Stimulating instruction and research are hallmarks of the Department of Physics at Montana State University, which has been educating creative and productive scientists since 1964. The MSU physics program offers Master of Science and Doctor of Philosophy degrees. The physics faculty, with over 30 members, is committed to maintaining close contact with its more than 60 graduate students and postdoctoral scientists.

The MSU physics program offers Master of Science and Doctor of Philosophy degrees. As you read our literature, explore our web site and talk to our students, you will discover a faculty recognized worldwide for its research and teaching. Our research facilities include a new building, the Engineering and Physical Science (EPS) Building, housing state-of-the-art laboratories and equipment. External collaborations bring national and international experts to the department and open opportunities for research to be conducted at other world-class laboratories around the globe. On-campus interdisciplinary research programs include the departments of Chemistry and Biochemistry, Electrical and Computer Engineering, the Center for Biofilm Engineering and others. Research collaborations with local industries are also actively pursued. Collectively, our research groups foster interactions among the faculty, undergraduate and graduate students, postdocs, visiting scientists and other departments. Our graduates have an excellent record of finding employment in academia and industry, including high tech companies in the Bozeman area.

**RESEARCH OPPORTUNITIES**
- Astrophysics
- Biophysics
- Condensed matter
- Gravitational physics
- Lasers, optics, spectroscopy
- Physics education research
- Solar physics
- Space science

continued
M.S. Program Requirements
The Department of Physics grants the Master of Science degree under two options: Plan-A (thesis required) and Plan-B (without thesis).

Plan-A Requirements
1. Coursework: A minimum of 20 credits of acceptable course work is required, which shall include the following:
   - Teaching Seminar
   - Research Introduction Seminar
   - Advanced Classical Mechanics
   - Quantum Mechanics I
   - Electromagnetic Theory I
   - Mathematical Physics
   - Electives

2. Thesis: An acceptable thesis and at least 10 credits of Physics 590 are required.

3. Examinations: A written comprehensive examination is required. A final oral examination is also required, covering the thesis and related areas.

Plan-B Requirements
1. Coursework: A minimum of 30 credits of acceptable course work is required, which shall be distributed as follows:
   - Teaching Seminar
   - Research Introduction Seminar
   - Advanced Classical Mechanics
   - Quantum Mechanics I & II
   - Electromagnetic Theory I & II
   - Mathematical Physics
   - Electives

2. Thesis Requirements: None

3. Examinations: A written comprehensive examination is required.

Ph.D. Program Requirements
1. Coursework: A minimum of 40 credits of acceptable course work is required, which shall include the following:
   - Teaching Seminar
   - Research Introduction Seminar
   - Advanced Classical Mechanics
   - Quantum Mechanics I & II
   - Electromagnetic Theory I & II
   - Statistical Mechanics
   - Mathematical Physics
   - Electives - 14 credits

2. Thesis: An acceptable thesis is required. A minimum of 20 credits of Physics 690 is required in addition to the courses listed above.

3. Examinations: A written and oral comprehensive examination is required. A final oral examination is also required, covering the thesis and related areas.

Faculty
Department Head
Yves Idzerda

Professors
W. Randall Babbitt - Laser and solid-state physics
John Carlsten - Laser physics
Rufus Cone - Laser and solid-state physics
Neil Cornish - General relativity, gravitational waves
Greg Francis - Physics education
Yves Idzerda - Magnetic nanostructures, spin electronics
Bennett Link - Theoretical astrophysics
Dana Longcope - Solar physics
John Neumeier - Condensed matter, oxides
Aleksander Rebane - Laser physics
V. Hugo Schmidt (emeritus) - Solid-state physics
Sachiko Tsuruta - Theoretical astrophysics

Associate Professors
Charles Kankelborg - Solar physics, experimental space physics
Galina Malovichko - Defects in optical materials
Jiong Qiu - Solar physics

Assistant Professors
Anton Vorontsov - Condensed matter theory
Shannon Willoughby - Physics education
Nico Yunes - Cosmology and string theory, relativity and gravitation

Research Faculty/Adjunct Faculty
Loren Acton - Solar physics
Recep Avci - Surface and biophysics
Richard Canfield - Solar physics
Mikhail Drobijev - Laser physics
Ron Hellings - Relativity, gravitational waves
David Klumpar - Space science
Bob Leamon - Solar physics
Piet Martens - Solar physics
David McKenzie - Solar physics
Paul Rugheimer - Solid state physics
Carla Riedel - Experimental nuclear physics