

## 9. Professional Activities and Accomplishments

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### Faculty Activities

A total of thirty-nine faculty members can be identified who have served the physics department three or more years. (See Appendix IV.) Most of these were employed for much more than three years and the forty years of service by Paul C. Sharrah seems to be the record!

A total of over forty-six names can be identified of persons who were with the department less than three years or who were a limited or part-time employee. Some of these were graduate students who taught a lecture section.

More than one of those who were with the department less than three years had an outstanding impact on some aspect of the program or rendered some special service here or elsewhere. Willard C. Bennett, discoverer of the plasma pinch effect, established the RF mass spectrometer project with Maurice Testerman. Testerman taught the first "modern" electronics course in physics. Harold Clark went on to work at the Xerox Corporation. C. Y. Fan had a distinguished career in research at the University of Arizona. Mattia Nurmi measured several of the orbit parameters of the first Russian satellite (1957-Sputnik 1) using equipment borrowed from the Fayetteville Naval Reserve Unit. Albert Sauer worked on submarine development work at Dobbs Ferry, N. Y. James Scobi worked at the atomic energy research facility of Scotland in Glasgow. Brent Stearns went to Tufts University and served as physics book editor for a major publisher.

The special areas of service of several of the early faculty are given in Chapter 2.

A few of the interesting activities of present and former faculty members not covered elsewhere will be listed here in chronological order of employment. H. M. Schwartz published a scholarly book on relativity with McGraw-Hill. B. L. Robinson served for a time at Case Western Reserve University and then for several years with UNESCO in Paris. O. H. Zinke served

Governor Dale Bumpers and Senator Bumpers as energy advisor from 1972 to 1975. G. T. Clayton was Dean of Arts and Sciences at Stephen F. Austin University and then Dean of the Graduate School. S. M. Day was president of the University Senate, then Associate Dean of Arts and Sciences and then Dean of Arts and Sciences at Miami University in Oxford, Ohio. C. E. Jones became head of physics at East Texas State University at Commerce, Texas. A. S. Hobson authored books in Statistical Physics and General Physics. C. B. Richardson served as a consultant with Arkansas Power and Light, and served on a Governor's commission to evaluate the safety issues related to the nuclear power plant in Russellville after the Three-Mile Island accident. R. J. Anderson served as head of the college honors program and as senior program director in the Experimental Program to Stimulate Competitive Research at the National Science Foundation in Washington, D. C. D. O. Pederson became associate dean of arts and sciences and then vice chancellor for academic affairs. P. W. Milonni joined the Los Alamos National Laboratory. L. S. Merkle joined the U. S. army night vision laboratory. Howard J. Carmichael joined the University of Oregon. A. M. Hermann, with Z. Z. Sheng, developed the highest temperature superconductor known at that time in 1988. The thallium superconductor maintained the record highest critical temperature for six years. Professor A. M. Hermann joined the physics department of the University of Colorado in 1989.

Local committee work and organizations on campus have been a part of the concern of various members of the physics faculty. H. M. Schwartz was on a five-man committee to advise the Institute of Science and Technology in the physical sciences in the early 1950's. Paul C. Sharrah served on the Library Advisory Committee, vice-president of the University Senate, vice-president of Sigma Xi, Academic Standards Committee (twice), ad-hoc committee to study H. M. Schwartz salary scale, ad-hoc

committees to study atomic reactor or computer feasibility, Arts and Sciences advisory committee with Dean Nichols, Science Building B committee with Dean R. F. Kruh, several IST research proposal appraisal committees, Graduate Institute of Technology advisory committee, committee to search for a new dean for Arts and Sciences. We recommended R. F. Kruh! Sharrah is active in the University of Arkansas Retirement Association and serving as president 1995-96. Z. V. Harvalik was on the Sigma Xi committee that changed the organization from a local club to a national chapter. O. H. Zinke was chairman of the local chapter of the American Association of University Professors. R. H. Hughes served on the NSF Trainee and the NASA Trainee Selection committees during their lifetime. He also served on the University Radiation Safety Committee as a member and its chairman. G. T. Clayton was a member of the honors council. S. M. Day served as an advisor and as an expert witness to the State penal system. C. B. Richardson was president of the Sigma Xi. R. J. Anderson was director of the honors program. Michael Lieber served on the computing center committee. G. J. Salamo directed the college honors program for the year 1985-86. R. Gupta served as department chairman starting in 1989 and spent much time planning the remodeling

and expansion details of the physics space from 1989 to 1992 and getting the renovation done from 1992-1994.

