

Physics Newsletter

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CREIGHTON
UNIVERSITY

Hunting Down the Alums from the Old Days

The general purpose of the Physics Newsletter is to encourage and facilitate communication of our physics graduates with the Physics Department and with each other. In this first issue, our emphasis will be on the current physics department: faculty, staff, students, facilities, programs, and plans. In future issues, we would like to highlight news about our graduates, both as individuals and in general. For this, we will be largely dependent on input from you.

Locating graduates: The task of tracking down graduates from almost half a century was greatly facilitated by the records and assistance of the Alumni Office. All but four graduates have been accounted for. We need help in locating Yousef Y. Saaty (M.S. '75),

Mark G. Veith (B.S. PHY '83), Larry W. Hicks (M.S. '84), and Kazuo Takiguchi (B.S. PHY '86).

Initial response: The response to our preliminary mailing of April 12, 1993, was encouraging. This mailing included a covering letter outlining our newsletter plans, a chronological listing of physics major graduates with names and addresses, and a questionnaire dealing with personal and professional history. We are specially grateful to the people who returned the questionnaire.

Brief History: Classes at the new Creighton College began on September 2, 1878, with a faculty of two Jesuit priests, three Jesuit scholastics, one layman, and one laywoman. One of the scholastics (Jesuits in formation) was William F. Rigge, S.J., after whom the

present Rigge Science Building, opened in 1968, is named.

In the early days of the college, science courses included astronomy, chemistry, geology, and physics. The early important role of science is indicated in a 12-page brochure with the title:

*CREIGHTON COLLEGE EXHIBIT
of Philosophical and Chemical
Apparatus, Minerals, Rare Books,
Specimens of Class-Work,
Collections of Coins and
other Curiosities at the
INTER-STATE EXPOSITION,
Omaha, Nebraska, 1886.*

Seven pages of this brochure give an impressive list of apparatus in Mechanics, Hydrostatics, Heat, Acoustics, Optics, Electricity, and Astronomy.

Physics major program: The first reference to a physics major Bachelor of Science (B.S.) program occurs on page 94 of the **Bulletin of the College of Arts and Sciences** for the Academic Year 1932-1933. The first record of a physics major B.S. graduate is **Thomas I. Gilroy**, deceased, who graduated on June 3, 1948.

Our earliest living B.S. graduate is **Francis X. Parle** who graduated on June 2, 1949, and now lives in Shelton, Washington. After a

year at Notre Dame University, he taught physics and mathematics at Creighton University. He worked at Boeing Aircraft in Seattle from July, 1952, until his retirement in January, 1985.



Francis X. Parle

Master's Degree in Physics Began in 1968 at Creighton

Later physics degree programs: The Bachelor of Science in Physics program (B.S. PHY) was introduced in 1964 for students planning advanced work in physics. Our first B.S. PHY graduate was **David Bruening**, who graduated on Jan. 23, 1966, and received a Ph.D. degree in physics from St. Louis University. He is a Nuclear Training Technical Engineer at Omaha Public Power District's Fort Calhoun Power Station north of Omaha. — The physics Master of Science Program (M.S.) began in the fall of 1968. Our first physics M.S. graduate was **Marie Savickas**, who graduated on May 30, 1970, and is now retired in

Carnegie, Pennsylvania. As of May, 1995, there have been 205 bachelor's graduates and 74 master's graduates. These totals include double majors and 22 who received both B.S. and M.S. degrees at Creighton. — The Bachelor of Science in Medical Physics program (B.S. MED. PHY), intended for students planning on a health science career, will begin in the spring of 1996.

Old location: Real old-timers, from the forties to the late sixties, will have memories of the physics department located at the north end of the fourth floor of the Administration Building in rooms
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Physics Department History Has Curiosities, Too

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A434 (Office), A435 (Classroom), and A436 (Laboratory). The office A434 was painfully small. In the early sixties, the four desks in the room along the east and west walls had to be staggered so that the desk chairs would not collide. Around 1962, the office was moved to the larger room A431 to the west, and A432, A501 (in the attic) and A334 were added as laboratories.

