

with which Koshland proselytizes a faith in the significance of the study of bacterial chemotaxis should be effective in generating outside interest and support, but it also confronts those of us in the field with the responsibility to get on with our experiments.

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Highly Anisotropic Solids

The Physics and Chemistry of Low Dimensional Solids. Proceedings of an institute, Tomar, Portugal, Aug. 1979. LUIS ALCÁZER, Ed. Reidel, Boston, 1980 (distributor, Kluwer Boston, Hingham, Mass.). x, 436 pp., illus. \$50. NATO Advanced Study Institutes Series C, vol. 56.

There are several classes of unusual materials that can be described as "low-dimensional." Every year since a meeting at Lake Arrowhead in 1974, they have been the subject of a convention of synthetic chemists, experimental physicists, and theorists meeting at a retreat in North America or Europe. In August and September 1979 such a conference was held in Tomar, Portugal, and the present volume contains the papers presented at that meeting. All of the papers published were invited and are, in principle, of a review or tutorial nature. Naturally, many of the authors took the opportunity to present their own recent work and to stress in review the importance of their earlier work. Therefore it will probably be impossible for a reader to obtain an unbiased summary of each aspect of the field.

The electronic properties of the solids discussed at Tomar are all so highly anisotropic that for "low-dimensional" one might well substitute "quasi-one-dimensional." Interest in the chemistry whereby such anisotropy can be achieved in electrical conductivity or magnetic interactions, and the unusual physical phenomena that result, is the reason for the high level of activity in the field. There are basically three classes of material that fall into the quasi-one-dimensional category: organic charge-transfer salts, polymers, and a variety of inorganic chainlike metal complexes. The chemistry of each is described in several papers. It was hoped, in the infancy of the field, that by studying the properties of such materials, particularly the organics, it would be possible to develop a scheme for "molecular architecture," that is, to tailor the molecules

in such a way as to produce specific solid-state properties. That goal remains elusive, and indeed, as Wudl, Bechgaard and Andersen, and Miller all point out, the most interesting materials obtained to date have resulted largely from serendipity.

Research on other aspects of the subject has, however, resulted in greater reward. The instabilities that result from the Fermi surface geometry of a one-dimensional metal, the wide temperature range over which fluctuations toward the more stable low-temperature state can be observed, and the existence of unusual mechanisms for the propagation and scattering of electric current carriers have all been demonstrated. Theoretical advances have been made in dealing with the interactions of many electrons with each other and with the ions of the lattice. At the time of the Tomar meeting neither superconductivity nor spin-density waves were known in organic materials. Since both have since been discovered it is fair to say that *The Physics and Chemistry of Low Dimensional Solids* is already outdated.

Nevertheless the book may be useful in some ways. The tutorial lectures by Schultz and Chaikin could serve as an introduction for graduate students entering the field. Schultz's treatment of the Ginsburg-Landau formalism is clearer than any I am aware of in a textbook. The papers by Thomas and Weger are much more specialized and certainly require either prior knowledge of the field or extensive parallel reading (both do give relatively comprehensive bibliographies). Thomas presents a case study of a particular subclass of materials, and Weger reviews some of the theoretical work aimed at explaining the electrical conductivity of organic charge-transfer metals.

I believe that the greatest use of the book will be as a reference volume for workers already broadly familiar with the field. Particularly noteworthy is the paper by Jérôme in which he describes the extensive studies by the Orsay group of the pressure dependence and thermoelectric power of TTF-TCNQ, the fruit-fly of organic conductors. Many data that are widely scattered or unavailable in the journal literature are collected here, and the paper is the most recent survey available of the experimental situation in the controversy concerning the transport properties of this remarkable material.

Many other subjects are covered, but I believe that at the time of the meeting they were either in a state of flux or past the point of vigorous activity, and they

are reviewed better elsewhere. The controversial concept of solitons, in polyacetylene and in magnetic chains, which certainly germinated before 1979, has flourished only more recently. The observation of quasi-harmonic noise in the non-ohmic regime of niobium triselenide was also a new phenomenon in 1979. That a book can become so much out of date in two years is testimony to the progress and excitement of a vigorous field of research.

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(Continued on page 250)

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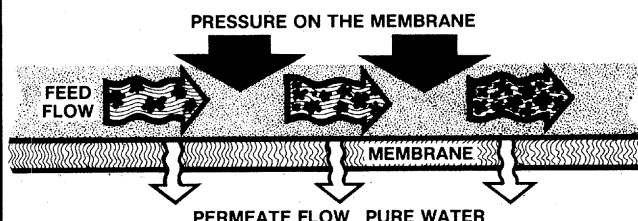
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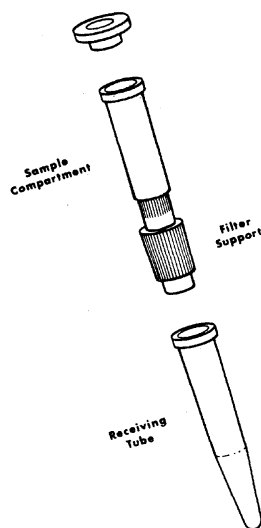


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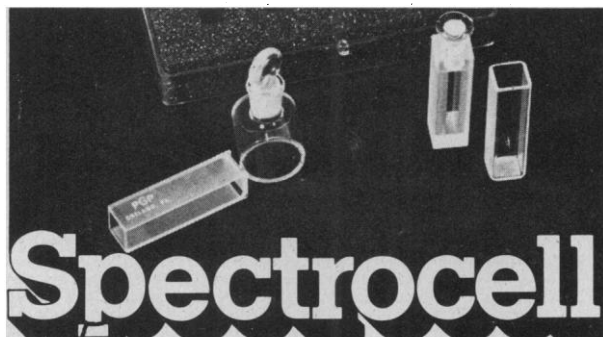
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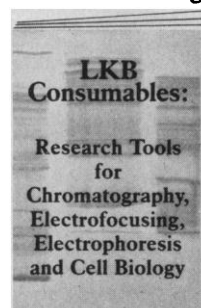
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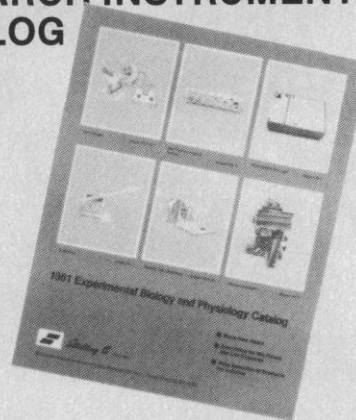
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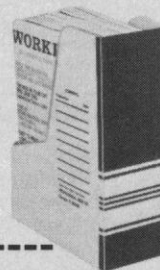
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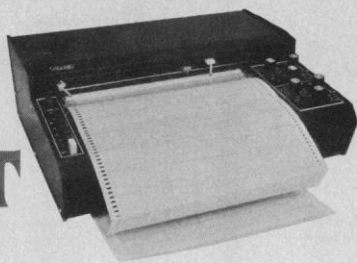
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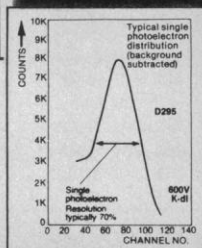
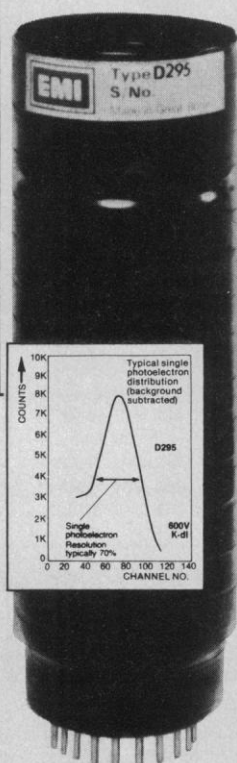
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State-funded, tenure-track faculty position available in the Department of Physiology, University of Arizona, College of Medicine. Primary consideration will be given to applicants with research interest in one of the following areas: endocrinology, epithelial transport, or reproductive physiology. Major responsibilities will be development of an active research program and organization of a new team-taught course in human physiology for upper-division undergraduates. Interest and ability in teaching students at this level as well as research ability will be considered in evaluating applicants. Ph.D. or M.D. degree or equivalent and postdoctoral training are prerequisite. Send summary of research plans, curriculum vitae, and names of three references by 15 September 1981 to: **Dr. Paul C. Johnson, Professor and Head, Department of Physiology, College of Medicine, University of Arizona, Tucson, Ariz. 85724.** *The University of Arizona is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR—RADIATION THERAPY