An annual newsletter was sent out to former students in the 1940's and 1950's and 1960's. A Physics Newsletter was started up again in 1970 edited by Dr. Richard Anderson and again in 1991 by Dr. Surendra Singh.

### Heads and Chairmen

Listed below are the names of former and present Physics Department Heads and Chairmen.

<b>Giles E. Ripley (Head)</b>	1908 - 1940
M.S., University of Indiana	
<b>Lloyd B. Ham (Head)</b>	1940 - 1957
Ph.D., University of Illinois	
<b>Paul C. Sharrah (Chairman)</b>	1957 - 1969
Ph.D., University of Missouri	
<b>S. M. Day (Chairman)</b>	1969 - 1975
Ph.D., Rice University	
<b>Charles B. Richardson (Chairman)</b>	1975 - 1978
Ph.D., University of Pittsburgh	
<b>Donald O. Pederson (Chairman)</b>	1978 - 1983
Ph.D., Rice University	
<b>Michael Lieber (Chairman)</b>	1983 - 1986
Ph.D., Harvard University	
<b>Allen Hermann (Chairman)</b>	1986 - 1989
Ph.D., Texas A&M University	

<b>Rajendra Gupta (Chairman)</b>	1989 - 1995
Ph.D., Boston University	
<b>Surendra Singh (Chairman)</b>	1995 to present



Six of the Physics Department chairmen from 1957-1995 gathered at the building dedication September 1994. Left to right, with years served: Paul C. Sharrah (1957-69), Charles B. Richardson (1975-78), Donald O. Pederson (1978-83), Michael Lieber (1983-86), Allen Hermann (1986-89), and Rajendra Gupta (1989-1995). S. M. Day (1969-75) was not present.

It will be noted that the two department heads served for a total of forty-nine years from 1908 to 1957 and when Dr. Gupta's present three-year term is over in 1995 the seven chairmen who started serving in 1957 will have served thirty eight

years.

The term system for department chairmen seems to work fine for us here as new enthusiasm and ideas come in with each new chairperson and someone can “retire” from the position with no difficulty when he or the department want a change. It also gives the chairperson a chance to return to his teaching and research interests! Another not insignificant factor is the training in administrative work which each new chairman obtains and often they go on into other higher positions after this experience as the department leader.



Two of the principal organizers of the Arkansas-Oklahoma-Kansas (AOK) Regional Section of the American Association of Physics Teachers—Winston Cram of the University of Ottawa and Paul Sharrah. Moody Coffman of Oklahoma City University was another one of the principal organizers. (Photo ca 1970)

### Organizations

The Physics faculty hold memberships in the American Physical Society, the American Association of Physics Teachers, the American Association for the Advancement of Science, The American Society for Engineering Education, The American Acoustical Society, the Optical Society of America, and the American Crystallographic Association. Four (Harter, Hermann, Hughes, & Hobson) are Fellows of the APS and one is a Fellow of the AAAS. Several have been admitted to the honorary research society Sigma Xi and at least two are members of Phi Beta Kappa.

Local organizations are the Arkansas Academy of Science and the Arkansas-Oklahoma-Kansas section of the AAPT. Paul C. Sharrah was presi-

dent of the Arkansas Academy of Science for one year. Moody Coffman of Oklahoma City University, Winston Cram of the University of Ottawa, Kansas, and Paul C. Sharrah were the three who held a short conference together at the January meeting of the joint meeting of the American Physical Society and the American Association of Physics Teachers in New York that lead to the organization of the Arkansas-Oklahoma-Kansas regional section of the American Association of Physics Teachers in 1965. Several of our faculty have served as president of the AOK-AAPT or organized conventions. These include R. J. Anderson, Urbano Oseguera, D. O. Pederson, and Paul C. Sharrah.

