

CSWP GAZETTE

*A Newsletter of the Committee on the Status of Women
in Physics of the American Physical Society*

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FOREWORD TO OUR READERS

The *CSWP Gazette* is now entering its second year under a rotating editorship and as editors of the *Gazette* we are finally getting the "bugs" out of the system (although each of us still struggles with making deadlines given the professional constraints on our lives). We thank the readership for their patience during this period of change. Contributions from the readership are vital to the continued success of this newsletter. With the centralized address at APS Headquarters in New York for the *Gazette* listed on page 2 of this and each future is-

sue, we hope to dispel any confusion about where or to whom contributions should be sent. We need your ideas and need to share your concerns. A sense of isolation is one of the greatest enemies of any underrepresented group. It is too easy for the new faculty member to feel that she is excluded from ordinary avenues of exchange at her institution or that she is facing problems utterly alone. Contributions can come in any form: an interesting book review, a poem, a concern, a novel solution, a good idea that somehow in practice didn't work. Contributions can come from any source—male or female, administrator, teacher, researcher, business group leader, or student. With your continued help the *Gazette* can become even more effective in finding and communicating ways of encouraging the full participation of women in physics and related fields.

cant differences among the experiences of women in different countries, and of some encouraging trends. The audience, which numbered over 100 during parts of the program, participated with many questions and comments following each presentation, resulting in a number of lively discussions. The program was arranged by CSWP member Barbara Wilson.

Professor Xie (President, Fudan University, Shanghai, People's Republic of China) began by noting that while women have gained full legal equality in China, social barriers remain that inhibit the progress of females into the higher ranks. Many people in China still expect boys to be more adept than girls in the areas of science and math, with the result that girls are less often encouraged to pursue these disciplines. Nevertheless, the physics faculty at Fudan University is approximately 20% female, a figure not outstanding in China apparently, but one that we would be hard-pressed to duplicate at any institution in the U.S. Professor Xie also presented profiles of a number of prominent women scientists in China, many of whom work as wife-and-husband teams.

A remarkable contrast between Spain and Germany was presented by Dr. Ortiz (IBM, San Jose, CA), who has studied and worked in both countries. She found the fraction of women physics students and faculty to be significantly higher at Spanish universities, where physics is less stereotyped as a "man's field," and consequently women experience less social conflict in pursuing physics careers. Equivalent data for the U.S., where Dr. Ortiz is now working, lie intermediate to those of the two European countries.

The situation in Japan described by Dr. Inoue (Corning Japan K.K., Tokyo, Japan) is somewhat less advanced.

The editor for this issue is Marie Machacek.

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WOMEN IN PHYSICS: AN INTERNATIONAL PERSPECTIVE

**Barbara Wilson, Committee on the
Status of Women in Physics
AT&T Bell Laboratories,
Murray Hill, NJ**

At the March APS Meeting in New York, CSWP sponsored a symposium entitled "Women in Physics; An International Perspective." Speakers Xie Xide, Carmen Ortiz, Michiko Inoue, and Irena Dumler presented information on the status of women physicists in China, in Spain and Germany, in Japan, and in Chile and England, respectively. Patricia Cullen described her experiences as an American woman working in a Japanese industrial lab. Finally, Barbara Wilson presented an international overview, including data from 20 countries. The audience saw a consistent pattern of underrepresentation of women documented in all the lectures, but also learned of signifi-

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The "CSWP GAZETTE," a quarterly newsletter of the American Physical Society Committee on the Status of Women in Physics (CSWP), is mailed free of charge to all women listed on the computerized "Roster of Women in Physics," all US physics department chairs, and others on request. Because editorial responsibility rotates among CSWP members, please address all correspondence to: "CSWP Gazette," The American Physical Society, 335 East 45 St., New York, NY 10017.

Only about 3% of physics PhDs go to women, and women represent less than 2% of the faculty across all the physical sciences. Similarly, the experience of Ms. Cullen (Dept. of Material Sciences, MIT, Lexington, MA) highlighted the rarity of women in Japanese industrial research labs. Ms. Cullen commented on both the lack of company resources and training opportunities offered to female employees, as well as on the low career expectations of the women themselves. On the other hand, Dr. Inoue noted that recent advances in equal opportunity legislation in Japan may herald the beginning of significant changes in all these patterns.

In her talk, Dr. Dumler (Materials Research Lab, University of Illinois, Urbana, IL) compared her experiences as a researcher in Chile, England, and the U.S. Although there are essentially no job openings for physical scientists in Chile at this time, Dr. Dumler noted that the social barriers inhibiting the

participation of women in science are less pervasive there than in the U.K. For example, as many as 10% of physics faculty in Chile are women. Women represent a much smaller minority among physical scientists in the U.K., with the result that Dr. Dumler found herself more isolated there, and less easily accepted as a professional peer.

The final talk by Dr. Barbara Wilson (AT&T Bell Labs, Murray Hill, NJ) brought together statistics on women in physics from 20 different countries on 6 continents. Much of the information was provided by representatives of physical societies around the world in response to a questionnaire she sent to 57 such organizations. The majority of responses were from Europe (Austria, Belgium, Denmark, France, Germany, Norway, Spain, Sweden, and the U.K. -9/16), or from countries with a significant European component in their heritage (Argentina, Australia, Chile, Israel, South Africa, and the U.S. -6/13). Only one country among the Arab states (Jordan -1/7), and two of the Far East nations (China and Japan -2/9) returned the questionnaire. There was no response from any of the Eastern European countries or from the Soviet Union (0/9), although a study prepared for UNESCO by Dr. Jan Harding suggests that the participation of women in science and technology may be greater in these countries than in other parts of the world. Dr. Harding attributes this pattern in part to the availability and social acceptance of child care facilities, an aspect also commented on by Dr. Dumler as a positive influence for Latin American women pursuing professional careers. There was no response from any of the Central African nations (0/4). Additional data were obtained from the UNESCO study, from a recent Europhysics Study Conference on the Employment of Physicists in Europe, from reports of the U.S. Commission on Professionals in Science and Technology, and from CSWP surveys.

Among the countries for which data were available, the U.S. is about average in terms of the fraction of Bachelor's and PhD degrees in physics awarded to women, which are currently running at 13% and 7%, respectively. For comparison, women earn more than 15% of the PhDs in Belgium,

France, Israel, Norway, Poland, and Spain, and less than 5% in Germany and Japan. As one might anticipate, Dr. Wilson found a strong correlation between the fraction of degrees earned by women and the representation of women in faculty and research positions. The U.S. and U.K. are exceptions to this rule, however. While the percentage of degrees awarded to women is about average for these countries, both exhibit comparatively lower proportions of women in these prestigious professional positions. A 1981 CSWP survey found that women comprise less than 2% of tenured and nontenured faculty in PhD-granting physics departments in the U.S. Internationally, the fraction of tenured physics faculty cited in the questionnaire responses ranged from <1% in Japan to >10% in China, France, Jordan, and Spain. While statistics on women in PhD-level research positions with equivalent status were more difficult to obtain consistently, the U.S. again appears to rank in the lowest third among the nations for which data were available. The most outstanding data came from the French government labs, CNRS, where about 20% of entry-level positions and 12% of managerial positions in physics research are held by women. Countries with the fewest female researchers in physics include Austria, Japan, and Jordan.

Dr. Wilson combined the responses in four categories—the fraction of physics Bachelor's and PhD degrees granted to women, and the ratio of women to men among tenured physics faculty and PhD-level research staff—to obtain a measure of the overall status of women in physics in each of the countries for which she obtained data. Using this standard, she determined that the U.S. ranks only in the lower third, along with Australia, Denmark, Japan, and the U.K. The countries with the best overall records include Belgium, France, Israel, and Spain. Less complete data from Argentina, Chile, China, and Poland suggest that they, too, would score above average on this comprehensive scale. The comparative ranking of the U.S. would probably come as a surprise to many in the U.S. physics community, where the common perception is that Equal Opportunity Legislation and Affirmative Action efforts have eradicated almost

all of the gender inequalities among professionals.

The questionnaire also requested an identification of the most important social barrier(s) inhibiting the full participation of women in the physical sciences in each country. The most common response, reported in six countries, was that of conflict between career and home/family responsibilities. Thus it is understandable that women physicists might be more numerous and more successful in countries where assistance with child care is more readily available. Four responses cited discrimination in educational and employment opportunities due to prevailing social prejudice. Indeed, as noted by Dr. Dumler in her comparison of Spain and Germany, and consistent with the more general conclusions of the UNESCO study, the proportion of women in science depends on the degree to which it is stereotyped as "masculine" within that society. In Jordan, for example, although women are largely absent from the professional ranks, science is not perceived as a "man's field," and 50% of the Bachelor's degrees in physics are earned by women. Finally, two respondents attributed the main barriers inhibiting the advancement of women to attitudes and behaviors of women themselves, thus "blaming the victim" rather than looking more deeply into the social sources of these responses.