Requirements: Board-certified in therapeutic radiology; 3 years' postresidency; academic experience; experience and training in interstitial radiation therapy; must be interested and experienced in academic research and writing. Salary open to negotiation depending upon experience. *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.* Apply before 15 October 1981 to: **Search Committee, Therapeutic Radiology, University of Minnesota Hospitals, Box 494 Mayo Memorial Building, 420 Delaware Street, SE, Minneapolis, Minnesota 55455.**

DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS University of California, San Francisco

Applications are invited for two tenure-track positions in the area of cell biology, molecular biology, or molecular genetics at either the junior or senior level. Please enclose curriculum vitae and a two-page summary of proposed research and arrange to have three letters of recommendation forwarded to: **Dr. William Rutter, Chairman, Department of Biochemistry and Biophysics, University of California, San Francisco, San Francisco, California 94143.** *The University of California is an Equal Opportunity/Affirmative Action Employer.*

BIOCHEMISTRY PLANT PHYSIOLOGY. Research associate position available for person with recent Ph.D. in biochemistry, plant physiology, or related area. Research will involve use of immunological techniques to investigate biochemical mechanisms controlling lipid synthesis in plants. Salary: \$22,486 per year (GS-11). Location: Northern Regional Research Center, U.S. Department of Agriculture. U.S. citizenship required. Send résumé with names and telephone numbers of two or three references by 31 July 1981 to: **Dr. John Ohlrogge, Northern Regional Research Center(s), 1815 North University Street, Peoria, Ill. 61604.** *An Equal Opportunity Employer.*

CHAIRPERSON, DEPARTMENT OF ANATOMY. Must have earned doctorate, significant research accomplishments and recognition, and demonstrated administrative capability. Begin 1 October 1981. Curriculum vitae, credentials, and three letters of reference by 30 August 1981 to: **Dr. Joseph V. Scaletti, Microbiology Department, University of New Mexico School of Medicine, Albuquerque, N.M. 87131.** *Affirmative Action/Equal Opportunity Employer.*

MEDICAL DEAN

THE AMERICAN UNIVERSITY OF THE CARIBBEAN (AUC), School of Medicine, located in Montserrat, British West Indies, seeks an M.D. or a Ph.D. with proven administrative and academic track record in providing direction and leadership to faculty and administrative personnel in the development, implementation, and assessment of a quality educational program. For consideration, submit résumé and salary requirement to: **Selection Committee, AUC U.S. Office, 100 Northwest 37 Avenue, Miami, Fla. 33125.**

POSITIONS OPEN

BIOLOGIST/GENETICIST. The Department of Biology at the State University of New York (SUNY), College at Oswego, seeks a biologist/geneticist for a tenure-track position available 1 September 1981. Ph.D. preferred. Rank and salary negotiable. Teaching duties will include genetics, introductory biology, an advanced course in the specialty, and population and environmental biology. Application deadline: 24 July 1981. Send curriculum vitae, transcripts, and three letters of reference to: **James L. Seago, Jr., Chairman, Department of Biology, SUNY, College at Oswego, Oswego, N.Y. 13126.**

Oswego is an Affirmative Action/Equal Opportunity Employer.

CLINICAL IMMUNOLOGY PROGRAM EMORY UNIVERSITY

We are seeking a postdoctoral individual for a position as technical specialist in clinical immunology. Preference will be given to applicants preparing for the certifying examination of the American Board of Medical Laboratory Immunology. The position involves all aspects of clinical immunology service and related developmental research. Minimum qualifications include an advanced degree in a related area, or ASCP-registered technologist with 5 years of recent related experience or equivalent training. Applicants should submit curriculum vitae with names and addresses of three professional references to: **Robert L. Hunter, M.D., Ph.D., Professor of Pathology, Emory University School of Medicine, c/o Harriett Hoerrner, Chief of Employment, Personnel Department, Emory University, Atlanta, Georgia 30322.** *An Equal Opportunity/Affirmative Action Employer.*

CROP PEST MANAGEMENT. Several nontenured positions in overseas research, teaching, and technical assistance. Appointments: 3 months to 3 years. Ph.D., experience, and demonstrated ability in pest and pesticide management essential; overseas experience desirable. Salary negotiable. Send curriculum vitae, publication list, transcripts, and references to: **Ray F. Smith, Consortium for International Crop Protection, 2288 Fulton Street, Berkeley, California 94704.**

DEAN OF THE COLLEGE OF PHARMACY AND ALLIED HEALTH PROFESSIONS WAYNE STATE UNIVERSITY

Nominations and applications are invited for the position of dean of the College of Pharmacy and Allied Health Professions, beginning fall 1981. Wayne State University is a comprehensive university with 33,000 students and ten schools and colleges. The University's mission is to emphasize teaching, research, and public service activities responsive to the needs of a major metropolitan area and consistent with the tradition of a university of substance.

The College consists of two major units: Pharmacy and Allied Health Professions. Allied Health Professions consist of seven departments: Anesthesia (Nurse), Medical Technology, Occupational and Environmental Health, Occupational Therapy, Ophthalmic Technology, Physical Therapy, and Radiation Technology. Pharmacy is not departmentalized. Allied Health Professions offer B.S. and M.S. degrees while Pharmacy offers B.S., M.S., Ph.D., as well as the doctor of pharmacy degree. Both units have approximately 600 undergraduate majors and 175 graduate majors.

Qualifications: an earned doctorate, full-time faculty experience, and demonstrated excellence in teaching, scholarly research, and academic administration.

Nominations, inquiries, and applications should be addressed to: **Dr. John D. Taylor, Chairman, Department of Biological Sciences, Wayne State University, Detroit, Michigan 48202.**

An Equal Opportunity/Affirmative Action Employer

Faculty Positions in Anatomy and Pathology. The Division of Basic Sciences invites applications for two permanent positions available fall 1981. The division is seeking individuals with experience in teaching and capabilities in research. Requirements: Ph.D. or M.D. degree or equivalent. Salary and rank commensurate with qualifications and experience. Reply with letter of interest, curriculum vitae, and the names of three references by 24 July 1981 to: **Dr. Robert C. Sauter, Los Angeles College of Chiropractic, 920 East Broadway, Glendale, Calif. 91205.** *An Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

DEAN

**Mellon College of Science
Carnegie-Mellon University**

Carnegie-Mellon University solicits candidates for the position of dean of the Mellon College of Science (MCS). One of six colleges, MCS encompasses the Departments of Biological Sciences, Chemistry, Computer Science, Mathematics, and Physics, as well as several interdisciplinary units such as the Robotics Institute, The Center for the Joining of Materials, and the Program in Colloids, Polymers, and Surfaces.

Approximately 110 tenure-track faculty teach 600 undergraduate majors and 200 graduate students. Degrees at the undergraduate level are offered by four of the five departments. Computer Science offers only a doctor of philosophy. All departments offer the Ph.D. degree, and the M.S. degree is offered in chemistry, mathematics, and physics.

Because of the extensive graduate program of MCS and the advanced research of its faculty, we are most interested in finding candidates who have significant research records and who have proven administrative skills.

Letters of interest and curriculum vitae should be addressed as follows:

**Betty H. Maurer
Assistant Dean
Mellon College of Science
Carnegie-Mellon University
Pittsburgh, Pa. 15213**

Carnegie-Mellon University is an Equal Opportunity/Affirmative Action Employer.