### Books

H.M. Schwartz published a book, *Introduction to Special Relativity* (McGraw-Hill) in 1968 which received very good reviews. A.S. Hobson published a monograph titled *Concepts in Statistical Mechanics* (Gordon and Breach) in 1971. He also published a textbook titled *Physics and Human Affairs* (Wiley, 1982), for liberal arts students. This book was used at the University of Arkansas for many years in a highly



R. H. Hughes makes a point, “spin up,” at a physics colloquium in Room 117, ca 1965.

popular course by the same name. William Harter authored a book on group theory titled *Principles, Symmetry, Dynamics, and Spectroscopy* and was published by Wiley Interscience in 1994 intended primarily for the advanced students. A second volume of this book is being published at the time of this writing. Hobson has published an updated version of his textbook titled *Physics: Concepts and Connections* (Prentice-Hall, 1995) intended for an introductory course for liberal arts students. As of this writing, this book has already been adopted at 26 institutions. Hobson has also edited a book *Future of Land-Based Missiles* (American Institute of Physics, 1989) with Levi and Sakitt and he contributed four chapters to this book. R. Gupta edited a reprint volume titled *Laser Spectroscopy*, which was published by the American Association of Physics Teachers in 1993.

#### APS Fellowships

Four current and former faculty members have been elected Fellows of the American Physical Society. Raymond Hughes was elected Fellow in 1968 for his contributions in atomic physics and Allen Hermann (now at University of Colorado) was elected a Fellow for his contributions in condensed matter physics. More recently, Art Hobson and William Harter have been elected Fellows. Hobson was elected a Fellow in 1992 "For outstanding development of the Newsletter of the Forum on Physics and Society, and for numerous other contributions in the area of physics and society." Harter was recognized in 1994 "For the development of novel semiclassical and graphical theories which contributed to better understanding, analysis, and prediction of complex electronic spectra of atoms and molecules, and high resolution rota-

tion-vibration of symmetric polyatomic molecules."

#### University and Distinguished Professorships

The Department has also done quite well in getting University and Distinguished Professorships. Allen Hermann was appointed a Distinguished Professor in 1988 in recognition of his work on high-temperature superconductivity. The following year Raymond Hughes was appointed a University Professor in recognition of his lifelong achievements in research, his role in establishing the Ph.D. program here, and in general for his contributions to the graduate program. More recently, Gregory Salamo has been appointed a University Professor starting in the 1995 academic year, primarily for his achievements in research in quantum and nonlinear optics.

#### Teaching and Research Awards

Richard J. Anderson was the recipient of the 1981 Alumni Faculty Distinguished Achievement Award for Teaching and Research in 1981 and also received the Fulbright College Master Teacher Award the same year. Raymond Hughes was honored with the Alumni Faculty Distinguished Achievement Award for Research in 1984. Arthur Hobson received the Fulbright College Master Teacher Award in 1989. The 1995 Alumni Distinguished Achievement Award for Research was given to Gregory Salamo. Physics had done quite well; these awards are very competitive, only one or two being awarded in each category per year.

On the National scene, Zhengzhi Sheng received the 1990 Superconductivity Award for Excellence by the Second World Congress on Superconductivity. Professor Sheng was also recognized for his work by special resolutions

and citations by Arkansas House of Representatives, Governor Bill Clinton, and the University of Arkansas Board of Trustees.

#### **Patents Awarded/Popular Press Coverage**

The faculty has received many patents, but the largest number of patents by far have been awarded to Professors Sheng and Hermann for their discoveries in high-temperature superconductivity, specifically, their discovery of the thallium-based superconductor, which, with a critical temperature of 125 K, was the highest-temperature superconductor known at that time. They received over twenty patents and some of them were licensed to a California company for over one million dollars.

Professor Sheng and Hermann received extensive coverage in the popular press for their discovery of the thallium superconductor, including in *New York Times*, *Wall Street Journal*, *Newsweek*, *Science*, *Science News*, *Nature*, *Physics Today*, *Chemical and Engineering News*, *Chronicle of Higher Education*, etc. Extensive television and radio coverage was also received.