Finally, Dr. Wilson's questionnaire asked for examples of women who have made important contributions in physics, and the responses provided eight names of prominent women physicists from five countries. Dr. Wilson closed her presentation with a list of 158 distinguished women physicists taken from an international index of women scientists from antiquity to the present compiled by Caroline L. Herzenberg, and recently published by Locust Hill Press.

Dr. Wilson plans to write an article based on the information gathered for this symposium. To obtain a copy, write to her at AT&T Bell Labs, RM 6F-207, 600 Mountain Ave., Murray Hill, NJ 07974.

THE NATIONAL MEDAL OF SCIENCE

"In 1959 the 86th Congress established a National Medal of Science to be awarded by the President to individuals 'deserving of special recognition by reason of their outstanding contributions to knowledge in the physical, biological, mathematical, or engineering sciences.' In 1980 the 96th Congress expanded this recognition to include the social and behavioral sciences. A committee composed of scientists and engineers assists the President in identifying distinguished candidates for these awards.

"The Committee has established the following guidelines for selection of candidates:

—The Total impact of an individual's work on the present state of physical, biological, mathematical, engineering, or social and behavioral sciences is to be the principle criterion.

—In addition, achievements of an unusually significant nature will be considered and judged in relation to the potential effects of such achievements on the development of scientific thought.

—Unusually distinguished service in the general advancement of science and engineering, when accompanied by substantial contributions to the content of science at some time, may be recognized.

"Since its establishment the National Medal of Science has been awarded to 225 scientists and engineers. Many of these distinguished Americans have careers spanning four or five decades of research and development. There are now many younger American scientists and engineers who may be reaching a point where their contributions are worthy of recognition. The President has asked the Committee to give increasing attention to these individuals, and also to ensure that the selection process emphasizes the President's commitment to the recognition of outstanding women and minority scientists and engineers."

Thus reads a letter from the President's Committee on the National Medal of Science asking for nominations of candidates eligible for the

1987 awards. Although the nomination date for 1987 recipients closed on 30 June 1987, nominations may be updated at any time for future awards and the nomination remains in effect for three years after the date of nomination. It was remarkable that in a list, which accompanied the above letter, of some 188 recipients of the award during the years 1962–86 fewer than 10 were women. This only demonstrates that even a thoughtful committee may easily, unintentionally overlook qualified candidates belonging to underrepresented groups. In an effort to aid in the identification of such persons who fulfill the above guidelines and are deserving of National recognition, names of suitable candidates with a statement of why the candidate meets the selection criteria may be sent to the CSWP. CSWP will forward without comment all such suggestions of candidates to the appropriate nominating committees for their consideration.

LUISE MEYER-SHUTZMEISTER MEMORIAL AWARD

It is a pleasure to report that Ms. Zhiping Zhao is the 1987 winner of the Luise Meyer-Shutzmeister Memorial Award. Her research experience includes the study of reflection-asymmetric nuclear states at the Brookhaven National Laboratory and in the Daresbury National Laboratory, Daresbury, England. Ms. Zhao expects to obtain her PhD degree from Yale University in 1989. Her thesis topic is "Parity nonconserving alpha emission of O^{-} state in O^{18} " and is being performed under the supervision of Professor Moshe Gai.

1987 LAURA EISENSTEIN AWARD

The 1987 Laura Eisenstein Award has been awarded to Elizabeth S. Paley of the Department of Physics at the University of Illinois at Urbana-Champaign. Ms. Paley is one of the top seniors in the department, holds a grade point average of 4.96/5.00, is a James Scholar, and has made the Dean's List at the University of Illinois every semester. She is the daughter of Hiram and Jean Paley of Urbana.

SPS ELECTIONS HELD

The Society of Physics Students (SPS)

recently announced the results of the 1987 elections of regional faculty and student representatives to the National Council. Three faculty councillors and twelve student associate councillors were elected. Of these 30% are women. They are:

Dr. Janine Shertzer, Department of Physics, College of the Holy Cross, Worcester, MA, councillor for Zone 1 representing Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Ms. Carrie Lord Leucci, Department of Physics & Astronomy, University of Pittsburgh, Pittsburgh, PA, associate councillor for Zone 3 representing Pennsylvania

Ms. Kelly Lynn Mull, Jacksonville University, Jacksonville, FL, associate councillor for Zone 6 representing Alabama, Florida, Georgia, Louisiana, Mississippi

Ms. Nancy E. Hecker, University of Michigan, Ann Arbor, MI, associate councillor for Zone 7 representing lower Michigan peninsula, Ohio, West Virginia

Ms. Kristina Rubin Lang, Austin College, Sherman, TX, associate councillor for Zone 10 representing Arkansas, Oklahoma, Texas

Our congratulations to these women and best wishes for a successful year.

COMING EVENTS AND CONFERENCES

A national conference on *Women in Science and Engineering: Changing Vision to Reality* will be held 29 July–1 August 1987 at the University of Michigan in Ann Arbor, MI. The conference of 300 working scientists and engineers, educational equity researchers, intervention program implementors, college and university faculty, teachers of mathematics and science at all levels, supervisors, administrators, policymakers, and others concerned with these issues will discuss research, intervention, policies, and future action at the precollege, undergraduate, graduate, and professional levels. The conference is sponsored by the Office of Opportunities in Science of the American Association for the Advancement of Science (AAAS). For further information, contact Mar-

sha Lakes Matyas, AAAS, 1333 H St., NW, Washington, DC 20005, (202) 326-6676.

DEADLINES!! DEADLINES!! DEADLINES!!

Nominations for the 1988 *Maria Goeppert-Mayer Award* close on 15 September 1987. The award will be given to a woman during the early years of her career for scientific achievements that demonstrate her potential as an outstanding physicist. The award is sponsored by the General Electric Foundation and is open to women of any nationality. Supporting information should include at least one letter of nomination and a current curriculum vitae of the nominee. Additional supporting letters are helpful. Materials should be sent to: Margaret Kivelson, Chairperson, Selection Committee, Space Science Center, University of California, Los Angeles, CA 90024.

Proposals for the *National Science Foundation Visiting Professorships for Women Program* must be postmarked no later than 1 October 1987. Program information may be obtained by writing to: Visiting Professorships for Women, National Science Foundation, Washington, DC 20550, or by calling (202) 357-7734. See also following article.

NSF VISITING PROFESSORSHIPS FOR WOMEN

The NSF Visiting Professorships for Women Program was designed to address the need to encourage women to pursue careers in science and engineering by providing greater visibility for women scientists and engineers employed in industry, government, and academic institutions. Grants are usually awarded for 12-month periods, but proposals for a single academic semester or periods up to 24 months for a full or part-time professorship are also considered.

The program enables a woman scientist or engineer to undertake advanced research at a host institution—a university or four-year college. However, in addition to her research responsibilities, the visiting professor is expected to undertake lecturing, counseling, and other interactive activities to

increase the visibility of women scientists in the academic environment of the host institution and to provide encouragement for other women to pursue careers in science and engineering.

The instructional and other interactive activities may be at the undergraduate or graduate level, may be directed to the community at large, or be a combination of these. The expected outcome of the program is two-fold. First, the visiting professor will have opportunities to conduct research not possible at her home institution. Second, she will be able to enhance the instructional programs of the host institution through lecturing, counseling, and mentoring. Each of these activities, research and instructional, should increase the awareness of students and faculty, male and female, of the contribution of women scientists and engineers to the nation's scientific effort and demonstrate to students, especially women, opportunities for careers in science and engineering.

To be eligible to apply for this program an applicant must:

*Hold a doctorate in a field of research supported by NSF. In exceptional cases experience equivalent to a PhD may be accepted.

*Have independent research experience in an academic institution, industry, or the public sector of the type normally expected of individuals with a faculty appointment.

*Be currently or recently affiliated with an institution of higher education, research institute, government, or industry in the United States, its possessions or territories.

*Not have a salaried position, or the promise of one, with the proposed host institution, nor be receiving funds from a research grant distributed through that institution, at the time of application to VPW.