DIRECTOR OF PINE LAKE CAMPUS Hartwick College

Resident director-manager of 1100-acre campus, 8 miles from main campus, used for environmental studies, arts, workshops, recreation. Residential and day programs. Responsibilities include development and implementation of academic and nonacademic programs at Pine Lake and supervision of daily operations. The position requires close cooperation with appropriate college committees, faculty, and staff. Person with advanced degree in area relevant to environmental studies and appropriate managerial experience preferred. Application deadline: 24 July 1981. Send résumé and references to: **Dr. Earl E. Deubler, Dean of the Faculty, Hartwick College, Oneonta, N.Y. 13820.** *An Equal Opportunity Employer.*

MANAGER OF SCIENTIFIC DATA CENTER

The University of Colorado seeks a staff scientist to manage the atomic and molecular physics Scientific Data Center at the Joint Institute for Laboratory Astrophysics (JILA). The candidate must be a qualified scientist who will initiate and plan projects and actively solicit experts to critically review and evaluate data in broad-based, diverse fields of atomic and molecular processes. Responsibilities will include: compilation, evaluation, and publication of data projects and reviews; proposal writing; supervision of a staff of three or four people; and interaction with scientific user groups, staff scientists, and visitors at JILA. Minimum qualifications include a Ph.D. in physics, chemistry, or astronomy; demonstrated experience related to atomic and molecular collision or radiative processes; and a broad range of interests and knowledge of the scientific literature. Salary range is open. Deadline for applications is 21 August 1981. Send résumé and references to: **Chairman, Joint Institute for Laboratory Astrophysics, Campus Box 440, University of Colorado, Boulder, Colo. 80309.**

The University of Colorado is an Affirmative Action/Equal Opportunity Employer.

MICROBIAL GENETICIST—A position is available at the rank of assistant professor for a microbiologist with specialized training in molecular genetics. The individual is expected to develop a research program in an aspect of current molecular genetics and participate in the teaching programs of the department. Applicants must have adequate postdoctoral experience and capacity to establish a strong, independent research program. This tenure-track position can begin as early as August 1981. Interested persons should send résumé, summary of research interests, and names of three references to: **R. W. Schaedler, M.D., Chairman, Department of Microbiology, JEFFERSON MEDICAL COLLEGE OF THOMAS JEFFERSON UNIVERSITY, 1020 Locust Street, Philadelphia, Pa. 19107.** *Equal Opportunity Employer.*

POSITIONS OPEN

UNIVERSITY OF CALIFORNIA AT LOS ANGELES (UCLA) FACULTY POSITION

The University of California at Los Angeles has an opening for a tenure (associate or full professor) faculty position in the Department of Atmospheric Sciences. The applicant's research specialization should be in the field of **atmospheric radiation**, preferably with emphasis on applications to the dynamics of planetary atmospheres. The candidate should have an exceptional record of accomplished research and will be expected to develop a high-quality, independent research program at UCLA. Demonstrated experience in graduate and undergraduate teaching is desirable.

Applications will be accepted until 1 March 1982. The appointment can be effective as early as 1 July 1982. Interested individuals should submit a letter of intent to:

Professor Hans R. Pruppacher
Chairman
Department of Atmospheric Sciences
University of California
Los Angeles, Calif. 90024
Telephone: 213-825-1954

The University of California is an Equal Opportunity/Affirmative Action Employer.

FOOD PACKAGING. Applications are invited for tenure-track assistant professor for research and teaching food packaging. Emphasis on elucidation of scientific principles relating to safety and quality stability of packaged food. Candidates should possess a Ph.D. in basic sciences and preferably postdoctoral or other experience in areas relating to packaging and/or food science. Closing date is 1 August 1981 or until position is filled. Application with curriculum vitae, transcripts of formal education, and names of three references should be sent to: **Dr. S. G. Gilbert**, Chairman of the Search Committee, Department of Food Science, Cook College, Rutgers University, P.O. Box 231, New Brunswick, N.J. 08903. An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

HEAD, DEPARTMENT OF SOIL SCIENCE. College of Agriculture, University of Minnesota, St. Paul. Major responsibility for the administration of the department in teaching, research, extension, international programs, and cooperative USDA-departmental relationships. Represent the department in relations with other departments, the industry, the profession, and the public. Ph.D. in soil science or appropriate related area is required. Ten years of professional (post-Ph.D.) experience desired; persons with at least 5 years of experience may be considered. Position available 1 November 1981; application deadline: 15 August 1981. Nominations, indications of interest, or résumés should be sent to:

Dr. Keith Wharton
University of Minnesota
College of Agriculture
1420 Eckles Avenue-277 Coffey Hall
St. Paul, Minn. 55108
Telephone: 612-373-0921

The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

IMMUNOLOGIST

Dartmouth Medical School invites applications now for a position of **assistant professor** or, in the case of exceptionally well-qualified applicants, **associate professor of immunology**. This tenure-track appointment in the Department of Microbiology will be effective on or about 1 July 1982, but we hope to fill the position well before that date. Responsibilities include the development of an independently funded research program and teaching of immunology to medical and graduate students. *Women and minority candidates are especially encouraged to apply.* Minimal qualifications include an M.D. or Ph.D. and several years of postdoctoral research experience. Send a detailed curriculum vitae, a statement of research interests, and the names of three referees to: **Dr. Michael Fanger**, Microbiology Department, Dartmouth Medical School, Hanover, New Hampshire 03755. An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

IMMUNOLOGIST/CELL BIOLOGIST

Central New Jersey biotechnological firm is seeking an experienced cell biologist, immunologist. M.S. preferred. Must have experience in hybridoma technology and standard immunological techniques. Send curriculum vitae (résumé) with detailed description of experience to:

Box 177, SCIENCE

INFORMATION SYSTEMS SPECIALIST

DIRECTOR, Information Management Systems. To design and develop computer-based information data bases in several specialized fields of knowledge—for example, biomedicine, on-line information retrieval networks, and computer programs in management systems.

The salary is \$24,000 per year; 40 hours per week, 8 a.m. to 5 p.m., Monday through Friday. Minimum education is a master's degree with at least 1 year of training in automatic retrieval systems.

Contact: **The Ohio Bureau of Employment Services, Southwest Location, 5739 Chevrolet Boulevard, Parma, Ohio 44130; telephone: 216-888-8668.**

MARINE CHEMISTRY

Applications are invited for either of two tenure-track faculty positions that carry teaching and research responsibilities. The level of appointment and salary will be commensurate with achievement and experience. One position is oriented toward the area of application of organic chemistry to natural systems. The other position is oriented toward research utilizing inorganic or radiochemistry in understanding atmospheric or oceanic processes. Ability to develop independent research programs will be a primary consideration.

Send résumé, references, and summary of research interests to: **Search Committee, Division of Marine and Atmospheric Chemistry, University of Miami, Rosenstiel School of Marine and Atmospheric Science, 4600 Rickenbacker Causeway, Miami, Florida 33149.**

The University of Miami is an Equal Opportunity/Affirmative Action Employer.

GENETIC TOXICOLOGIST MAMMALIAN CELL MUTAGENESIS

The Life Sciences Division of IIT Research Institute, a not-for-profit Chicago-based research organization, has an immediate opening for a Genetic Toxicologist.

Individual must supervise, perform, evaluate, and report mammalian cell mutagenicity studies, and perform independent research. In addition, the candidate will assist other personnel in evaluation of data from other *in vivo* and *in vitro* mutagenicity assays. Some travel required.

A Ph.D. is required, with academic training and at least 2 years postdoctoral experience in mammalian cell mutagenesis. Send resumes, names of three references, and salary history to:

Ms. L. Amft
Professional Staffing

IITRI IIT
RESEARCH
INSTITUTE
10 W. 35th St.
Chicago, Illinois 60616
an equal opportunity/affirmative action employer

BIOTECHNOLOGY

CHIRON CORPORATION, a young, rapidly expanding biotechnology company in the San Francisco Bay area, is inviting *scientists with significant records of achievement in molecular biology and leadership potential*, to join a strong team of innovative scientists in the application of recombinant DNA technology to the medical field. We offer an attractive working environment *close to the major universities of Northern California*, competitive salaries, stock ownership and an *outstanding scientific advisory board*. If you are interested in becoming a partner in a young research company *run by scientists*, send curriculum vitae and references in strict confidence, to **CHIRON CORPORATION, 2639 Domingo, Suite 4, Berkeley, California 94705**

PROJECT MANAGER (PM)—TEN METER TELESCOPE (TMT) UNIVERSITY OF CALIFORNIA (UC)

Applications are invited for the current opening of project manager for the UC TMT. The PM will have overall project responsibility for planning, engineering design, cost estimation, scheduling, and budget management for procurement, fabrication, and construction during the design and construction phases of the Ten Meter Telescope and related facilities. The PM will work in close cooperation with the project scientist in the determination of design and performance specifications and the development of the detailed engineering design.