A334 stored a barrel-shaped neutron howitzer containing a 5-curie Plutonium-Beryllium neutron source used for neutron activation. The howitzer is still in use in the Rigge Science Building.

The classroom A435 seated about 60 students in five tiered rows of seats and had a 12 x 3-foot lecture table and a blackboard in front. In the south wall behind the lecture table was a door leading into the laboratory A436. Probably not many people noticed a hole in this door with a circular movable cover. Fr. William F. Rigge, S.J., who was one of the five Jesuits on the original faculty when Creighton College opened in 1878, had inserted this hole so that he could use natural sunlight for optical demonstrations on the lecture table. He had built a heliostat with a movable mirror that tracked the sun. The heliostat, aimed at the sun, could be set on a window sill in the laboratory. A system of fixed mirrors would reflect a beam of sunlight through the hole in the door onto the



Rigge Science Building viewed from the Southeast.

lecture table. The heliostat is now on display in the lobby of the Rigge Science Building.

The Rigge Science Building: Physics and the other natural sciences took a big step forward when the new Rigge Science Building, on the site of the south stands of the old football field, opened for classes on February 5, 1968. Physics is located on the lower and ground levels; atmospheric sciences and psychology on the first floor; chemistry on the second and third floors; biology and environmental science on the fourth and fifth floors. In addition, a penthouse and an observation deck on the roof are used for astronomy.

Physics facilities on the ground floor are the office of the physics secretary, eight faculty offices, two physics classrooms, the general physics laboratory, the office of the laboratory supervisor, two offices for our eight graduate teaching assistants, and the Physics Club room.

The lower level might be called the cellar since it is entirely underground. On this level are located

laboratories in optics, modern physics, nuclear physics, solid state physics, electronics, and astronomy, and the physics machine shop under the supervision of Brad Walters. Brad constructs much of the specialized equipment designed for the research laboratories, also located on the lower level. Areas of research include atomic excitations induced by a 200-kV positive ion accelerator (Dr. Cipolla), laser and solid state physics (Dr. Zepf), and elementary particles (high-energy group headed by Dr. Cherney). Research in ultra-relativistic heavy ion physics is carried out by faculty and students at Lawrence Berkeley National Laboratory in California, Argonne National Laboratory in Chicago, and Brookhaven National Laboratory on Long Island.

Since 1991, the department has been affiliated with the Neale Woods Observatory, located on River Road in the bluffs 10 miles north of Omaha. Astronomy students are transported to the observatory by shuttle bus for night-time observing under conditions of reduced light pollution.

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Current Faculty Has 8 Who Are Full-time, 6 Part-time

Present Physics Faculty: In the fall of 1995, the faculty has eight full-time members and six part-time members.

Full-time members are:

Dr Michael G. Cherney, Associate Professor. Mike teaches general physics and nuclear physics, and is head of the high-energy research group. He studied at the University of Wisconsin.

Dr. Jan T. M. Chrin, Staff Physicist in Particle Physics. Jan studied at Manchester in the United Kingdom.

Dr. Sam J. Cipolla, Professor, who has been the director of our physics graduate program since 1981. Sam teaches general physics and nuclear instruments and methods, and does research in atomic physics. He studied at Purdue University.

