NSERC Fellow	1	0	3 courses	–	23,000[3]
Maria Gowppwer-Mayer Fellow	1	1	3 courses	–	27,000[3]
Michelson Fellow	2	2	3 courses	–	27,000[3]
DOD Fellow	1	1	3 courses	–	26,500[3]
Fulbright Fellow	1	1	3 courses	–	23,000[2]
NSF Fellow	6	1	3 courses	–	30,000[3]
GAANN Fellow	13	2	3 courses	–	30,000[3]
Total	131	20			

[1]All TAs, RAs, and Fellows receive health insurance/health fees and full tuition coverage.
[2]Stipends for 9 months.
[3]Stipends are for 12 months.
[4]Full-time TAs only.

5. Personnel Engaged in Separately Budgeted Research, 7/07–6/08

Full-time faculty	41
Other Physics faculty	10
Postdoctoral appointments	49
Graduate students	74
Undegraduate students	32
Total	206

6. Separately Budgeted Research Expenditures by Source of Support

	Departmental Research	Physics-related Research Outside Department
Federal government	$15,488,269	$2,351,406
Private, non-profit organizations	378,728	
Business and industry	175,387	
Other (including institution's own separately budgeted accounts)	962,920	
Total	$17,005,304	$2,351,406

Table C—Separately Budgeted Research Expenditures

Research Specialty	No. of Grants	Expenditures ($)
Astro Particles and Fields	18	8,842,100
Atmos./Space, Cosmic Rays	15	1,683,725
Atomic, Molecular, & Optical	5	231,214
Beam Physics	1	5,052
BioParticles and Fields	7	312,078
Condensed Matter	17	731,513
Education	1	44,210
Materials	16	2,996,875
Other Experimental	1	21,905
Particles & Fields	23	1,925,266
Relativity	5	96,501
Solid State Physics	3	90,305
Statistical	1	24,560
Total	113	17,005,304

Table D—Physics-related Research Outside Department

Field and Unit Outside Department	No. of Grants	Expenditures ($)
Condensed Matter Physics/ MRSEC	1	2,351,406
Total	1	2,351,406

FACULTY

Professors

Abella, Isaac D., Ph.D., Columbia, 1963. Experimental physics; quantum optics; atomic physics; laser spectroscopy.

Blucher, Edward C., Ph.D., Cornell, 1988. Experimental physics; particle physics.

Carlstrom, John E., Ph.D., California, Berkeley, 1988. Experimental physics and astrophysics; star formation and cosmology; observation and new instrumentation.

Crewe, Albert V., Ph.D., Liverpool, 1950. Professor Emeritus. Experimental physics; electron microscopy; biophysics; surface physics.

Cronin, James W., Ph.D., Chicago, 1955. Professor Emeritus. Experimental physics; particle physics; ultra-high energy γ-ray astronomy.

Eastman, Dean E., Ph.D., MIT, 1965. Professor Emeritus. Experimental physics; condensed matter physics.

Freund, Peter G. O., Ph.D., Vienna, 1960. Professor Emeritus. Theoretical physics; particle physics; field theory.

Frisch, Henry, Ph.D., California, Berkeley, 1971. Experimental physics; particle physics.

Geroch, Robert P., Ph.D., Princeton, 1967. Professor Emeritus. Theoretical physics; general relativity.

Guyot-Sionnest, Philippe, Ph.D., California, Berkeley, 1987. Experimental physics; surface physics; nonlinear optical spectroscopy.

Harvey, Jeffrey A., Ph.D., Cal. Tech., 1981. Theoretical physics; particle physics; quantum field theory; superstring theory.

Hildebrand, Roger H., Ph.D., California, Berkeley, 1951. Professor Emeritus. Experimental physics; infrared astronomy.

Isaacs, Eric, Ph.D., MIT, 1988. Experimental physics, condensed matter physics.

Jaeger, Heinrich M., Ph.D., Minnesota, 1987. Experimental condensed matter physics; mesoscopic physics; high-temperature superconductivity.

Kadanoff, Leo P., Ph.D., Harvard, 1960. Professor Emeritus. Theoretical physics; hydrodynamics; statistical physics.

Kang, Woowon, Ph.D., Princeton, 1992. Experimental condensed matter physics; fractional quantum Hall effect; semiconductor physics.