Applicants should have demonstrated ability to complete major projects on time within budget. Experience in siting and site support requirements of stand-alone research facilities is valuable. Knowledge of electromechanical-optical systems, computer environments, structural engineering, and laboratory research facility designs is desirable. Experience as manager of major research construction projects is a requirement. Applicants with degrees in engineering or physical sciences are preferred.

The PM will be an associate director of Lick Observatory reporting to a UC Executive Management Committee. Salary will be commensurate with experience and qualifications.

Applicants should send résumé and the names of three persons who have been asked by the applicant to submit letters of professional reference directly to the Chair. All application materials should be received by 15 September 1981 and should be sent to:

Dr. Harold Ticho
TMT/EMC Chair
c/o Lick Observatory
University of California
Santa Cruz, California 95064

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

The Department of Veterinary Science at the University of Wisconsin-Madison invites applications for two tenure-track **FACULTY POSITIONS**: (i) **Assistant professor-veterinary parasitology** and (ii) **assistant/associate professor**, to be filled by the best available candidate from one of the following research disciplines: economics and epidemiology of animal diseases, experimental pathology, or veterinary gastroenterology. Requirements: Ph.D. and a background in veterinary medicine or animal science. Duties: develop an independent research program in area of expertise and teaching responsibilities which may include teaching or participation in graduate and/or undergraduate courses. Salary: negotiable. Positions available on or after 20 July 1981. Each application should include curriculum vitae, copies of recent publications, description of research goals, and names of four references. Submit applications to: **Dr. Robert P. Hanson, Chairman, Search and Screen Committee, Department of Veterinary Science, University of Wisconsin, 1655 Linden Drive, Madison, Wis. 53706.** *The University of Wisconsin-Madison is an Equal Opportunity/Affirmative Action Employer.*

INPUT-OUTPUT MODELING. An economist with knowledge of input-output analysis and a computer scientist or mathematician for the design and computer implementation of large linear systems. Salaries commensurate with qualifications and experience. Send résumé with references and letter stating specific interests to: **Professor Wassily Leontief, Director, Institute for Economic Analysis, New York University, 269 Mercer Street, New York, N.Y. 10003.**

University of Michigan Medical School, Department of Surgery, has a position available at the rank of **INSTRUCTOR THROUGH ASSOCIATE PROFESSOR**. Individual will work approximately half-time in patient care, teaching, and research related to burn surgery and half-time in general or plastic surgery patient care, teaching, and research. Applicants should be graduates of an American or Canadian medical school, Board-certified by the American Board of Surgery or equivalent board, have training and experience in the management of burn patients and in biomedical research related to burn surgery, and have documented record of contributing to scholarly activity in burn surgery. We are desirous of an individual who has been director of an investigative laboratory with a record of attracting external peer-reviewed funding and who has at least 20 publications in peer-reviewed literature. Reply to: **Dr. Irving Feller, 200 North Ingalls, Ann Arbor, Mich. 48104.** *A nondiscriminatory, Affirmative Action Employer. Code 169HO.*

IMPERIAL CANCER RESEARCH FUND Molecular Biologist

Applications are invited for a 3-year postdoctoral appointment (research fellow) in the Molecular Biology Laboratory at Lincoln's Inn Fields. The project involves work on the characterization of proteins affected by transformation in mammalian cells and on the control of synthesis of these proteins and their messenger RNA's. Experience with gene cloning and recombinant DNA techniques is essential.

Salary range: £7700 to £9750, plus London Allowance of £967 a year, with entry point according to qualifications and experience.

Further information from: **Dr. L. V. Crawford, telephone: 01-242 0200, extension 238.** Applications, including full curriculum vitae and names and addresses of two references, should be sent to: **The Secretary, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2, England, by 31 July 1981,** quoting reference 110/81.

MOLECULAR BIOLOGIST/MICROBIOLOGIST. Career federal service. Opportunity for a qualified research professional to apply molecular genetics recombinant DNA technology to economically important prokaryotic/eukaryotic fermentation microorganisms. Candidate to conduct research on development of recombinant microorganisms capable of more efficient conversion of plant polysaccharide to chemical fuel/feedstocks. Salary based on qualifications and experience. GS-11/12-level position. Position located at the Northern Regional Research Center, Peoria, Illinois. Send curriculum vitae and references to: **Dr. R. W. Detroy, Fermentation Laboratory Northern Regional Research Center(s) U.S. Department of Agriculture, 1815 North University, Peoria, Ill. 61604.** Telephone: 309-685-4011. *Equal Opportunity Employer.*

POSITIONS OPEN

LA TROBE UNIVERSITY MELBOURNE, AUSTRALIA SCHOOL OF BIOLOGICAL SCIENCE DEPARTMENT OF GENETICS AND HUMAN VARIATION LECTURER IN GENETICS (FIXED TERM)

A position is available for a lecturer with research experience in eukaryote gene structure and expression, possibly with an interest in development. Applicants should have strong training in general genetics, and teaching in prokaryote genetics will be required.

The appointee will be actively involved in research, including the supervision of honours and postgraduate students. The facilities of the department include glasshouses, growth cabinets, constant temperature rooms, a CI containment room, analytical and other centrifuges, and routine items of potential assistance for a molecular geneticist.

Although negotiable, it is hoped that the appointee will commence duties early in 1982.

This position is for a fixed term of 4 years. The University reserves the right not to make an appointment to the position.

Reference Number 150/32/22. Salary: A\$19,132 to A\$25,132. Closing date: 24 July 1981.

Applications marked "confidential," including names of referees and curriculum vitae to: **The Staff Officer, La Trobe University, Bundoora, Victoria, Australia 3083.**

MARINE SCIENCES FACULTY POSITIONS

Applications for the following new positions will be accepted until the positions are filled.

Chemical oceanographer (inorganic oriented). Tenure track; Ph.D. required; assistant professor level; \$17,820 for 9 months.

Geological oceanographer or marine paleontologist. Visiting professor; Ph.D.; up to 2-year appointment at assistant professor level; \$17,820 for 9 months.

Submit applications, curriculum vitae, brief statement of research goals, and three letters of recommendation to: **Chairperson, Search Committee, Department of Marine Sciences, University of Puerto Rico, Mayaguez, Puerto Rico 00708.**

DARTMOUTH-HITCHCOCK MEDICAL CENTER. Department of Pathology, has a position available for a Board-eligible or -certified **NEUROPATHOLOGIST**. This individual will be expected to provide the service needs in neuropathology and to interact with neurologists and neurosurgeons in the clinical setting. Applicants should be prepared to meet the neuropathology teaching responsibilities related to the Residency Training Program and the Medical School Teaching Program. This individual will also be expected to develop an active research program in his/her area of interest. The level of appointment of this position will be based upon the credentials of the chosen candidate. Interested individuals should send their curriculum vitae and the names of three individuals who can be contacted for recommendations to: **Howard M. Rawnsley, M.D., Department of Pathology, Dartmouth-Hitchcock Medical Center, Hanover, N.H. 03755.**

Equal Opportunity/Affirmative Action Employer

PEDIATRICS INFECTIOUS DISEASES—INSTRUCTOR OR ASSISTANT PROFESSOR OF PEDIATRICS at HARVARD MEDICAL SCHOOL. Consultative service and teaching shared with other full-time faculty members in infectious diseases. Research environment includes individuals working in molecular biology, immunology, and epidemiology. The candidate should be someone with strong research interests. Send letter outlining academic interests plus curriculum vitae to: **Kenneth McIntosh, M.D., Division of Infectious Diseases, Children's Hospital Medical Center, 300 Longwood Avenue, Boston, Mass. 02115.** *Children's Hospital Medical Center and Harvard Medical School are Affirmative Action/Equal Opportunity Employers.*

