

The Institute for Research in Electronics and Applied Physics
Celebrates Its 25th Anniversary
Honoring Its Co-founders
Hans Griem and Martin Reiser
At the Clubhouse at the University of Maryland Golf Course
October 17, 2004



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FPN04-62

Maryland Institute Celebrates 25 Years

October 18, 2004

In July 1979, Professors Hans Griem and Martin Reiser established the Laboratory for Plasma and Fusion Energy Studies at the University of Maryland. On October 18, 2004 a 25th Anniversary celebration was held at the university honoring the co-founders.

Since 1979, the institute has been renamed three times. In 1987, it was renamed the Laboratory for Plasma Research; in 1992, the Institute for Plasma Research; and in 2001, the Institute for Research in Electronics and Applied Physics. The current director, Prof. Patrick O'Shea hosted the celebration.

Hans Griem is a true pioneer of fusion research, beginning his contributions in the field of plasma spectroscopy in 1954 and making many contributions during the remainder of that decade and ever since. He is the author of three books on plasma spectroscopy that are standard texts and references in the field.

Martin Reiser began his research career in 1960 and has been a leading research scientist and teacher in the field of charged particle beams. He is the author of over 200 research papers and author of the book Theory and Design of Charged Particle Beams (1994).

Congratulatory messages can be sent to any or all of the following:

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**Institute for Research in
Electronics & Applied Physics**

25th Anniversary

**Honoring our Co-Founders
Hans Griem and Martin Reiser**

*October 17, 2004
The Clubhouse at the
University of Maryland Golf Course*

- 6:00 Reception**
- 6:30 Buffet Dinner**
- 7:30 Remarks by Colleagues, Friends, and our Honorees**
Patrick O'Shea,
Director, IREAP
William Destler,
Provost, University of Maryland, College Park
Nariman Farvardin,
Dean, A. James Clarke School of Engineering
Stephen Halperin,
*Dean, College of Computer, Mathematical and
Physical Sciences*
Stephen Dean,
Fusion Power Associates, former graduate student
Hans Griem
David Sutter
Department of Energy, long-time sponsor of IREAP research
Martin Reiser
- 9:00 Presentations to our Honorees and closing remarks**
Patrick O'Shea

Hans Griem received his Ph.D. from Universität Kiel, Germany, in 1954. He came to the University of Maryland that same year as a research assistant, and after spending two years back at Kiel, he returned in 1957 as an assistant professor of Physics, achieving the rank of full professor in 1963. He founded the plasma science and fusion research group, which in 1979 joined with Martin Reiser's particle beam research group to form the Laboratory for Plasma and Fusion Energy Studies, the initial name of our institute. Hans served as the first Director of the institute, from 1980-1987.

Hans has written nearly 200 articles and is the author of three books that are now standard references in the field: *Plasma Spectroscopy* (1964), *Spectral Line Broadening by Plasmas* (1974) and *Principles of Plasma Spectroscopy* (1997). A Fellow of the American Physical Society, Hans was awarded the APS Maxwell Prize in 1981, and received an honorary doctorate from Ruhr University in 1990. He has also been a Fulbright Fellow and a Guggenheim Fellow.

Hans retired in 1994 from his teaching position in the Physics Department. He continues his research as Professor Emeritus in Physics and as a Senior Research Scientist in IREAP.

Martin Reiser received his Ph.D. in physics in 1960 from the Johannes Gutenberg Universität, Mainz, Germany, while working as a Research Physicist at the AEG-Forschungsinstitut Frankfurt on the design of the sector-focusing cyclotron for the Karlsruhe Nuclear Research Center. Martin joined the University in September 1965 as associate professor, with a joint appointment in the Electrical Engineering Department and the Department of Physics and has been a full professor since 1970. Martin founded the Charged Particle Beam Research Group and went on to co-found the Laboratory for Plasma and Fusion Energy Studies. He is author of more than 200 research papers, co-editor of two books, and the author of the book *Theory and Design of Charged Particle Beams* (1994). Other accomplishments and awards include: Recipient of the Alexander von Humboldt Award, Fellow of the IEEE and the American Physical Society; U.S Particle Accelerator School Prize for Achievement in Science and Technology; Chair of the Division of Beams of the American Physical Society; President of the Washington DC Chapter of the Alexander von Humboldt Association of America.