The applicant, together with the host institution, is responsible for developing plans and arranging for both fully developed independent research, which may involve collaboration with a scientist at the host institution, and participation in instructional, counseling, or other interactive activities at the host institution. Applicants submit proposals as individuals, but the host

PHYSICS COLLOQUIUM SPEAKERS AND TITLES 1987/1988

Entries are arranged by subject, followed by a list of talks for general audiences. A list of the speakers by geographic area is given at the end.

ASTROPHYSICS

Dr. Sheila Bailey
NASA Lewis, MS 302-1
Cleveland OH 44135
(216) 433-2228

1. *Advances in photovoltaics*
2. *Space photovoltaics*

Dr. Bonnie Buratti
Jet Propulsion Lab.
California Inst. of Technology
4800 Oak Grove Dr.
183-501
Pasadena, CA 91109
(818) 354-7427

1. *The icy satellites of Jupiter and Saturn*
2. *The Mars observer mission: Return to the red planet*

Dr. Bel Campbell
Dept. of Physics & Astronomy
Univ. of New Mexico
Albuquerque, NM 87131
(505) 277-5148 or -2616

1. *Disks and jets in star formation*

Dr. Lynn R. Cominsky
Dept. of Physics & Astronomy
Sonoma State Univ.
Rohnert Park, CA 94928
(707) 664-2655

1. *Discovery of eclipses from an x-ray burst source*
2. *X-ray and x-ray reprocessing*
3. *The extreme ultra-violet explorer satellite*

Dr. Carol Jo Crannell
NASA Goddard Space Flight Center
Code 682
Greenbelt, MD 20771
(301) 344-5007

1. *Imaging high-energy emissions from solar flares*
2. *Using balloon-borne platforms for observations of solar flares*
3. *The physics of high-energy solar processes in solar flares*

Dr. Katherine Freese
Inst. for Theoretical Physics
U. C. Santa Barbara
Santa Barbara, CA 93106
(805) 961-4111

1. *Fundamental physics and dark matter*
2. *Baryogenesis: An explanation of the matter/antimatter content of the universe*
3. *Magnetic monopoles and cosmology*

Dr. Martha P. Haynes
Space Sciences, Cornell Univ.
Space Sciences Building
Ithaca, NY 14853
(607) 255-0610

1. *Extragalactic sociology: Environmental effects on galaxy evolution*
2. *Large-scale structure in the universe*

Dr. Christine Jones
Harvard-Smithsonian Center
for Astrophysics
60 Garden Street
Cambridge, MA 02138
(617) 495-7137

1. *Hot gas in early type galaxies*
2. *Einstein x-ray images of the structure of clusters of galaxies*

Dr. Karie Meyers
Physics Dept., Occidental College
Los Angeles, CA 90041
(213) 259-2821

1. *Variability in Seyfert Galaxies*

Dr. Nancy D. Morrison
Ritter Observatory
The Univ. of Toledo
Toledo, OH 43606
(419) 537-2659

1. *The fundamental properties of massive stars*

Dr. Anneila Sargent
Downs Lab. of Physics
California Inst. of Technology
320-47
Pasadena, CA 91125

1. *Star formation*
2. *Millimeter wave interferometry of star-forming regions*

Dr. Virginia Trimble
Dept. of Physics, U.C. Irvine
Irvine, CA 92717
(714) 856-6948

1. *Existence and nature of dark matter in the universe*
2. *Supernova: Bigger and better bangs*
3. *A field guide to the binary stars*

BIOLOGICAL AND MEDICAL PHYSICS

Dr. Beverly S. Cohen
Inst. of Environmental Medicine
NY Univ. Med. Ctr.
Longmeadow Rd.
Tuxedo, NY 10987
(914) 351-5277

1. *Deposition of ultrafine particles on the human tracheobronchial tree: A determinant of the dose from radon daughters*
2. *Sampling airborne particles for estimation of inhalation exposure*

Dr. Suzanne Gronemeyer
Siemens Medical Systems
1906 Craigshire
St. Louis, MO 63146
(314) 725-7075

1. *Clinical magnetic resonance imaging*

Dr. Arlene J. Lennox
Fermilab
MS 301, PO Box 500
Batavia, IL 60510
(312) 840-4850

1. *Neutrons against cancer: Clinical experience at Fermilab's neutron therapy facility*

Dr. Carmay Lim
Chemistry Dept., Harvard Univ.
12 Oxford Street
Cambridge, MA 02138
(617) 495-1775 or 254-0175

1. *Enzyme catalysis: Mechanism of ribonuclease A*

Prof. Eugenie V. Mielczarek
Dept. of Physics, George Mason Univ.
4400 University Dr.
Fairfax, VA 22030
(703) 323-2303

1. *Iron transport and storage compounds in living systems: Mössbauer spectroscopy*

Prof. Geraldine L. Richmond
Chemical Physics Inst.
Univ. of Oregon
Eugene, OR 97403
(503) 686-4635

1. *The spectroscopy of metal ions bound to proteins and polymers*

Dr. Petra Schmalbrock
MRI Facility
The Ohio State Univ.
1630 Upham Dr.
Columbus, OH 43210
(614) 293-8181

1. *Magnetic resonance imaging and spectroscopy*
2. *Investigations of flow with magnetic resonance*
3. *Pulse sequence development for magnetic resonance imaging*

Dr. Sara A. Solla
AT&T Bell Labs, 4G-336
Crawfords Corner Rd.
Holmdel, NJ 07733
(201) 949-6057

1. *Statistical mechanics of neural networks*

CHEMICAL AND STATISTICAL PHYSICS

Dr. Nancy J. Brown
Lawrence Berkeley Lab., Bldg. 29C
Berkeley, CA 94720
(415) 486-4241

1. *Theoretical and experimental chemical kinetics*
2. *Energy transfer*

Dr. Sarah Gilbert
National Bureau of Standards
325 Broadway
Boulder, CO 80303

(303) 497-3120

1. Laser cooling and spectroscopy of stored atomic ions

Dr. Sandra C. Greer

Dept. of Chemistry, Univ. of Maryland
College Park, MD 20742

(301) 454-6093

1. Chemical reactions and critical points

2. Equilibrium polymerization as a phase transition

Dr. Marsha I. Lester

Dept. of Chemistry
Univ. of Pennsylvania
Philadelphia, PA 19104
(215) 898-4640

1. Photodissociation and photoionization of van der Waals complexes

Dr. Carmay Lim

Chemistry Dept., Harvard Univ.
12 Oxford Street
Cambridge, MA 02138
(617) 495-1775 or 254-0175

1. Nonequilibrium effects in chemical kinetics

2. Dynamics of gas-surface interactions

Dr. Susan R. McKay

Dept. of Physics, Univ. of Maine
Orono, ME 04469
(207) 581-1040

1. The random field problem: Phase diagrams and thermodynamics

2. Spin glasses and chaos

3. Renormalization group methods and exactly-solvable models of phase transitions

Dr. Kathie Newman

Physics Dept., Univ. of Notre Dame
Notre Dame, IN 46556
(219) 239-7182

1. Ordering transitions in semiconductors

Prof. Patricia L. M. Plummer

Physics Dept.
Univ. of Missouri-Columbia
314 Physics Dept.
Columbia, MO 65211
(314) 992-3053

1. Molecular dynamics of cluster systems

2. Structure and stability of sulfur-containing clusters:

Ab initio calculations

Dr. Roberta P. Saxon

SRI International, PN 093
333 Ravenswood Ave.
Menlo Park, CA 94022
(415) 859-2663

1. Theoretical studies of multiphoton processes

Prof. Jodye Selco

Dept. of Physics, Univ. of Redlands
P.O. Box 3080
Redlands, CA 92373-0999
(714) 793-2121

1. Spectroscopy and kinetics of transient species

Dr. Sara A. Solla

AT&T Bell Labs, 4G-336
Crawfords Corner Rd.
Holmdel, NJ 07733

(201) 949-6057

1. A statistical mechanics approach to optimization problems

2. Statistical mechanics of neural networks

CONDENSED MATTER PHYSICS

Prof. Jill C. Bonner

Dept. of Physics
Univ. of Rhode Island
Kingston, RI 02881
(401) 792-2633

1. Spin-Peierls transitions

2. Quantum effects in spin dynamics

Dr. Meera Chandrasekhar

Physics Dept., Univ. of Missouri
Columbia, MO 65211
(314) 882-2619

1. Quantum wells under hydrostatic pressure

Dr. Shirley Chiang

IBM Almaden Research Center
650 Harry Rd.
San Jose, CA 95120-6099
(408) 927-2419

1. Scanning tunneling microscopy of metals on semiconductors

2. Atomic force microscopy

Dr. Deborah D. L. Chung

Dept. of Mech. & Aerospace Eng.
State Univ. of NY Buffalo
613 Furnas Hall
Buffalo, NY
(716) 636-2520