PHYSICAL CHEMIST

Energy Conversion Devices, Inc., has an opening for a Ph.D. physical chemist—chemical kinetics (gas phase), plasma chemistry—to do challenging R & D in a variety of energy-related research including photovoltaics and catalysis. Excellent opportunity for advancement. Salary is open for negotiation, depending on qualifications. Please send résumé to: **Freyja Saito, Energy Conversion Devices, Inc., 1675 West Maple Road, Troy, Mich. 48064.** *We are an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

NEUROPEPTIDE PHARMACOLOGIST

Department of Psychiatry, Yale University, seeks applicants with doctoral degree who have at least 3 years of experience working on the localization, regulation, and biologic and behavioral effects of neuropeptides. Assistant professor rank. Applicants should have demonstrated ability to conduct independent research and a high likelihood of being able to obtain research grant support. Duties include participation in independent and collaborative research and teaching medical students and postdoctoral fellows. Salary is commensurate with experience. Candidates should submit curriculum vitae and the names of three references to: **Dr. Gary Tischler, Department of Psychiatry, Yale University School of Medicine, 25 Park Street, New Haven, Conn. 06519.** *Equal Opportunity/Affirmative Action Employer.*

PATHOBIOLOGY, PROFESSOR AND HEAD. Department of Pathobiology. Salary commensurate with background and experience. To administer the Department of Pathobiology, a multidisciplinary unit encompassing veterinary and comparative pathology, microbiology, virology, immunology, wildlife diseases, and avian medicine. The department has a threefold responsibility in research, teaching, and service. An undergraduate major and an M.S. program are offered in pathobiology. Ph.D. programs are offered in several departmental research specialties. Must have a doctor of veterinary medicine and experience in biomedical research. Reply by 31 August 1981 to: **L. J. Pierro, U-89, University of Connecticut, Storrs, Conn. 06268.**

Equal Opportunity Employer

SRI INTERNATIONAL (on the San Francisco Peninsula), a premier research and development organization, has a nonlaboratory opening in the Life Sciences Division for a **Ph.D. in biochemistry, pharmacology, organic chemistry, toxicology, or a related discipline**, where emphasis has been placed in the study of chemical-biological interactions. Designing and developing computerized data bases for the analysis of structure-activity relationships and carrying out both qualitative and quantitative structure-activity analyses are primary responsibilities of this position. Working knowledge of organic chemical structure, physical properties, and reactivities required, with an understanding of basic mechanisms of chemical action in biological systems such as enzyme reactions, metabolism, and drug reactivities. Experience in computer programming and/or data-base management will be helpful, as will familiarity with current structure-activity methodologies. Please send résumé to: **C. S. Solomon, Department S-102, SRI INTERNATIONAL, 333 Ravenswood Avenue, Menlo Park, Calif. 94025.** *An Equal Opportunity Employer.*

POSTDOCTORAL ASSOCIATE/INSTRUCTOR in the area of recombinant DNA technology/hybridoma/microinjection. Studies include cloned ribosomal gene transcription and its control by hormones, role of poly(A) polymerase in mRNA processing, production of hybridomas for this enzyme, and microinjection of the enzyme and antibodies into cells. Send curriculum vitae and three letters of reference to: **Dr. S. T. Jacob, Professor, Pharmacology Department, M. S. Hershey Medical Center, Hershey, Pa. 17033.**

POSTDOCTORAL POSITION available in September 1981 for molecular biologist or microbial geneticist to study molecular mechanisms of regulation of DNA replication in a simple eukaryotic microorganism. Experience in microbial genetics or recombinant DNA methodology desired. Salary: \$14,600 per year. Send résumé and three letters of reference to: **Dr. Dan S. Ray, Molecular Biology Institute, University of California, Los Angeles, California 90024.** *The University of California is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL VACANCY

POSTDOCTORAL POSITION available immediately for study of biochemistry and genetics of lysosomal proteases in the nematode *Caenorhabditis elegans*. Emphasis is on the role of these enzymes in protein turnover, aging, and development. Ph.D. and background in biochemistry, enzymology, or genetics required. Send curriculum vitae, summary of interests, and three letters of reference to: **Dr. Lewis Jacobson, Department of Biological Sciences, University of Pittsburgh, Pittsburgh, Pa. 15260.** *An Equal Opportunity/Affirmative Action Employer.*

PLANT STRESS PHYSIOLOGIST

Ph.D. or person with equivalent experience required to develop stress-resistant cereals in collaboration with breeders, physiologists, pathologists, and molecular biologists. Work will involve conventional and nonconventional techniques. Preference will be given to candidates with experience in the following areas: **stress physiology, plant biochemistry, genetics, and/or breeding.**

Send résumé, publications, and references to:

Personnel Department

IPRI

**853 Industrial Road
San Carlos, California 94070**

PLANT GENETICS/ CELL CULTURE

The INTERNATIONAL PLANT RESEARCH INSTITUTE (IPRI) expects new research associate positions in plant protoplasts, cell genetics, and mass culture. Join our group of top-quality research scientists in the San Francisco Bay area. Applicants must have advanced degrees in biology, biochemistry, bioengineering, or microbiology. Excellent salary and benefits package. Please send curriculum vitae and professional references to:

Personnel Department

IPRI

**853A Industrial Road
San Carlos, California 94070**



**Princeton
University**

PLASMA PHYSICS LABORATORY

PHYSICIST

**THEORETICAL & APPLIED
PLASMA PHYSICS**

The Theoretical and Applied Physics Divisions of Princeton University's Plasma Physics Laboratory plan to offer three research positions starting about October 1, 1981. Physicists of exceptional ability with a Ph.D. Degree or its equivalent in Theoretical Physics, Applied Mathematics, or other relevant disciplines are encouraged to apply.

The position in the Theoretical Division involves research in nonlinear, 3 dimensional MHD, and includes the development of both large numerical codes and analytic descriptions.

One Applied Physics position includes the development and application of MHD equilibrium and stability analysis to ongoing and future experiments. The other position involves the application with a broad range of theoretical models for the analysis of energy transport in advanced non-symmetric toroidal systems.

The Plasma Physics Laboratory is supported by contract with the United States Department of Energy. Its purpose is to investigate problems in plasma physics related to the development of a toroidal controlled fusion reactor, using the principle of magnetic confinement. Two large tokamaks, the Princeton Large Torus (PLT) and Poloidal Divertor Experiment (PDX), are currently in operation, and the next generation machine, the Tokamak Fusion Test Reactor (TFTR) is under construction. Some smaller experiments, such as the S-1 and Spheromak, also exist or are planned.

The Research Department of the Laboratory consist of 3 Divisions: Experimental, Applied and Theoretical Physics. The Theoretical Division conducts analytical and computational studies of hydromagnetic and kinetic models of plasmas, including such topics as equilibrium, transport, stability, nonlinear behavior, stochasticity and turbulence. The Applied Physics Division is concerned with detailed modeling of specific experiments and with the design of future experiments. There is close collaboration between the three Divisions. POSITION TP3

Appointments will be made on the basis of the applicants' interest, experience, academic record and letters of recommendation. United States citizenship is not required. Applications, including personal and academic details, experience and publication list should be sent (indicating POSITION #) to: Personnel Department, Plasma Physics Laboratory, P.O. Box 451, Princeton, New Jersey 08544.

An Equal Opportunity/Affirmative Action Employer M/F/H

POSITIONS OPEN

PLANT GENETICIST/ BREEDER

Ph.D. or person with equivalent experience required to conduct a program of cultivar development in collaboration with geneticists, physiologists, pathologists, and molecular biologists.

Applicants should have record of achievement in breeding and cytogenetics, supervision of a crossing program, and computer-assisted statistical analysis. Prefer individuals with experience in cultivar development, recurrent selection, and conventional or molecular cytogenetics.