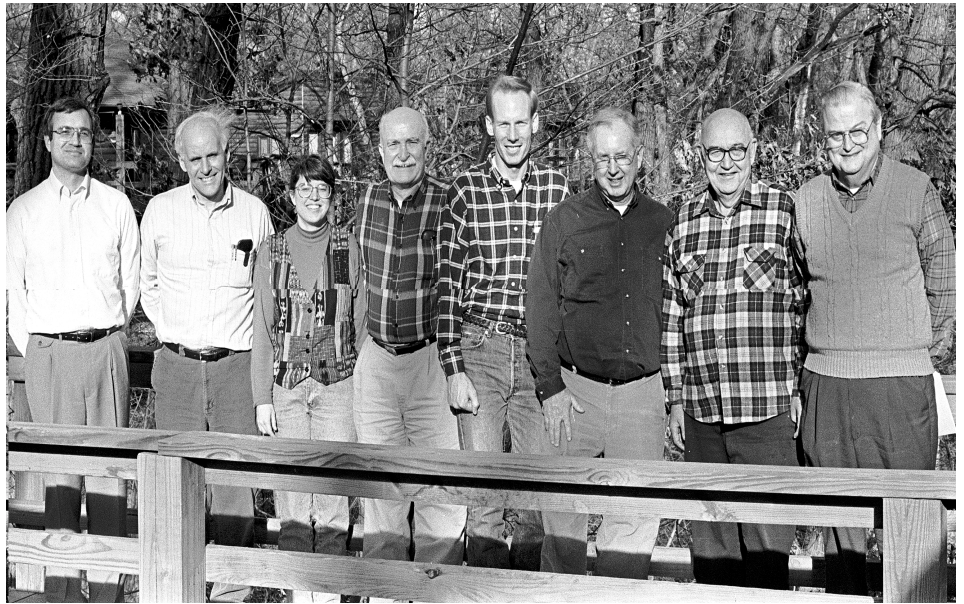
Mr. Jeffrey J. Gross, Adjunct Instructor. Jeff teaches general physics and is part of the high energy research group. He studied at Creighton University.

Dr. Robert E. Kennedy, Associate Professor, was chairman of the physics department from 1973 to 1981 and has been chairman for a second term since 1993. Bob teaches thermodynamics and statistical mechanics and courses in sound and music and Einstein. His research is in the history and philosophy of physics. He studied at Notre Dame University.

Rev. Thomas S. McShane, S.J., Assistant Professor. Fr. McShane teaches electronics and is part of the high-energy research group. He studied at St. Louis University.

Dr. Janet E. Seger, Assistant Professor. Janet teaches general physics and quantum mechanics and is part of the high-energy research group. She studied at the University of Wisconsin.

Dr. Thomas H. Zepf, Professor. Tom teaches optics, solid state physics, and a course on light, color and lasers for non-science majors. His research is in laser optics. He was chairman of the



The Physics Faculty: (from left) Seger, Cherney, McShane, Wagener, Kennedy, Lazure, Cipolla, Zepf, and Gross.

physics department for 22 years, from 1963 to 1973 and from 1981 to 1993. He studied at St. Louis University.

Adjunct part-time faculty are:

Ms. Katherine E. Becker, who teaches natural science for teachers. Katherine studied at Denver University.

Mr. David J. Kriegler teaches astronomy. Dave studied at the University of Nebraska at Omaha.

Dr. Semih S. Kumru is coordinator of the new program in Medical Physics. Sem studied at the University of North Dakota.

Dr. Iwona Sakrejda is part of the high-energy research group. Iwona studied at the Institute of Nuclear Physics in Krakow, Poland.

Mr. David R. Stuva teaches general physics. Dave studied at Creighton University

Rev. Clarence M. Wagener, S.J., semi-retired, is assistant to the chairman and departmental librarian. Fr. Wagener studied at St. Louis University.

Permanent Staff:

Mrs. Bonnie J. Kelley: Department Secretary since 1975.

Mr. Robert F. Stoffel: Laboratory Supervisor since 1987. Bob started as Physics Shop Technician in 1968.

Mr. Brad D. Walters: Science Research Technician since 1990.

Former Faculty :

Dr. K. Michael Davies is engaged in osteoporosis research at the Creighton Medical School.

Dr. P. K. John is at the University of Western Ontario in London, Ontario.

Mr. Basil N. Lazure is retired in Omaha. Baz continues to maintain our audio-visual equipment.

Dr. David P. Maloney is at the University of Indiana-Purdue in Fort Wayne, Indiana.

Dr. Dion W. J. Shea is working in graduate development at City University of New York (CUNY).

Dr. Paul E. Wack is at the University of Portland in Portland, Oregon.

Dr. Robert J. Whitaker is at Southwest Missouri State University at Springfield, Missouri.