1. Intercalation and exfoliation of graphite

2. Carbon composites

3. Structure of metal contacts to GaAs

Dr. Esther Conwell

Xerox Webster Research Center
800 Phillips Rd.
Webster, NY 14644
(716) 422-4633

1. Solitons and polarons in polyacetylene

2. Differences between "one-" and three-dimensional semiconductors

Dr. Stephanie B. DiCenzo

AT&T Bell Labs, 1E-450
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-6578

1. Photoemission and LEED studies of adsorbate interactions on single-crystal surfaces

Dr. Flonnie Dowell

Theoretical Division
Los Alamos National Lab.
Univ. of California
Los Alamos, NM 87545
(505) 667-8765 or -5304

1. Molecular theory for chain models in liquid crystal phases

Dr. Mildred Dresselhaus

Massachusetts Inst. of Technology
13-3005
Cambridge, MA 02139
(617) 253-6864

1. Intercalation and superlattices

2. Liquid carbon

Dr. Georgia Fisanick

AT&T Bell Labs, 1A-365A
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-2204

1. Periodic structures in laser-materials interactions

Dr. Judy R. Franz

Dept. of Physics, West Virginia Univ.
Morgantown, WV 26506
(304) 293-3422

1. Do Coulomb gaps exist?

2. Metal-nonmetal transitions in expanded liquid mercury

Dr. Laura H. Greene

Bell Communications Research, 3X-281
331 Newman Springs Rd.
Red Bank, NJ 07701
(201) 758-2940

1. High T_c oxide superconductors

2. Heavy fermion ($CeCu_6$) Nb multilayers: Proximity effects

3. Metallic superlattices

Dr. Deborah Jackson

Hughes Research Labs, MS RL66
3011 Malibu Canyon Rd.
Malibu, CA 90265
(213) 317-5823

1. Teaching old atoms new tricks

2. Interference effects between different optical harmonics

Dr. Shirley A. Jackson

AT&T Bell Labs, 1D-337
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-6664

1. Magnetic polarons in diluted magnetic semiconductor superlattices

2. Zone-folding and quasi-direct optical transitions in semiconductor superlattices

3. Excitonic magnetic polaron effects in stressed diluted magnetic semiconductors

Dr. Barbara A. Jones

Physics Dept., Cornell Univ.
Clark Hall
Ithaca, NY 14853
(607) 255-6068

1. The two-impurity Kondo model: Numerical renormalization group study

Dr. Kathleen Kash

Bell Communications Research, 3G-113
331 Newman Springs Rd.
Red Bank, NJ 07701
(201) 758-2845

1. Optical properties of microstructures

Prof. Jacqueline Krim

Physics Dept., Northeastern Univ.

Boston, MA 02115
(617) 437-2929

1. Wetting and nonwetting of solid rare-gas films on metal and graphite surfaces

Dr. Rosemary A. MacDonald
National Bureau of Standards
Physics A 105
Gaithersburg, MD 20899
(301) 975-2481

1. Thermophysical properties of cubic metals
2. Heat capacity of coal

Dr. Susan R. McKay
Dept. of Physics, Univ. of Maine
Orono, ME 04469
(207) 581-1040

1. The random field problem: Phase diagrams and thermodynamics
2. Spin glasses and chaos
3. Renormalization group methods and exactly-solvable models of phase transitions

Dr. Laurie E. McNeil
Dept. of Physics & Astronomy
Univ. of North Carolina
Phillips Hall 039A
Chapel Hill, NC 27514
(919) 962-7204

1. Delight in disorder: Structural studies of chalcogenide glasses

Dr. Cherry A. Murray
AT&T Bell Labs, 1E-343
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-5849

1. Surface enhanced Raman scattering
2. Colloidal crystals
3. Two-stage melting in two-dimensional colloidal crystals

Prof. Gertrude F. Neumark
Dept. of Materials Science
Columbia Univ.
Seeley W. Mudd Bldg.
New York, NY 10027

1. Luminescence characterization of materials: ZnSe
2. Properties and role of alkali metal impurities in ZnSe

Dr. Kathie Newman
Physics Dept., Univ. of Notre Dame
Notre Dame, IN 46556
(219) 239-7182

1. Ordering transitions in semiconductors

Dr. Marjorie Olmstead
Dept. of Physics, U. C. Berkeley
Berkeley, CA 94720
(415) 643-8045

1. Formation of the interface between a polar insulator and a nonpolar semiconductor
2. Initial stages of semiconductor interface formation

Dr. Mary Jo Ondrechen
Dept. of Chemistry, Northeastern Univ.

Boston, MA 02115
(617) 437-2856

1. Predicting the spectroscopic properties of discrete mixed-valence systems

Dr. Elga Pakulis
IBM Watson Research Center
PO Box 218
Yorktown Heights, NY 10598
(914) 945-2839

1. Electronic phase transitions in a semiconductor heterojunction
2. Optically detected cyclotron resonance studies of semiconductors

Prof. Pramila Raghavan
Dept. of Physics & Astronomy
Rutgers Univ.
PO Box 849
Piscataway, NJ 08854

1. Application of nuclear techniques to problems in condensed matter

Dr. Talat S. Rahman
Dept. of Physics, Kansas State Univ.
Cardwell Hall
Manhattan, KS 66506

(913) 532-6786
1. Dynamics of ordered overlayers on metals
2. Surface reconstruction and surface phonon dispersion—a lattice dynamical study
3. Surface lattice dynamics and electron energy loss spectroscopy

Prof. Geraldine L. Richmond
Chemical Physics Inst.
Univ. of Oregon
Eugene, OR 97403
(503) 686-4635

1. Nonlinear optics as a probe of solid/liquid interfaces

Dr. Lynn F. Schneemeyer
AT&T Bell Labs, 1A-363
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-5318

1. Nonlinear transport phenomena in potassium molybdenum bronze

Prof. Mary Beth Stearns
Physics Dept., Univ. of Arizona
Tempe, AZ 85287
(602) 965-1606

1. Origin of magnetism in 3D metals
2. Structural and magnetic behavior of multilayered films

Dr. Judith A. Todd
Depts. Mat. Sci. & Mech. Eng.
Univ. of Southern California
VHE 718-0241
Los Angeles, CA 90089-0241
(213) 743-4966

1. Microstructure-mechanical property relationships in advanced structural materials

Dr. Gwo-Ching Wang
Dept. of Physics

Rensselaer Polytechnic Inst.
Troy, NY 12181 (518) 785-9573

1. Two-dimensional phase transitions studied by low-energy electron diffraction
2. Surface defect structure determination by high-resolution low-energy electron diffraction

Dr. Alice E. White
AT&T Bell Labs, 1E-433
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-2506

1. Mesotaxy: Single-crystal growth of buried silicide layers by ion implantation
2. Mechanisms of formation of buried oxide layers by ion implantation

Dr. Barbara A. Wilson
AT&T Bell Labs, 6F-207
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-3973

1. Novel semiconductor heterostructures
2. Monolayer-flat GaAs quantum wells
3. Optical properties of heteroepitaxial III-V and II-VI materials

Dr. Jane E. Zucker
AT&T Bell Labs, 4F-319
Holmdel, NJ 07733
(201) 949-1077

1. Spectroscopy of excitons and phonons in quantum wells
2. Nonlinear optics below the band edge in quantum wells

ENVIRONMENTAL AND ENERGY PHYSICS

Dr. Nancy J. Brown
Lawrence Berkeley Lab, Bldg. 29C
Berkeley, CA 94720
(415) 486-4241

1. Combustion-generated air pollutants

Prof. Janice Button-Shafer
Dept. of Physics
Univ. of Massachusetts, LGR Tower C
Amherst, MA 01003
(413) 545-2140

1. Physicists' views of the strategic defense initiative

Dr. Beverly S. Cohen
Inst. of Environmental Medicine
NY Univ. Med. Ctr.
Longmeadow Rd.
Tuxedo, NY 10987
(914) 351-5277

1. Deposition of ultrafine particles on the human tracheobronchial tree: A determinant of the dose from radon daughters
2. Sampling airborne particles for estimation of inhalation exposure

Dr. Joanne K. Fink
Argonne National Lab.
Reactor Analysis & Safety Lab.