Send résumé, publications, and references to:

Personnel Department

IPRI

853 Industrial Road
San Carlos, California 94070

POSTDOCTORAL POSITION. Enzymologist needed to study the kinetics of nitrogenase reactivity toward N_2 and alternative substrates and its interaction with physiological electron donors. Successful applicant will be part of an interdisciplinary N_2 fixation team. Send curriculum vitae and three letters of recommendation to: **Dr. B. K. Burgess, C. F. Kettering Research Laboratory, 150 East South College Street, Yellow Springs, Ohio 45387. We are an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS available immediately for study of eukaryotic gene expression using papovaviruses as a model, and mechanism of transformation of hemopoietic cells and alteration of cell differentiation by RNA tumor viruses. Please send curriculum vitae and three letters of recommendation to: **Jim Alwine and/or David Boettiger, Department of Microbiology, University of Pennsylvania, Philadelphia, Pa. 19104. We are an Equal Opportunity Employer.**

POSTDOCTORAL POSITION. Immediate opening in ongoing program on neuropharmacological aspects of alcohol. Must have background in neuropharmacology or possibly in physiology (smooth muscle preparations) or possibly physiological psychology. Knowledge and/or experience with catecholamines and in vitro preparations preferred. Stipend: \$13,500 to \$14,000. Send résumé and references to: **Larissa Pohorecky, Center of Alcohol Studies, Rutgers University, New Brunswick, N.J. 08903. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION IN NEUROSCIENCE available 1 September 1981 to study mechanisms of neuronal modulation. Strong background in biochemistry or cell biology helpful. Techniques of receptor-ligand binding, enzyme assay, ion flux, PAGE, and fluorescence histochemistry are used to study membrane activation and secretion. Stipend is \$15,000. Send curriculum vitae and names and telephone numbers of three references to: **Dr. Barbara Talamo, Neurosciences Laboratory, Tufts University School of Medicine, 136 Harrison Avenue, Boston, Mass. 02111; telephone: 617-956-7642.**

POSTDOCTORAL POSITION available immediately in immunology. Ongoing projects include studies on mechanisms of macrophage activation to a tumoricidal state, the effects of immunosuppressants on pulmonary macrophage function, and characterization of subpopulations of pulmonary macrophages. Salary: \$13,000. Send résumé, description of research interests, and three letters of reference to: **Dr. David B. Drath, Division of Immunology and Organ Transplantation, University of Texas Medical School, 6431 Fannin, Texas Medical Center, Houston, Texas 77030. An Equal Opportunity Employer.**

RESEARCH ASSOCIATE, ELECTRON MICROSCOPY. Permanent, nontenure-track position. M.S. or Ph.D. preferably in plant pathology, skilled in TEM and plant ultrastructure interpretation. Cooperative work within the department and opportunity for independent research. Send résumé and three letters of reference before 15 August to: **H. Wheeler, Plant Pathology, University of Kentucky, Lexington, Ky. 40546. An Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION INSECT PHYSIOLOGY

Applications are invited for a postdoctoral position to study the reproductive physiology of insects. Biochemical expertise is desirable, though applicants with other specialties will be considered. Appointment will be for 1 year in first instance, but renewable. Salary based on NSERC rates (currently C\$1075 to C\$1175 per month).

Applications, including curriculum vitae and names of three referees, or requests for further information should be sent to:

Dr. C. Gillott
Department of Biology
University of Saskatchewan
Saskatoon, Saskatchewan, Canada S7N 0W0

POSTDOCTORAL POSITION. Cardiovascular Research Laboratories, Department of Medicine/Physiology, University of California at Los Angeles (UCLA). Ph.D., physiology or pharmacology. Interest in previous experience in problems of cardiac excitation-contraction coupling including computer background, modeling, and isolated muscle techniques. Position is for 2-year period. Salary dependent upon experience.

Send curriculum vitae and names of references to:

Professor Wilfried F. H. M. Mommaerts
Chairman
Department of Physiology
University of California Medical Center
Los Angeles, Calif. 90024

Affirmative Action/Equal Opportunity Employer. Minority and women candidates are encouraged to apply.

POSTDOCTORAL RESEARCH ASSOCIATE to use monoclonal antibodies to study differentiation of the myoblast membrane and cell interactions during skeletal myogenesis. Experience in immunology, membrane biochemistry, and cell culture preferred. Appointment to start fall-winter 1981. Send curriculum vitae and names of three references to: **Dr. Stephen Kaufman, 131 Burrill Hall, Department of Microbiology, University of Illinois, Urbana, Illinois 61801. Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE

The Division of Oncology, Department of Medicine, University of Massachusetts Medical School, is seeking a postdoctoral associate experienced in protein biochemistry and immunology to join a research team involved with in vitro and in vivo studies of immunotoxins. Please send curriculum vitae and three letters of reference to: **Dr. T. W. Griffin, Division of Oncology, Department of Medicine, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, Massachusetts 01605.**

POSTDOCTORAL RESEARCH/INSTRUCTOR position available 1 November 1981. Research involves a study of the structure, organization, and expression of recombinant DNA-cloned muscle genes from *Drosophila melanogaster*. Salary: \$15,500, plus university benefits. Send curriculum vitae and addresses of three references to: **Dr. Robert Storti, Department of Biochemistry, University of Illinois Medical Center, Chicago, Illinois 60612.**

PROTEIN BIOCHEMIST—Ph.D. level

Research associate position available October 1981 at a medical school-affiliated hospital in northern Ohio. Position involves research on neuronal cytoskeletal proteins. Applicants with publications and postdoctoral experience in protein synthesis/structure studies are preferred. Salary: \$18,500. Reply to **Box 178, SCIENCE**

RECEPTOR METABOLISM POSTDOCTORAL RESEARCH ASSOCIATE

Position available immediately for research in beta-adrenergic receptor regulation and metabolism in cultured cells. Study involves intact cell receptor binding and use of recently developed photoaffinity and EM labels. Ph.D. with experience in receptor methodology, membrane structure, and/or freeze-fracture EM preferred. Salary minimum: \$13,500, commensurate with experience; travel allowance. Send curriculum vitae, reprints, and names of references to: **Dr. M. E. Maguire, Department of Pharmacology, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE to study the genetic control of hybrid resistance to mouse tumors. Recent Ph.D. with background in cellular immunology preferred. Send curriculum vitae, statement of research background and interests, and the names, addresses, and telephone numbers of three references to: **Dr. Julia M. Phillips-Quagliata, Department of Pathology, New York University Medical Center, 550 First Avenue, New York, N.Y. 10016. An Equal Opportunity/Affirmative Action Employer.**

THE UNIVERSITY OF BRITISH COLUMBIA FACULTY OF SCIENCE DEPARTMENT OF MICROBIOLOGY

Applications are invited for position of **PROFESSOR AND HEAD** of the department. The 15 faculty members have research interests in microbial physiology, molecular biology, immunology, pathogenic bacteriology, and virology. Undergraduate and graduate courses in microbiology and immunology are offered, and some members teach courses in the interdisciplinary Biology Program. The department graduates 40 to 45 B.Sc. students annually and currently has a graduate student enrollment of over 40.

Applicants should have demonstrated research competence in an area of microbiology or immunology, an interest in undergraduate and graduate teaching, and appropriate administrative experience. Applications should be received before 1 November 1981 and should include curriculum vitae, list of publications, and names of three referees. Appointment will be for 1 July 1982. Salary is negotiable. Material should be addressed to:

Dean C. V. Finnegan
Faculty of Science
University of British Columbia
2075 Wesbrook Mall

Vancouver, British Columbia, Canada V6T 1W5

Equal Opportunity for Employment is offered to male and female applicants.