Kim, Kwang-Je, Ph.D., Maryland, 1970. Theoretical physics; beam physics.

Kim, Young-Kee, Ph.D., Rochester, 1990. Experimental elementary particle physics.

Kutasov, David, Ph.D., Weizmann Inst., Israel, 1989. Theoretical physics; quantum field theory; string theory.

Levin, Kathryn, Ph.D., Harvard, 1970. Theoretical physics; solid state physics.

Levi-Setti, Riccardo, Ph.D., Pavia, Italy, 1949. Professor Emeritus. Experimental physics; ion microscopy; secondary ion mass spectrometry; ion-solid interaction.

Lu, Zheng-Tian, Ph.D., University of California at Berkeley, 1994. Experimental physics; atomic physics.

Martinec, Emil J., Ph.D., Cornell, 1984. Theoretical physics; string theory; quantum field theory; elementary particles.

Mazenko, Gene F., Ph.D., MIT, 1971. Theoretical physics; statistical physics.

Merritt, Frank S., Ph.D., Cal. Tech., 1976. Experimental physics; particle physics.

Meyer, Stephan S., Ph.D., Princeton, 1979. Experimental astrophysics; infrared astrophysics; observational cosmology.

Müller, Dietrich, Ph.D., Bonn, 1964. Professor Emeritus. Experimental physics; cosmic rays; high-energy astrophysics.

Nagel, Sidney R., Ph.D., Princeton, 1974. Experimental physics; condensed matter physics; non-linear dynamics.

Nambu, Yoichiro, Sc.D., Tokyo, Japan, 1952. Professor Emeritus. Theoretical physics; particle physics; field theory.

Oddone, Pier, Ph.D., Princeton, 1970. Experimental physics.

Oehme, Reinhard, Ph.D., Goettingen, 1951. Professor Emeritus. Theoretical physics; particle physics; field theory.

Oreglia, Mark J., Ph.D., Stanford, 1980. Experimental physics; particle physics.

Parker, Eugene N., Ph.D., Cal Tech., 1951. Professor Emeritus. Theoretical physics, astrophysics, plasma physics, space physics.

Pilcher, James E., Ph.D., Princeton, 1968. Experimental physics; particle physics.

Rosenbaum, Thomas F., Ph.D., Princeton, 1982. Experimental physics; solid state physics; low-temperature physics.

Rosner, Jonathan L., Ph.D., Princeton, 1965. Theoretical physics; particle physics; field theory.

Rosner, Robert, Ph.D. Harvard, 1976. Theoretical physics; fluid and plasma dynamics; solar physics; high-energy astrophysics.

Savard, Guy, Ph.D., McGill, 1988. Experimental physics; nuclear physics.
Schiffer, John P., Ph.D., Yale, 1954. Professor Emeritus. Experimental physics; nuclear physics.
Shochet, Melvyn J., Ph.D., Princeton, 1972. Experimental particle physics.
Swordy, Simon P., Ph.D., Bristol, 1979. Experimental physics; cosmic rays; space physics.
Turner, Michael S., Ph.D., Stanford, 1978. Theoretical astrophysics; particle physics; cosmology.
Wagner, Carlos E. M., Ph.D., Hamburg, 1989. Theoretical physics; elementary particles; supersymmetric theories.
Wah, Yau W., Ph.D., Yale, 1983. Experimental physics; particle physics.
Wald, Robert M., Ph.D., Princeton, 1972. Chairman of the Department. Theoretical physics; general relativity.
Wiegmann, Paul B., Ph.D., Landau Inst., Moscow, 1978. Theoretical physics; condensed matter physics.
Winstein, Bruce, Ph.D., Cal. Tech., 1970. Experimental physics; particle physics; cosmology.
Witten, Thomas A., Ph.D., California, San Diego, 1971. Theoretical physics; weakly-connected matter.

Associate Professors

Cluzel, Philippe, Ph.D., Inst. Marie Curie, Paris, 1996. Experimental biological physics; non-equilibrium systems; biopolymers.
Collar, Juan I., Ph.D., South Carolina, 1992. Experimental physics; neutrino and astroparticle physics.
Sethi, Savdeep S., Ph.D., Harvard, 1996. Theoretical physics; quantum field theory; string theory; particle physics.