Bldg. 206
9700 Cass Ave.
Argonne, IL 60439
(312) 972-6512 or -4103

1. *Characterization of fission products released from experiments that simulate hypothetical severe reactor accidents*
2. *The final stage of a postulated reactor meltdown: Interaction of a molten core with concrete*

Dr. Luisa F. Hansen
Lawrence Livermore National Lab.
PO Box 808, L-405
Livermore, CA 94550
(415) 422-4512

1. *Neutron and gamma-ray transport through materials of interest to fusion reactors*

Dr. Caroline L. Herzenberg
Argonne National Lab.
EES Division—Bldg. 362
Argonne, IL 60439
(312) 972-3026

1. *Offensive uses of space-based strategic defense systems*
2. *Off-site radiological emergency preparedness for the U.S. commercial nuclear power plants*

Dr. Rosemary A. MacDonald
National Bureau of Standards
Physics A 105
Gaithersburg, MD 20899
(301) 975-2481

1. *Heat capacity of coal*

FLUID AND PLASMA PHYSICS

Dr. Barbara Abraham-Shrauner
Dept. of Electr. Eng.
Washington Univ., Box 1127
1 Brookings Drive
St. Louis, MO 63130
(314) 889-6134

1. *Lie group point symmetries in plasmas: Helical invariants, generalized BGK solutions, and ion beams*

Dr. Mary L. Brake
Dept. of Nuclear Engineering
Univ. of Michigan
Cooley Bldg., North Campus
Ann Arbor, MI 48109
(313) 764-1976

1. *Unusual light emission in relativistic electron beam pumped gases*

Dr. Elaine S. Oran
Naval Research Lab.
Washington, D.C. 20375
(202) 767-2960

1. *Numerical simulation of reactive flow*
2. *Numerical simulation of transitional and turbulent flow*
3. *Frontiers of computational physics*

Dr. Martha H. Redi
Plasma Physics Lab.
Princeton Univ., LOB-B160
Princeton, NJ 08544

(609) 683-3357

1. *Transport simulations of TFTR experiments*
2. *Transport simulations of pellet injection on TFTR, ASDEX, and ALCATOR-C*

Dr. Helen L. Reed
Mech. and Aerospace Engineering
Arizona State Univ.
Tempe, AZ 85287
(602) 965-2823

1. *Stability and transition of laminar viscous flows*

GEOPHYSICS

Dr. Prabha Durgapal
Research Dept., Welex, PO Box 42800
Houston, TX 77242
(713) 496-8305

1. *An analytic model for electromagnetic wireline tools for geophysical exploration*

Dr. Sara A. Solla
AT&T Bell Labs, 4G-336
Crawfords Corner Rd.
Holmdel, NJ 07733
(201) 949-6057

1. *A scaling model for crack propagation and fracture*

INTERFACE AND DEVICE PHYSICS

Dr. Susan D. Allen
Center for Laser Studies
Univ. of Southern California, DRB 17
Los Angeles, CA 90089-1112
(213) 742-6705

1. *Laser deposition and etching*
2. *Laser induced desorption analysis of surface defects and contamination*

Dr. Sheila Bailey
NASA Lewis, MS 302-1
Cleveland, OH 44135
(216) 433-2228

1. *Advances in photovoltaics*

Dr. Meera Chandrasekhar
Physics Dept., Univ. of Missouri
Columbia, MO 65211
(314) 882-2619

1. *Quantum wells under hydrostatic pressure*

Dr. Shirley Chiang
IBM Almaden Research Center
650 Harry Rd.
San Jose, CA 95120-6099
(408) 927-2419

1. *Scanning tunneling microscopy of metals on semiconductors*
2. *Atomic force microscopy*

Dr. Deborah D. L. Chung
Dept. of Mech. & Aerospace Eng.
State Univ. of NY Buffalo
613 Furnas Hall
Buffalo, NY
(716) 636-2520

1. *Structure of metal contacts to GaAs*

Dr. Stephanie B. DiCenzo
AT&T Bell Labs, 1E-450
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-6578

1. *Photoemission and LEED studies of adsorbate interactions on single-crystal surfaces*

Dr. Mildred Dresselhaus
Massachusetts Inst. of Technology
13-3005
Cambridge, MA 02139
(617) 253-6864

1. *Intercalation and superlattices*

Dr. Laura H. Greene
Bell Communications Research
3X-281
331 Newman Springs Rd.
Red Bank, NJ 07701
(201) 758-2940

1. *Heavy fermion (CeCu₆)Nb multilayers: Proximity effects*
2. *Metallic superlattices*

Dr. Deborah Jackson
Hughes Research Labs., MS RL66
3011 Malibu Canyon Rd.
Malibu, CA 90265
(213) 317-5823

1. *Lightwave technology*

Dr. Shirley A. Jackson
AT&T Bell Labs, 1D-337
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-6664

1. *Magnetic polarons in diluted magnetic semiconductor superlattices*
2. *Zone-folding and quasi-direct optical transitions in semiconductor superlattices*

Dr. Kathleen Kash
Bell Communications Research
3G-113
331 Newman Springs Rd.
Red Bank, NJ 07701
(201) 758-2845

1. *Optical properties of microstructures*

Prof. Jacqueline Krim
Physics Dept., Northeastern Univ.
Boston, MA 02115
(617) 437-2929

1. *Wetting and nonwetting of solid rare-gas films on metal and graphite surfaces*

Dr. Carmay Lim
Chemistry Dept., Harvard Univ.
12 Oxford Street
Cambridge, MA 02138
(617) 495-1775 or 254-0175

1. *Dynamics of gas-surface interactions*

Dr. Cherry A. Murray
AT&T Bell Labs, 1E-343
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-5849

1. *Surface enhanced Raman scattering*
2. *Two-stage melting in two-dimensional colloidal crystals*

Dr. Marjorie Olmstead
Dept. of Physics, U. C. Berkeley
Berkeley, CA 94720
(415) 643-8045

1. *Formation of the interface between a polar insulator and a nonpolar semiconductor*
2. *Initial stages of semiconductor interface formation*

Dr. Elga Pakulis
IBM Watson Research Center
PO Box 218
Yorktown Heights, NY 10598
(914) 945-2839

1. *Electronic phase transitions in a semiconductor heterojunction*

Dr. Talat S. Rahman
Dept. of Physics, Kansas State Univ.
Cardwell Hall
Manhattan, KS 66506
(913) 532-6786

1. *Dynamics of ordered overlayers on metals*
2. *Surface reconstruction and surface phonon dispersion—a lattice dynamical study*
3. *Surface lattice dynamics and electron energy loss spectroscopy*

Prof. Geraldine L. Richmond
Chemical Physics Inst.
Univ. of Oregon
Eugene, OR 97403
(503) 686-4635

1. *Nonlinear optics as a probe of solid/liquid interfaces*

Prof. Mary Beth Stearns
Physics Dept., Arizona State Univ.
Tempe, AZ 85287
(602) 965-1606

1. *Structural and magnetic behavior of multilayered films*

Dr. Gwo-Ching Wang
Dept. of Physics
Rensselaer Polytechnic Inst.
Troy, NY 12181
(518) 785-9573

1. *Two-dimensional phase transitions studied by low-energy electron diffraction*
2. *Surface defect structure determination by high-resolution low-energy electron diffraction*

Dr. Margaret H. Weiler
Research Division
Raytheon Company
131 Spring Street
Lexington, MA 02173
(617) 860-3100

1. *Semiconductor devices for high frequencies*

Dr. Alice E. White
AT&T Bell Labs, 1E-433

600 Mountain Ave.
Murray Hill, NJ
(201) 582-2506

1. *Mesotaxy: Single-crystal growth of buried silicide layers by ion implantation*
2. *Mechanisms of formation of buried oxide layers by ion implantation*

Dr. Barbara A. Wilson
AT&T Bell Labs, 6F-207
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-3973

1. *Novel semiconductor heterostructures*
2. *Monolayer-flat GaAs quantum wells*
3. *Optical properties of heteroepitaxial III-V and II-VI materials*

Dr. Jane E. Zucker
AT&T Bell Labs, 4F-319
Holmdel, NJ 07733
(201) 949-1077

1. *Spectroscopy of excitons and phonons in quantum wells*
2. *Nonlinear optics below the band edge in quantum wells*

MOLECULAR AND POLYMER PHYSICS

Dr. Flonnie Dowell
Theoretical Division
Los Alamos National Lab.
Univ. of California
Los Alamos, NM 87545
(505) 667-8765 or -5304