PROJECT MANAGER—The California Office of Appropriate Technology (OAT) is seeking a project manager for biofuels/soil conservation assessment. Competitive salary, commensurate with experience. Duties include: planning, implementation, and evaluation of project, hiring of staff, production of final report to legislature and agencies, and maintaining liaison with project advisory committee. Requires an advanced degree in soil science, agronomy, or agricultural economics; 5 years of experience in at least two of the following areas: biomass crops, soil loss/soil conservation, energy analysis, resource economics. Three years of experience as project manager of multiagency research. To apply, submit a résumé to: **OAT, attention: Janis Warner, 1600 9th Street, Sacramento, Calif. 95814. Please write "Soils" in the upper right-hand corner of your résumé. Equal Opportunity Employer.**

The position of **RESEARCH ASSISTANT** is available immediately for a person with training in immunofluorescence and the study of cell surface markers. Knowledge of tissue culture and HLA tissue typing is desired. An M.S., M.T., or equivalent experience is preferred. Salary: \$15,000 to \$17,000, plus benefits. Send résumé and names of three references to: **A. G. Nasrallah, Ph.D., Research Director, Division of Hematology/Oncology, Cook Children's Hospital, 1212 West Lancaster, Ft. Worth, Texas 76102.**

RESEARCH ASSOCIATES—Positions in laboratories of senior faculty persons in the areas of cellular and developmental neurobiology and circadian rhythms. Preference will be given to applicants who have proven ability to attract funding. Send curriculum vitae to: **Michael D. Gershon, M.D., Professor and Chairman, Department of Anatomy and Cell Biology, Columbia University College of Physicians and Surgeons, 630 West 168 Street, New York, N.Y. 10032. Affirmative Action/Equal Opportunity Employer.**

RESEARCH POSITION

RESEARCH POSITION, at University Hospital, to study cell-mediated immunity in human cancer. Doctorate required. Candidates must have experience in immunological and cell culture techniques, background in tumor immunology, and personality suitable for some patient contact. Excellent salary and benefits. Please send résumé to: **Herta Tegtmeyer, Immunochimistry Research, Evanston Hospital, 2650 Ridge Avenue, Evanston, Ill. 60201.**

TECHNICAL SUPPORT SCIENTISTS FLOW CYTOMETRY

The continuing success of our Flow Cytometry product line has created a rapid expansion in our Technical Marketing Support organization.

Currently we are seeking PhD level scientists, conversant in cell genetics, cell biology, immunology, cytology or related life science fields. Our candidates will have conducted independent experimental work in flow cytometry and will have practical experience including complex instrumentation.

Two opportunities exist for individuals having this background, with the more senior position requiring a minimum of three years relevant research experience.

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Interested candidates are invited to forward their resume to: Mr. Robert A. King, Ortho Diagnostic Systems, Inc., 410 University Avenue, Westwood, MA 02090.



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CHAIRMANSHIP INTERNAL MEDICINE

University of Alabama School of Medicine

Nominations and applications for the position of chairman, Department of Medicine, are being sought. Qualifications include widely recognized experience in teaching, research, patient care, and administration in academic medicine. Nominations should include curriculum vitae and bibliography, and should be submitted to:

John W. Benton, M.D.
Chairman, Internal Medicine Search Committee
The Children's Hospital
University Station
Birmingham, Alabama 35294

Applications and nominations should be submitted by 30 September 1981.

The University of Alabama in Birmingham is an Equal Opportunity/Affirmative Action Employer.

GEOLOGIST/REMOTE SENSING

Gulf Science & Technology Company is seeking a geologist for research on the use of remote sensing in hydrocarbon and minerals exploration. Responsibilities will include processing and analysis of remotely sensed digital imagery and the use of this imagery in geological mapping. Use of an interactive image-processing system and evaluation of high-resolution data will be an integral part of the position. Applicant must have an advanced degree in geology and demonstrated skills in image processing, computer programming, and quantitative remote sensing. Background in hydrocarbon and/or minerals exploration desirable but not essential. Please send resume and transcripts to:



Gulf Science & Technology Co.
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Pittsburgh, PA 15230
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previous experience should reflect the ability to conduct creative research directed towards an understanding of gastrointestinal disorders at the molecular level and to contribute to the development of novel pharmacological approaches to the treatment of such disorders. Experience in directing the research goals of senior (doctoral level) as well as junior associates is desired.

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POSITIONS OPEN

RESEARCH ASSOCIATE—APPLIED MICROBIOLOGY. Industrially sponsored program developing microbial technology for oil production. Salary: \$25,000 (negotiable). Responsibilities include operation of laboratory program, supervision of technicians, and interfacing with complementary academic projects. Facility with English, anaerobic culture experience, and graduate degree in microbiology or equivalent laboratory experience are sought. Please send curriculum vitae with references to: **Dr. T. Jack, Arctic Institute, University of Calgary, 2500 University Drive, NW, Calgary, Alberta, Canada T2N 1N4, telephone: 403-284-7515.**

RESEARCH ASSOCIATE position for study on biochemistry and reaction mechanisms of coagulation factors XI and high molecular weight kininogen, available now. Ph.D. in biochemistry or related field with experience in protein characterization, interaction; coagulation experience desirable. Send curriculum vitae and amplifying letter to: **Sandra Schiffman, Ph.D., University of Southern California Medical School, 2025 Zonal Avenue, Los Angeles, California 90033.**

TENURE-TRACK RESEARCH FACULTY POSITION

University of North Carolina, Institute of Marine Sciences, Morehead City, N.C.

Vacancy can be filled at any academic level, but experience is preferred. Applications are invited in the following areas:

- 1) **Coastal geology**—Sedimentary dynamics, seismic stratigraphy,
- 2) **Marine ecology**—Processes of coastal macrophytes or zooplankton communities, and
- 3) **Carcinology**—Processes involving population dynamics or ecology.

To apply, send résumé, letter describing research interests, and three references to:

**Dr. Kirk Frankenberg, Director
Institute of Marine Sciences
University of North Carolina at Chapel Hill
3407 Arendell Street
Morehead City, North Carolina 28557**

Closing date: 1 October 1981. *The University of North Carolina at Chapel Hill is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH FELLOW for work in Biochemistry Laboratory. Qualifications should include Ph.D. in biochemistry and experience in isolation, purification, and characterization of enzymes from human sources. Applicant should also have in-depth understanding of the regulation of purine biosynthesis and amidophosphoribosyl-transferase in particular. Salary: \$13,000 per year. Apply: **North Carolina Department of Labor, 516 North Mangum Street, Durham, N.C. 27702.**

VETERINARY BACTERIOLOGISTS VETERINARY VIROLOGISTS

**College of Veterinary Medicine
and Biomedical Sciences
Colorado State University**

The Department of Microbiology and the Diagnostic Laboratory (Department of Pathology) invite applications and nominations for two positions in veterinary bacteriology and two positions in veterinary virology. Responsibilities will include development of clinical laboratory programs, management of diagnostic services, teaching in professional and graduate programs, and research program development. Appointee will join a multidisciplinary, interdepartmental group organized to advance all disciplines of laboratory medicine. Qualifications include D.V.M. and/or Ph.D. degree or equivalent. Tenure-track appointments; rank and salary negotiable and competitive.

Closing date for applications: 15 August 1981. (Deadline may be extended.)

Submit curriculum vitae, three letters of reference, and a letter detailing professional interests to:

**Dr. A. F. Alexander
Chairman, Search Committee
Department of Pathology
College of Veterinary Medicine
and Biomedical Sciences
Colorado State University
Fort Collins, Colo. 80523**

Colorado State University is an Equal Opportunity/Affirmative Action Employer. Equal Opportunity Office: 314 Student Services Building.