Martin retired in 1998 from his teaching position in the Electrical and Computer Engineering Department. He continues his

research as Professor Emeritus in ECE and as a Senior Research Scientist in IREAP.

A Brief History of the Institute

Hans Griem's Plasma Physics Group

"In September 1957, when I took up my appointment at the University of Maryland, plasma physics was not yet recognized as a scientific discipline," Hans Griem says. "Fortunately, the chairman of the Physics Department, John Toll, had been an assistant on the Matterhorn stellerator project at Princeton. We all benefited from the Sputnik crisis; the Air Force Office of Scientific Research was offering support for laboratory research on shock waves in plasmas."

The plasma physics group set up shop in the basement of the Physics building with one post-doc and four graduate students. Over the next ten years, they were joined by a number of researchers who still work at IREAP, such as Alan DeSilva, Rick Ellis, Ray Elton, George Goldenbaum, and several researchers who went on to make notable careers elsewhere, including Alvin Trivelpiece, Nick Krall, and Ron Davidson. "Our small group became quite a powerhouse," Hans recalls.

Martin Reiser's Particle Beam Group

When offered a joint appointment in the Electrical Engineering and Physics departments at UMCP in 1965, the position appealed to Martin Reiser on two counts. "It was expected that I would help the Physics department with the design of their cyclotron. At the same time, the cyclotron project would provide an opportunity to establish a graduate program in accelerator design and charged particle dynamics in the Electrical Engineering department. Particle accelerator science was at that time not yet a recognized discipline within the professional societies, and accelerator courses were only taught at Berkeley, Cornell, and Stanford."

An important change in the focus of their research came in the late 1960s with the news that Russian scientists at Dubna had developed a new type of "collective" ion accelerator. "The news created great excitement in the West, and Electron Ring Accelerator (ERA) projects were started at Berkeley, the Max-Planck Institute, and Karlsruhe," Martin recalls. He and his colleagues in the Physics department formed an ERA study group and came up with a unique design for

their ring. "The ERA was, next to the cyclotron, one of the largest research projects on the Maryland campus at that time," Reiser continues. "It greatly enhanced our visibility and recognition and represented a major step in the development of a first-class electrical engineering graduate program in accelerator design and charged particle beam research."

The ERA project's initial home, though, was anything but first-class: they were housed in a remodeled Quonset hut situated near Animal Sciences Department's barns and paddocks. But they set about building a pulsed-power electron beam generator and assembling a top-notch technical staff. Bill Destler, now Provost of the University of Maryland, joined the group as a post-doc.

The Institute

In the early 1970s, the country was in the throes of an energy crisis. Dr. Robert Gluckstern, Provost at that time, suggested that the plasma physics group join with the particle beam group to form a new laboratory devoted to energy research. "After intense lobbying, especially by Hans Griem, funding [from the State legislature] was approved," Martin notes. The plan was to build a new wing onto the "heavy research" building that was then housing the plasma physics group. Ground was broken on July 19, 1979 for the Energy Research Facility, and the two groups joined to form the Laboratory for Plasma and Fusion Energy Studies.

Institute Names

- 1979 Laboratory for Plasma and Fusion Energy Studies
- 1987 Laboratory for Plasma Research
- 1992 Institute for Plasma Research
- 2001 Institute for Research in Electronics and Applied Physics

Directors

- Chuan Sheng Liu, Acting Director, 1979-1980
- Hans Griem, Director, 1980-1987
- Victor Granatstein, Director, 1987-1998
- Thomas Antonsen, Acting Director, 1998-1999
- Patrick O'Shea, Acting Director, 2000-2001
- Director, 2001-