1. *Molecular design of partially-ordered polymers and their solvents*
2. *Molecular basis of competing interactions to form microstructures in partially-ordered phases*
3. *Molecular theory for chain models in liquid crystal phases*

Dr. Sandra C. Greer
Dept. of Chemistry, Univ. of Maryland
College Park, MD 20742
(301) 454-6093

1. *Equilibrium polymerization as a phase transition*

Dr. Sonja Krause
Dept. of Chemistry
Rensselaer Polytechnic Inst.
Troy, NY 12180-3590
(518) 266-8445

1. *Elastic small-angle neutron scattering of multiblock copolymers and crosslink labeled gels*
2. *Equilibrium thermodynamics of homogeneous and microphase separated block copolymers*

Prof. Geraldine L. Richmond
Chemical Physics Inst.
Univ. of Oregon
Eugene, OR 97403
(503) 686-4635

1. *The spectroscopy of metal ions bound to proteins and polymers*

NUCLEAR AND PARTICLE PHYSICS

Prof. Karen Barad
Dept. of Physics, Barnard College
Columbia Univ.
New York, NY, 10027
(212) 280-5102

1. *Numerical simulations of quantum chromodynamics*

Prof. Janice Button-Shafer
Dept. of Physics, Univ. of Massachusetts
LGR Tower C
Amherst, MA 01003
(413) 545-2140

1. *Utilization of polarized targets and polarized beams in nuclear and particle physics*

Dr. Ling-Lie Chau
Physics Dept.
Brookhaven National Lab., Bldg. 510A
Upton, NY 11733
(516) 282-3768

1. *Frontiers of particle physics*

Prof. Jolie A. Cizewski
Serin Physics Lab., Rutgers Univ.
PO Box 849
Piscataway, NJ 08854
(201) 932-3884

1. *Symmetry in heavy nuclei*
2. *Onset of deformation in heavy nuclei*

Dr. Luisa F. Hansen
Lawrence Livermore National Lab.
PO Box 808, L-405
Livermore, CA 94550
(415) 422-4512

1. *Microscopic optical model potentials in the analysis of nucleon-nucleus scattering*
2. *The transport of 14-MeV neutrons through materials of interest to fusion reactors*

Dr. Gail G. Hanson
SLAC
Bin 78, PO Box 4349
Stanford, Ca 94305
(415) 854-3300, ext. 2510

1. *Physics of the neutral weak vector boson Z^0*

Dr. Lorella M. Jones
Physics Dept., Univ. of Illinois
1110 Green Street
Urbana, IL 61801
(217) 333-4270

1. *Quark and gluon jets—traces of color in a colorless world*

Dr. Deborah A. Konkowski
Dept. of Physics & Astronomy
Univ. of Maryland
College Park, MD 20742
(301) 454-3401

1. *The nature of singularities in general relativity*
2. *Equivalent Lagrangians in physics*

Prof. June L. Matthews

Physics Dept.
Massachusetts Inst. of Technology
26-435
Cambridge, MA 02139
(617) 253-4238

1. *Probing the nucleus with high-energy photons*
2. *How many nucleons does it take to scatter a pion?*

Dr. Marilyn E. Noz

Dept. of Radiology, New York Univ.
550 First Ave.
New York, NY 10016
(212) 340-6371

1. *Group theoretical examples in relativistic quantum mechanics*
2. *Local area networks in an imaging environment*

Dr. Sathyavathi Ramavataram

Dept. of Nuclear Energy
Brookhaven Nat. Lab, Bldg. 197D
Upton, NY 11973
(516) 282-5097 or -2901 or -2902

1. *Nuclear shell models*
2. *Continuum theories of nuclear reactions*
3. *Polarization phenomena in nuclear reactions*
4. *Model calculations of intermediate and high energies*

Dr. Elizabeth A. Rauscher

Tecnic Research Labs.
64 Santa Margarita
San Leandro, CA 94579
(415) 352-7104

1. *S-matrix of decay in light and heavy elements*
2. *Cosmology models, strings, and particle physics*

Dr. Junko Shigenitsu

Physics Dept., The Ohio State Univ.
Columbus, OH 43210
(614) 292-1786

1. *Uses of lattices in elementary particle physics*

Dr. Julia A. Thompson

Dept. of Physics, Univ. of Pittsburgh
Pittsburgh, PA 15260
(412) 624-9060

1. *Direct photon production at the CERN ISR*
2. *Anomalous electron production at low transverse momentum*
3. *Relativistic heavy ion interactions—a new energy density regime?*

Dr. Reeta Vyas

Physics Dept., Univ. of Arkansas
Fayetteville, AR 72701
(501) 575-7286 or 521-1179

1. *Two-body effects in photodisintegration of deuteron and triton*
2. *A trip to nuclear world (For undergraduate students.)*

TALKS FOR GENERAL AUDIENCES

Dr. Sheila Bailey

NASA Lewis, MS 302-1
Cleveland, OH 44135
(216) 433-2228

1. *Solar power in space*

Prof. Karen Barad

Dept. of Physics, Barnard College
Columbia Univ.
New York, NY 10027

(212) 280-5102

1. *Quarks and supercomputers*

Dr. Mary L. Brake

Dept. of Nuclear Engineering
Univ. of Michigan
Cooley Bldg., North Campus
Ann Arbor, MI 48109
(313) 764-1976

1. *Plasmas that glow in the dark*

Dr. Bonnie Buratti

Jet Propulsion Lab.
California Inst. of Technology
183-501

4800 Oak Grove Dr.
Pasadena, CA 91109

(818) 354-7427

1. *The exploration of Mars*
2. *Voyager encounters Jupiter and Saturn*
3. *Rendezvous with a comet*

Prof. Janice Button-Shafer

Dept. of Physics, Univ. of Massachusetts
LGR Tower C
Amherst, MA 01003
(413) 545-2140

1. *The strategic defense initiative—physicists' views*

Dr. Bel Campbell

Dept. of Physics & Astronomy
Univ. of New Mexico
Albuquerque, NM 87131
(505) 277-5148 or -2616

1. *Star formation: The sound and the fury*
2. *Does Astronomy matter?*

Dr. Shirley Chiang

IBM Almaden Research Center
650 Harry Rd.
San Jose, CA 95120-6099
(408) 927-2419

1. *The scanning tunneling microscope: A microscope that "sees" atoms*

Dr. Deborah D. L. Chung

Dept. of Mech. & Aerospace Eng.
State Univ. of NY Buffalo
613 Furnas Hall
Buffalo, NY
(716) 636-2520

1. *Aerospace materials*
2. *Carbon*
3. *Ceramics*

Dr. Beverley S. Cohen

Inst. of Environmental Medicine
NY Univ. Med. Ctr.
Longmeadow Rd.
Tuxedo, NY 10987

(914) 351-5277

1. *The radon problem: An overview*

Dr. Lynn R. Cominsky

Dept. of Physics & Astronomy
Sonoma State Univ.
Rohnert Park, Ca 94928
(707) 664-2655

1. *X-ray visions from the edges of the universe—black holes and quasars*

Dr. Martha P. Haynes

Space Sciences, Cornell Univ.
Space Sciences Bldg.
Ithaca, NY 14853
(607) 255-0610

1. *Extragalactic sociology: Environmental effects on galaxy formation*
2. *Large-scale structure in the universe*

Dr. Caroline L. Herzenberg

Argonne National Lab.
EES Division, Bldg. 362
Argonne, IL 60439
(312) 972-3026

1. *Women scientists and engineers of antiquity and the Middle Ages*

Dr. Sonja Krause

Dept. of Chemistry
Rensselaer Polytechnic Inst.
Troy, NY 12180-3590
(518) 266-8445

1. *Introduction to polymers*

Dr. Arlene J. Lennox

Fermilab
MS 301, PO Box 500
Batavia, IL 60510
(312) 840-4850

1. *Neutrons against cancer: Clinical experience at Fermilab's neutron therapy facility*
2. *Career experiences of a woman physicist*

Dr. Elaine S. Oran

Naval Research Lab.
Washington, D.C. 20375
(202) 767-2960

1. *Frontiers in computational physics*

Dr. Elizabeth A. Rauscher

Tecnic Research Labs.
64 Santa Margarita
San Leandro, CA 94579

1. *Nature and the art of photography*

Dr. Petra Schmalbrock

MRI Facility
The Ohio State Univ.
1630 Upham Dr.
Columbus, OH 43210
(614) 293-8181

1. *The basics of magnetic resonance imaging and spectroscopy*

Dr. Judith A. Todd

Depts. Mat. Sci. & Mech. Eng.
Univ. of Southern California
VHE 718-0241
Los Angeles, CA 90089-0241

(213) 743-4966

1. *The earliest metals smelting in Europe*
2. *Studies of the African Iron Age*

Dr. Virginia Trimble
Dept. of Physics, U. C. Irvine
Irvine, CA 92717
(714) 856-6948

1. *Cosmology: Man's place in the Universe*
2. *Your lucky stars: An introduction to stellar evolution*

Dr. Reeta Vyas
Physics Dept., Univ. of Arkansas
Fayetteville, AR 72701

- (501) 575-7286 or 521-1179
1. *A trip to nuclear world* (For undergraduate students.)