Assistant Professors

Chin, Cheng, Ph.D., Stanford University, 2001. Laser cooling; trapping, degenerage quantum gases.
Gardel, Margaret L., Ph.D., Harvard, 2004. Experimental biophysics.
Gruzberg, Ilya A., Ph.D., Yale, 1998. Theoretical physics; condensed matter physics.
Wakely, Scott P., Ph.D., Minnesota, 1999. Experimental astroparticle physics, high-energy astrophysics.
Zhang, Wendy W., Ph.D., Harvard, 2001. Cond. matter theory.

Senior Lecturers

Gazes, Stuart B., Ph.D., MIT, 1983. Experimental physics; nuclear physics.
Reid, David D., Ph.D., Wayne State, 1995. Theoretical physics, discrete space-time, electron- and positron-gas scattering; physics education.

RESEARCH SPECIALTIES AND STAFF

Visit http://physics.uchicago.edu/research.html for links to descriptions of individual faculty members' research, selected publications, and other information.

Theoretical

Astrophysics & Cosmology. Cosmology and elementary particle physics. Big-bang nucleosynthesis. Tests of the Big Bang model. Ultra-high energy cosmic-ray processes. Baryogenesis and cosmological phase transitions. Topological defects. Inflationary cosmology. Cosmic microwave background radiation. Dark matter. Formation of structure in the universe. The cosmological constant and dark energy. Aspects of string cosmology. Solar and stellar astrophysics. Astrophysical fluid dynamics. Carlstrom, R. Rosner, Turner. Related work by faculty in the Department of Astronomy and Astrophysics.

Condensed Matter. Macroscopic dynamics of materials, interfacial singularities, and non-linear processes. Turbulent, chaotic, and stochastic behavior in hydrodynamic and other dynamical systems. Spatial self-organization in polymers, surfactant monolayers, colloids and cell assemblies. Physics of magnetic and superconducting materials (systems) driven by a strong interaction. Physics in low dimensions. Fermi liquid and non-Fermi liquid states in many body systems. High temperature superconductivity. Quantum phase transitions. Phase ordering kinetics and defect dynamics. Non-perturbative phenomena in electronic systems; strongly correlated electronic systems, magnetism. Transition between jammed and fluid states in granular matter, glass-forming liquids, and magnetic flux lattices. Integrable models of statistical mechanics and quantum field theory. Stochastic processes. Gruzberg, Kadanoff, Levin, Mazenko, Wiegmann, Witten, Zhang.

Elementary Particle Physics. String theory and unification, duality in gauge theory and string theory, solitons and topological structures, precision electroweak measurements, low-energy supersymmetry, CP violation, heavy quark physics, confinement in QCD, quantum theory of black holes, large extra dimensions, fermion mass hierarchy, integrable systems. Freund, Harvey, Kutasov, Martinec, Nambu, Oehme, J. Rosner, Sethi, Wagner.

Relativity. Black holes. Asymptotic structure. Gravitational radiation. Mathematical aspects of general relativity. Quantum field theory in curved space-times. Quantum gravitation. Alternative theories. Geroch, Wald.

Experimental

Astrophysics. Studies of the cosmic microwave background radiation spectrum and anisotropy with ground and space-based detectors. Search for polarization in the cosmic background radiation. Measurements of the Sunyaev-Zelodovich effect for clusters of galaxies. Measurements of intergalactic radiation fields. High energy gamma-ray astrophysics with atmospheric Cherenkov telescopes. Development of giant air shower array (Auger Project) for investigation of the highest energy cosmic rays. Development of large detectors for high energy cosmic rays on space and balloon payloads. Experimental investigations of cosmic ray electrons and of the elemental and isotopic abundances of cosmic-ray nuclei over a wide energy range. Investigations of solar, magnetospheric, and heliospheric phenomena with satellite and deep space missions. Cosmic dust studies. Development of instruments to detect polarization in the far-infrared emission from interstellar clouds. Investigation of the magnetic field structure of dense cloud cores. Airborne and mountain-top polarimetry. Direct searches for non-baryonic dark matter. Accelerator-based nuclear astrophysics experiments. Carlstrom, Collar, Cronin, Hildebrand, Meyer, Müller, Savard, Schiffer, Swordy, Wakely, Winstein.