Rev. M. John Wymelenberg, S.J. lives at the Creighton University Jesuit Community and does pastoral work.

Medical Physics, Engineering Programs Added

Two new programs were introduced in the spring of 1995: a new physics degree in medical physics and a new dual-degree program in physics and an engineering field offered in conjunction with Washington University in St. Louis, Missouri.

The new degree of Bachelor of Science in Medical Physics (B.S. MED. PHY) is designed for students planning a career in medical physics or another health-science profession. It also may be an attractive program to pre-medical students interested in medical research. Included in the program are the course PHY 351, Physics in Medicine, and the usual prerequisites for medical school. The program is being coordinated by Dr. Kumru, from Turkey, who received an M.S. degree in physics from Creighton in 1988 and a Ph. D. degree from the University of North Dakota in 1992.

The new dual-degree program offered in conjunction with Washington University is typically a 5-year program in which a student receives a B.S. degree with a major in physics from Creighton University and a bachelor's degree in an engineering field from Washington University. Normally, students spend three years at Creighton and then two additional years at Washington University. The program combines the personalized environment of a liberal arts college with the advanced technical program of a college of engineering. Fr. McShane is the Creighton coordinator of the program.

This new dual-degree program is distinct from the 5-year cooperative engineering program offered in conjunction with the University of Detroit-Mercy in Detroit, Michigan. In this cooperative program, students spend two years in pre-engineering at Creighton, and receive a bachelor's degree in an engineering field from the University of Detroit-Mercy after three additional years in Detroit.

Mission Statement

The faculty, staff, and students spent a good part of the past year in an effort to spell out in a mission statement the essential and distinctive goals of the Department of Physics at Creighton University. On May 5, 1995, the following final statement was issued:

The Physics Department, composed of faculty, staff and students working together in a cooperative fashion, is an integral part of the College of Arts and Sciences and of Creighton University. We address the missions of the college and of the university by going beyond simply the teaching of physics to the education of students in the Jesuit tradition of a quality liberal education. This includes the pursuit of truth in all its forms, an integrating vision of the world, transcendent values, service to others, ethical perspectives, and recognition of the inalienable worth of each individual.

Through physics, the most fundamental of the natural sciences, we stimulate intellectual curiosity and develop our common understanding of the world around us. We share classroom experiences, laboratory discovery activities, and opportunities for research. Through this close personal interaction, we help each other develop confidence in our abilities. These shared activities also guide students toward a mastery of the skills and tools physicists use to address fundamental questions, foster the development of a logical approach to problem solving, and aid the development of an ethical framework, both professionally and personally.

As expressed in the mission statement above, the physics department at Creighton University strives to promote a family atmosphere in which individual abilities

and needs are recognized and respected. Understanding concepts and principles, clear thinking, and effective oral and written communication are stressed. The department tries to develop a solid grounding in the content and skills of physics within the broader perspective of the humanistic and value-centered mission of Creighton University.

The **Creighton University Society of Physics Students (Physics Club)**, founded in 1962, continues to be a very important instrument for achieving the humanistic and academic goals of the department. Dr. Seger is faculty moderator of the club. The Society is one of approximately 400 collegiate chapters associated with the American Institute of Physics. Membership is open to all students interested in physics. Chapter activities develop enthusiasm for physics and help to form a close bond among students and with faculty. The members continue to conduct an annual Physics Field Day for regional high schools and present papers on their research at local, regional, and national meetings. In a physics department day of retreat last fall at the new Creighton Retreat Center at Griswold, Iowa, valuable chapter member input included the implemented suggestion that student representatives sit in on general faculty meetings.

The Creighton Chapter of Sigma Pi Sigma (chartered in 1982), the National Physics Honor Society, is one of about 300 chartered chapters in the United States. Election to membership in this Society recognizes individual students of high achievement and promise of distinction in physics.

Epilogue: We hope to get input from our graduates on what they would like to see in future issues of the physics newsletter. Also, we consider our graduates as our family, and appreciate your visits when you are in town.