Dr. Alice E. White
AT&T Bell Labs, 1E-433
600 Mountain Ave.
Murray Hill, NJ 07974

(201) 582-2506

1. *Materials modification using ion beams*

Dr. Barbara A. Wilson
AT&T Bell Labs, 6F-207
600 Mountain Ave.
Murray Hill, NJ 07974
(201) 582-3973

1. *Women in physics: An international perspective*

SPEAKERS LISTED BY GEOGRAPHIC AREA

More complete entries are arranged by subject in the previous section. The "*" identifies those who can also provide talks to general audiences.

NORTHEAST

*Prof. Karen Barad
Columbia Univ.
Nuclear and particle physics

Prof. Jill C. Bonner
Univ. of RI
Condensed matter

*Prof. Janice Button-Shafer
Univ. of MA
*Environmental and energy physics;
nuclear and particle physics*

Dr. Ling-Lie Chau
Brookhaven Nat. Lab
Nuclear and particle physics

*Dr. Deborah D. L. Chung
State Univ. of NY
*Condensed matter; interface
and device physics*

Prof. Jolie A. Cizewski
Rutgers Univ.
Nuclear and particle physics

*Dr. Beverly S. Cohen
NYU Med. Ctr.
*Biological and medical physics;
environmental and energy physics*

Dr. Esther Conwell
Xerox
Condensed matter

Dr. Carol Jo Crannell
NASA Goddard Space Flight Ctr.
Astrophysics

Dr. Stephanie B. DiCenzo
AT&T Bell Labs
*Condensed matter; interface and device
physics*

Dr. Mildred Dresselhaus
MIT
*Condensed matter; interface and device
physics*

Dr. Georgia Fisanick
AT&T Bell Labs
Condensed matter

Dr. Laura H. Greene
Bell Core
*Condensed matter; interface and device
physics*

Dr. Sandra C. Greer
Univ. of MD
Chemical and statistical physics

*Dr. Martha P. Haynes
Cornell Univ.
Astrophysics

Dr. Shirley A. Jackson
AT&T Bell Labs
*Condensed matter; interface and device
physics*

Dr. Barbara A. Jones
Cornell Univ.
Condensed matter

Dr. Christine Jones
Harvard-Smithsonian Ctr. for Astrophys.
Astrophysics

Dr. Kathleen Kash
Bell Core
*Condensed matter; interface and device
physics*

Dr. Deborah A. Konkowski
Univ. of MD
Nuclear and particle physics

*Dr. Sonja Krause
RPI
Molecular and polymer physics

Prof. Jacqueline Krim
Northeastern Univ.
*Condensed matter; interface and device
physics*

Dr. Marsha I. Lester
Univ. of PA
Chemical and statistical physics

Dr. Carmay Lim
Harvard Univ.
*Biological and medical physics; chemical
and statistical physics; interface and
device physics*

Dr. Rosemary A. MacDonald
Nat. Bureau of Standards
*Condensed matter; environmental and
energy physics*

Prof. June L. Matthews
Physics Dept., MIT
Nuclear physics

Dr. Susan R. McKay
Univ. of ME

*Chemical and statistical physics;
condensed matter*

Dr. Cherry A. Murray
AT&T Bell Labs
*Condensed matter; interface and device
physics*

Prof. Gertrude F. Neumark
Columbia Univ.
*Chemical and statistical physics;
condensed matter*

Dr. Marilyn E. Noz
NYU
Nuclear and particle physics

Dr. Mary Jo Ondrechen
Northeastern Univ.
Condensed matter

Dr. Elga Pakulis
IBM
*Condensed matter; interface and device
physics*

Prof. Pramila Raghavan
Rutgers Univ.
Condensed matter

Dr. Sathyavathi Ramavataram
Brookhaven Nat. Lab
Nuclear and particle physics

Dr. Martha H. Redi
Princeton Univ.
Fluid and plasma physics

Dr. Lynn F. Schneemeyer
AT&T Bell Labs
Condensed matter

Dr. Sara A. Solla
AT&T Bell Labs
*Biological and medical physics; chemical
and statistical physics; geophysics*

Dr. Julia A. Thompson
Univ. of Pittsburgh
Nuclear and particle physics

Dr. Gwo-Ching Wang
RPI
*Condensed matter; interface and device
physics*

Dr. Margaret H. Weiler
Raytheon
Interface and device physics

*Dr. Alice E. White
AT&T Bell Labs
Condensed matter; interface and device physics

*Dr. Barbara A. Wilson
AT&T Bell Labs
Condensed matter; interface and device physics

Dr. Jane E. Zucker
AT&T Bell Labs
Condensed matter; interface and device physics

EAST CENTRAL

Dr. Judy R. Franz
West Virginia Univ.
Condensed matter

Dr. Laurie E. McNeil
Univ. of NC
Condensed matter

Prof. Eugenie V. Mielczarek
George Mason Univ.
Biological and medical physics

*Dr. Elaine S. Oran
Naval Research Lab
Fluid and plasma physics

SOUTHEAST

Dr. Reeta Vyas
Univ. of AR
Nuclear and particle physics

MIDWEST

Dr. Barbara Abraham-Shrauner
Washington Univ.
Fluid and plasma physics

Dr. Susan D. Allen
Univ. of IA
Interface and device physics

*Dr. Sheila Bailey
NASA Lewis
Astrophysics; interface and device physics

*Dr. Mary L. Brake
Univ. of MI
Fluid and plasma physics

Dr. Meera Chandrasekhar
Univ. of MO
Condensed matter; interface and device physics

Dr. Joanne K. Fink
Argonne Nat. Lab
Environmental and energy physics

Dr. Suzanne Gronemeyer
Siemens
Biological and medical physics

*Dr. Caroline L. Herzenberg
Argonne Nat. Lab
Environmental and energy physics

Dr. Lorella M. Jones
Univ. of IL
Nuclear and particle physics

*Dr. Arlene J. Lennox
Fermilab
Biological and medical physics

Dr. Nancy D. Morrison
Univ. of Toledo
Astrophysics

Dr. Kathie Newman
Univ. of Notre Dame
*Chemical and statistical physics;
condensed matter*

Prof. Patricia L.M. Plummer
Univ. of MO
Chemical and statistical physics

Dr. Talat S. Rahman
Kansas State Univ.
Condensed matter; interface and device physics

*Dr. Petra Schmalbrock
Ohio State Univ.
Biological and medical physics

Dr. Junko Shigenitsu
Ohio State Univ.
Nuclear and particle physics

NORTHWEST

Prof. Geraldine L. Richmond
Univ. of OR
*Biological and medical physics;
condensed matter; interface and device physics; molecular and polymer physics*

SOUTHWEST

Dr. Nancy J. Brown
LBL
*Chemical and statistical physics;
environmental and energy physics*

*Dr. Bonnie Buratti
JPL
Astrophysics

*Dr. Bel Campbell
Univ. of NM
Astrophysics

*Dr. Shirley Chiang
IBM
Condensed matter; interface and device physics

*Dr. Lynn R. Cominsky
Sonoma State Univ.
Astrophysics

Dr. Flonnie Dowell
Los Alamos Nat. Lab
Condensed matter; molecular and polymer physics

Dr. Prabha Durgapal
Welex
Geophysics

Dr. Katherine Freese
U. C. Santa Barbara
Astrophysics

Dr. Sarah Gilbert
National Bureau of Standards
Chemical and statistical physics

Dr. Luisa F. Hansen
Lawrence Livermore Nat. Lab
*Environmental and medical physics;
nuclear and particle physics*

Dr. Gail G. Hanson
SLAC
Nuclear and particle physics

Dr. Deborah Jackson
Hughes
Condensed matter; interface and device physics

Dr. Karie Meyers
Occidental College
Astrophysics

Dr. Marjorie Olmstead
U. C. Berkeley
Condensed matter; interface and device physics

*Dr. Elizabeth A. Rauscher
Tecnin
Nuclear and particle physics

Dr. Helen L. Reed
Arizona State Univ.
Fluid and plasma physics

Dr. Anneila Sargent
Caltech
Astrophysics

Dr. Roberta P. Saxon
SRI International
Chemical and statistical physics

Prof. Jodye Selco
Univ. of Redlands
Chemical and statistical physics

Prof. Mary Beth Stearns
Univ. of AZ
Condensed matter; interface and device physics

*Dr. Judith A. Todd
USC
Condensed matter

*Dr. Virginia Trimble
U. C. Irvine
Astrophysics

The PHYSICS COLLOQUIUM SPEAKERS LIST is compiled annually by the American Physical Society Committee on the Status of Women in Physics. Comments or questions on the 1987/88 Speakers List should be addressed to Dr. Barbara A. Wilson, AT&T Bell Laboratories, 6F-207, 600 Mountain Ave., Murray Hill, NJ 07974.

institution's official authorization is required and awards are made to the host institution. Signatures are required from the applicant, the applicant's home institution, and the host institution's authorized representative for grant administration.