Atomic Physics. Bose-Einstein condensation of molecules and fermionic superfluids. Laser cooling and trapping of atoms. Scalable quantum manipulation and quantum computation. Testing time-reversal symmetry in atoms and nuclei. Radiokrypton dating. Chin, Lu.

Beam Physics. Investigation of particle and photon beams and their mutual interactions with the goal of developing novel accelerators or radiation devices. Some current topics are production and acceleration of high-brightness electron beams for linear colliders and free electron lasers; beam dynamics in ionization cooling for muon colliders and neutrino factories; self-amplified spontaneous emission for intense, coherent x-rays; miniature IR radiation source via Smith-Purcell process using electron microscope beams. Theoretical and experimental programs at the Enrico Fermi Institute on campus, at the Argonne National Laboratory Advanced Photon Source, and the A0 facility in Fermilab. K. Kim.

Biophysics. Characterization of biological networks, cellular processes, noise and information in biological systems, cell migration and division, physical aspects of biological organization, mechanical behavior of cells, regulation of cell physiology, non-linear dynamics, computational biology, time-resolved fluorescence, confocal microscopy, protein-engineering, signal transduction, gene expression, mathematical modeling, large-scale simulations, stochastic and self-assembly processes, elasticity of polymer networks, optical and holographic traps, single-molecule biophysics. Cluzel, Gardel.

Condensed Matter. Optical and electronic transport in normal and superconducting nanocrystals and arrays. Collective effects at ultra-low temperatures including (fractional) quantum Hall effect, vortex tunneling, metal-insulator transitions, and magnetic quantum critical points. Symmetry-breaking and fluctuations in heavy fermion, organic, and high-T_c superconductors. Nonlinear dynamics and flow properties of granular materials. Scaling behavior of liquid flow and droplet breakup. Mathematical analysis and computer simulation of singularity formation. Universal scaling behavior of relaxation phenomena in supercooled liquids and glasses. Microscopic kinetics and dynamics of phase transitions in colloidal suspensions. Manipulation by dynamic optical holographic traps. Molecular regulation within living cells. Self-assembly and morphology of ultrathin polymer films. Biological properties of the cytoskeleton of eukaryotic cells. The mechanical behavior of cells. Cluzel, Eastman, Gardel, Guyot-Sionnest, Isaacs, Jaeger, Kang, Nagel, Rosenbaum.

Elementary Particles. Measurements of properties of the top quark. Searches for supersymmetric particles, the Higgs boson, and other new physics. Precision tests of the standard model in W and Z decays. Studies of $p\bar{p}$ interactions at center-of-mass energies of 1800 GeV. High-precision measurement of CP violation parameters in K decays; high-sensitivity search for rare K decays and for CPT violation. High-precision measurements of hyperon rare decays. High-precision measurements of electroweak interactions at LEP, both near the Z^0 and at center-of-mass energies up to 200 GeV. Searches for new physics including the Higgs boson and supersymmetry; precision measurement of M_w. Preparation for the ATLAS experiment at the LHC (high-energy $p\bar{p}$ interactions at 14 TeV). Research and development on muon colliders and neutrino factories. Use of facilities at Fermi National Accelerator Laboratory and at CERN. Blucher, Cronin, Frisch, Y. Kim, Merritt, Oreglia, Pilcher, Shochet, Wah, Winstein.

Ion and Electron Microscopy. Development of high resolution-scanning ion and electron microprobes, imaging micro-analysis by secondary ion mass spectrometry with application to advanced ceramics, visualization of dynamic processes and of biological matter. Crewe, Levi-Setti.

Nuclear Physics. Studies of the nuclear many-body system: Nuclear structure and interactions, nuclear reactions in astrophysics, nuclear matter under extreme conditions, precision measurements of critical information to nucleosynthesis along the r- and rp-process paths. Low-energy experiments in fundamental interactions and symmetries. Production, cooling and trapping of rare isotopes, R&D for the Rare Isotope Accelerator (RIA) project. Non-nucleonic degrees of freedom in nuclei and phenomena requiring a quark description. Savard, Schiffer.