POSITIONS OPEN

THREE RESEARCH POSITIONS (one each as a **biochemist, analytical/physical chemist, and physical/material scientist**) are open in the Federal Bureau of Investigation's (FBI) Research Laboratory at Quantico, Va. Consideration given to candidates with a Ph.D. in appropriate field (life, chemical, and physical/material sciences) and with pertinent experience in electrophoresis and immunology (biochemist); HPLC and GC/MS (analytical/physical chemist); and elemental analysis with SEM, XRF and AA (physicist/material scientist). Responsibilities of each position include developing long-range research programs in the application of state-of-the-art techniques to practical problems in forensic science. Some teaching may be required. Salary and GS grade commensurate with education and experience. Send résumé and/or SF-171 by 31 July 1981 to: **Research Unit, FSRTC, FBI Academy, Quantico, Va. 22135.** U.S. citizenship is required. *The FBI is an Equal Opportunity Employer.*

RICE BREEDING. Louisiana State University, Rice Experiment Station, Crowley, La. Requires a Ph.D. in plant genetics or agronomy, with emphasis in plant breeding and experience in mechanized crop production. Principal responsibilities are to develop improved rice varieties for Louisiana conditions. The position requires cooperative work with geneticists, entomologists, agronomists, and other disciplines. Leadership ability in organizing a rice-breeding program, support personnel, equipment, and materials for both field and laboratory is required for the position. Send résumé, transcripts, and three or more letters of recommendation to: **M. D. Faulkner, P.O. Box 1429, Crowley, La. 70526.** Position closing date is 1 August 1981 or until position is filled. *Equal Opportunity/Affirmative Action Employer.*

STAFF DIRECTOR

Study of institutional (government process) means for assessment of risks of carcinogens and other public health hazards. Applicants for this position must have 5 to 10 years of experience in risk assessment and science management as used for regulatory decisions plus a demonstrated knowledge of this process relative to chemical and physical risks to human health. Qualifications also require a Ph.D. or equivalent with excellent communication and proven organizational skills. Duties involve facilitating and supporting the work of a committee of experts in risk assessment and its application to government decisions. Send résumé to: **Dr. A. G. Lazen, Executive Director, Assembly of Life Sciences, National Research Council, National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, D.C. 20418.** *An Equal Opportunity Employer.*

TREE PHYSIOLOGY—ASSISTANT PROFESSOR. Develop independent research program in contemporary basic tree physiology and collaborative research on physiological aspects of ongoing applied projects (70 percent). Teach tree physiology and supervise graduate students (30 percent). Earned Ph.D. degree or background in forestry is preferred. Demonstrated ability to plan, conduct, and publish research and teach. Ability to work closely with scientists and clientele is essential. Deadline: 15 August 1981, 12-month, tenure accruing. Send curriculum vitae, official academic transcripts, and three letters of recommendation to: **Arnett C. Mace, Jr., Director, School of Forest Resources and Conservation, University of Florida, Gainesville, Fla. 32611.** Telephone 904-392-1791.

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WORKSHOP

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COURSE

UNIVERSITY OF MINNESOTA THE SECOND ANNUAL ADVANCED LABORATORY COURSE ON "CLONING AND SEQUENCING WITH THE SINGLE-STRANDED DNA PHAGE M13mp2 AND ITS DERIVATIVES"

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The course will cover three topics:

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- 2) **DIDEOXY-SEQUENCING OF M13 CLONES, and**
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Lectures will focus on "APPROACHES TO UNDERSTAND DNA STRUCTURE": Jürgen Brosius (Cambridge), David Pribnow (Boulder), Peter Czerwikowski (Salzburg, Austria), David Mount (Tucson), Mark Zoller (Vancouver, Canada). Laboratory space will be available for 20 participants. The course fee will be \$275, exclusive of meals and lodging. Inexpensive accommodations close to the campus will be reserved. Address your application with a short résumé of your research interest not later than 1 August 1981 to:

**Dr. Joachim Messing
Department of Biochemistry
University of Minnesota
St. Paul, Minn. 55108**

PROGRAM

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FELLOWSHIP

POSTDOCTORAL FELLOWSHIP—Research on the effects of toxicants on biological membranes. Applicants are required to have research experience in two of these areas: isolation of membrane proteins, electrophoretic analysis of proteins, immunochemical techniques, hepatocyte and subcellular isolation or electron microscopy. Send description of research experience, curriculum vitae, and three letters of reference by 7 August 1981 to: **Dr. D. P. Selivonchick, Department of Food Science, Oregon State University, Corvallis, Oregon 97331; telephone: 503-754-4964.** *An Equal Opportunity Employer.*

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15.0 μm	Polystyrene/DVB	60.00	
20.0 μm	Polystyrene/DVB	60.00	
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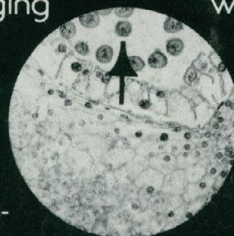
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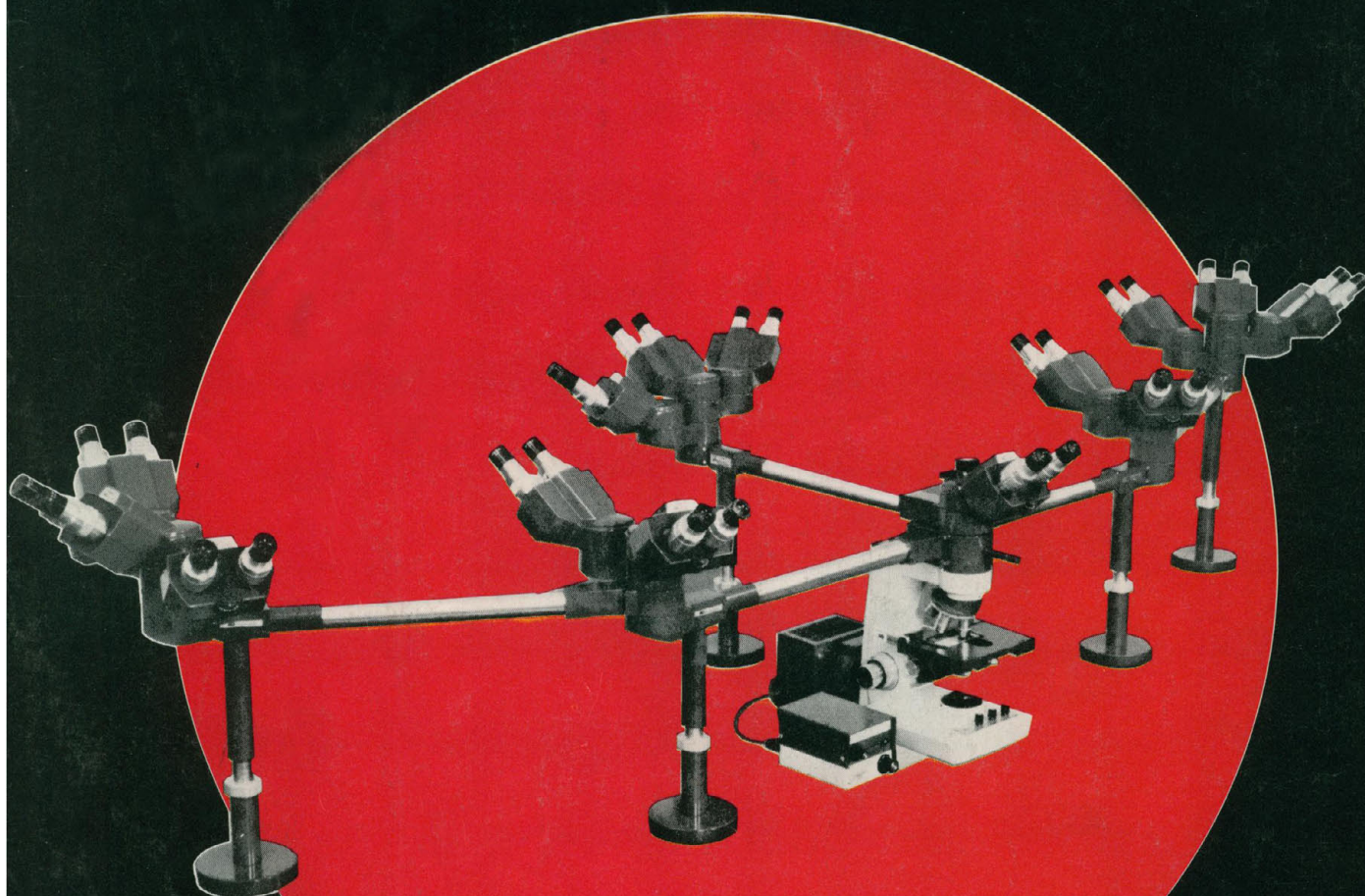
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