Proposals are reviewed in a two-tiered process. The research component of the proposal is subjected to normal peer review by disciplinary specialists concerned with the quality and originality of the proposed research, competence of the research performers, adequacy of the facilities for carrying out the research, intrinsic merit and utility of the research. The interactive component of those proposals receiving the highest research ratings is then considered by a multidisciplinary panel of scientists and engineers in making the final awards.

This program historically has had a very small number of applicants in physics. One possible reason may be the extremely involved matching procedure necessary between applicant and host institution prior to submission of the proposal. CSWP has recently been informed that a number of possible host institutions would welcome a visiting woman professor in physics under this program, but do not know how to go about looking for an interested applicant. Similarly, women may overlook this program because of the need to approach a potential host institution which may or may not be initially sympathetic to the program. Some solution to this matching problem needs to be found so that women in physics and willing host institutions may make more use of this excellent opportunity. This item is scheduled for discussion at the September CSWP meeting. Suggestions from the *Gazette* readership are strongly encouraged. They may be sent to CSWP at the address given at the beginning of this issue.

PHYSICS COLLOQUIUM SPEAKERS LIST

This issue of the *Gazette* contains the 1987/88 Physics Colloquium Speakers List. This Directory has been compiled by CSWP for 5 years. It is published annually in the *CSWP Gazette*, and mailed to each of the PhD-granting physics departments in the

U.S. Starting this year, a copy will also be sent to the Society of Physics Students, to be included in their resource file of physics speakers. The CSWP Speakers List contains names of women who can present seminars at a level appropriate for physics department colloquia. The purpose of the Directory is to encourage departments to invite more women speakers, thus enhancing the visibility of women physicists and providing more female role models for students of both genders. It has also been used as a resource for people organizing symposia and conferences. This year's Speakers List was compiled by Barbara Wilson.

The Directory was expanded this year by searching the Roster of Women in Physics, the data base CSWP maintains on female physicists, for women PhDs whose primary activity is listed as basic research in some field of physics, and/or guiding graduate students, and/or preparing research proposals. This search identified almost 300 women, who were subsequently polled for interest in being included in the Speakers List. The responses received before the publication deadline for the 1987/88 List resulted in 51 new entries, bringing this year's total to 87. Additional responses are still arriving, so next year's list may be even longer. The expansion of the list also called for a change in its organization. To facilitate its use by departments interested in a seminar on a particular subfield, the entries have been arranged by topic. CSWP thanks Dr. Judith Nicholls for suggesting that we also list talks for general audiences. An additional listing by geographic area included at the end of the List should be of use to departments with limited travel expense budgets.

Last year's speakers were requested to provide feedback on the effectiveness of the 1986/87 Directory. Of the 28 responses, 13 women reported no contacts directly attributable to the Directory. An identical number, 13, reported that they had been contacted, and of these 7 had actually given one or more talks—one person reported giving 6 talks!

Finally, 2 women were unable to determine whether the Directory had played a role in stimulating requests they had

received. Polls in previous years have provided similar results—that between 1/4 and 1/2 of the people listed are approached by departments to present colloquia, and that only about 1/2 of those contacted actually give talks, often because no travel funds are available. Nevertheless, the overwhelming majority of the participants express very positive opinions about the value of the program, and wish to continue their participation. There is a strong consensus that the Directory can serve as a valuable resource against the common problem of women being overlooked for prestigious seminars and conferences.

ROSTER OF WOMEN IN PHYSICS

The Roster of Women in Physics, the data base maintained by CSWP on female physicists, has found a new home in Miriam Forman's PC at APS Headquarters in New York. The Roster had previously resided in a large computer at Argonne National Laboratory, where we needed the assistance of consultants to update the information, and to carry out searches. CSWP was warned last year that the Argonne computer was on its last legs, having been declared obsolete, and that it would be advisable to move the data base to another machine as soon as possible. After considering a number of alternatives, we arranged with BaFL Corporation, a software company in Los Angeles, to provide a user-friendly data-base management system which would allow us to manage the Roster ourselves. The move has been completed successfully, and searches are now being handled by CSWP. In fact this is the second issue of the *Gazette* for which mailing labels were generated by Miriam Forman's PC. (With a little help from Miriam...)

The new software not only performs all the functions on the data base that were previously available to us through the consultants, some new capabilities have been added, and further upgrades are underway. The search criteria now include 31 different fields. The major areas are shown in the box following the article. Since the information is now readily available for inspection, many errors that have existed in the data base for years are being corrected. We also hope to work much more aggressively on ex-

panding the data base, to permit its use for meaningful demographic studies. The total number of women currently listed in the Roster has now passed 3,200. We will continue to include update forms in the *Gazette* each fall, and since we can now search for entries that have not been updated in the last "n" years, we plan to keep the data base much more current than was previously possible.

The main use of the Roster in recent years has been for searches by employers who wanted to notify qualified female candidates of existing job openings, most commonly academic positions. The standard rate CSWP charges for this type of search is \$100. We expect this function to continue as

before, but with increased flexibility and efficiency. A form is now available from CSWP showing all the parameters that can be used as criteria for searches of the data base.

Other types of searches are also feasible now that we have direct access to the data base. For example, in order to expand the Physics Colloquium Speakers List (included in this issue), we searched the Roster and identified almost 300 women with PhDs who are actively involved in carrying out physics research, and/or guiding graduate student research, and/or writing research proposals. Letters to these people stimulated about 50 more participants in the Speakers List. We anticipate that searches by CSWP and

others interested in the demographic information contained in the data base will become more frequent in the future as the data base is expanded. As before, any individual information provided for the Roster which is not public knowledge will be handled with strict confidentiality, and will not be made available to those requesting searches of the data base.

An upgrade of the Roster planned for the near future is an extension to include information on minorities in physics, thus converting it to the **Roster of Women and Minorities in Physics**. This addition will be implemented as a joint project with the APS Committee on Minorities in Physics.

SEARCH CRITERIA FOR THE ROSTER OF WOMEN IN PHYSICS

GENERAL INFORMATION

GEOGRAPHIC LOCATION (Specified by zip code or geographic region).
ROSTER REGISTRATION NUMBER (Order of entry into Roster)
APS MEMBER/NONMEMBER, MEMBERSHIP NUMBER
RACE (For extension to include data on minorities in physics)

DEGREE INFORMATION

YEARS OF BA/BS; MA/MS/ PhD DEGREES RECEIVED OR EXPECTED
HIGHEST DEGREE EARNED, YEAR RECEIVED
FIELD OF HIGHEST DEGREE (e.g., chemical physics, condensed matter...)
HIGHEST DEGREE TYPE (i.e., theoretical, experimental, both, neither)
INSTITUTIONS FOR BA/BS; MA/MS; PhD
INSTITUTION FOR HIGHEST DEGREE

EMPLOYMENT INFORMATION

CURRENT WORK STATUS (e.g., student, employed, part time...)
CURRENT TYPE OF WORKPLACE (e.g., university, industry...)
MOST FREQUENT WORK ACTIVITIES (e.g., basic research, technical sales...)
FIELD OF CURRENT INTEREST (e.g., geophysics, optics...)
INTEREST IN JOB OPPORTUNITY INFORMATION (yes/no)

FILE INFORMATION

INCOMPLETE DATA ON RECORD
INCORRECT ADDRESS (Mail returned)
DATE OF MOST RECENT UPDATE