

CURRENT INDICATOR AND INTEGRATOR

Model A309A Current Indicator and Integrator

- MEASURES CURRENTS FROM 1 MILLI-AMPERE TO 3 MILLI-MICROAMPERES.
- INTEGRATES INPUT CURRENT AND REGISTERS ACCUMULATED CHARGE.

The Model A309A Current Indicator and Integrator is a very sensitive current indicating instrument that also measures the integral of a varying current. Developed especially for integrating variable beam currents in electron or positive-ion accelerators, the instrument can be used in practically any application requiring the integration of a variable voltage or current.

FEATURES

- Wide current range: 1×10^{-8} to 3×10^{-9} amp. in 12 switch settings.
- High accuracy: 1% of full scale.
- Internal calibrating current source to check proper operation.
- Pre-setting feature provides means of safeguarding against overexposure.

For Complete
Technical
Specifications
and Price, Write
for Elcor Bulletin
No. 27-360.



1225 W. BROAD ST.
FALLS CHURCH, VA.

EXPERIMENTAL PHYSICISTS

The Research Laboratories of the Allis-Chalmers Mfg. Company offer an opportunity to Ph.D. physicists for professional growth with an expanding physics group. Opportunities are now available for a wide range of research in many areas of physics and varying in nature from fundamental to applied.

Write, giving details of educational background and prior work experience to:

**J. T. Jarman, Assistant to Vice President
In Charge of Research
Allis-Chalmers Mfg.
Milwaukee 1, Wisconsin**

the complexities of the fracture of inorganic, non-metallic ceramics when subjected to various stress fields, strain rates, corrosive attack, temperatures, prior loading history, and surface-active environments, as well as to investigate the effect of these influences on ceramic materials of different levels of impurities, various grain sizes, and varying shapes and configurations. Metallic oxides, titanium oxide, silicon dioxide, and lithium fluoride will be studied.

International

Grants by the Ford Foundation and the Rockefeller Foundation have enabled the University of Lovanium, near Leopoldville in the Congo, to reopen for the current academic year in spite of the disturbed condition of the country. The University, founded in 1954 as an affiliate of the Roman Catholic University of Louvain in Belgium, is the site of Africa's only nuclear reactor. The TRIGA reactor was built by General Dynamics in San Diego and was purchased by the former Belgian Congo government after being exhibited two years ago in Geneva at the second International Conference on the Peaceful Uses of Atomic Energy. The University, whose president is Belgian nuclear physicist Luc P. Gillon, has an enrollment of some 500 Congolese students and offers training in a variety of fields, including physics, chemistry, mathematics, and the medical and biological sciences.

The Asia Foundation announced in October that it has distributed a total of 1.75 million books to more than 3000 colleges, universities, libraries, and civic groups in Asian countries during the past six years. The volumes, distributed under the Foundation's "Books for Asian Students" project, were donated by publishers, libraries, university and college groups, and individuals in the United States. The Foundation is a nonprofit, nonpolitical organization established by private American citizens to support "individuals and groups in Asia who are working for the attainment of peace, independence, personal liberty, and social progress". While the donation of books in the physical sciences and scientific journals in runs of five years or more is particularly desired, the Foundation will welcome all college-level books in good condition which have been published within the past ten years. Works by standard authors are considered desirable regardless of date. On large shipments the Foundation will pay transportation costs from the donor to its office in San Francisco. All shipments or questions concerning categories, criteria, shipping, and program details should be addressed to Books for Asian Students, 21 Drumm Street, San Francisco 11, Calif.

Applications are now being accepted for Organization for European Economic Cooperation Senior Visiting Fellowships for 1961. About 25 awards will be made to US citizens or nationals for study in the physical, mathematical, biological, and engineering sciences under a program administered by the National Science Foun-

**at PALO ALTO LABORATORIES,
General Telephone and Electronics'
new research center on the San
Francisco peninsula**

**a program of long-range, company-
sponsored, pure and applied research
provides exceptional opportunities
for experienced physicists, with
Ph. D. degrees in these fields:**

SOLID STATE PHYSICS theoretical and experi-
mental research into fundamental mechanisms affecting
propagation in semiconductor, ferroelectric, and magnetic
materials

PLASMA PHYSICS theoretical and experimental
research in plasma physics, magnetohydrodynamics,
electromagnetic wave theory, gaseous electronics, and
shock wave phenomena

PARAMETRIC AMPLIFIER RESEARCH studies
in the use of electron beams, plasmas, and solid state
materials for parametric amplifiers

These positions offer continuity of research in well-equipped
laboratories in Palo Alto, with excellent living conditions
and educational facilities available.

Qualified scientists are invited to investigate
today by writing to Dr. H. F. Whitmer at

PALO ALTO LABORATORIES

4020 FABIAN WAY • PALO ALTO, CALIFORNIA



GENERAL TELEPHONE & ELECTRONICS LABORATORIES INC.

G766



PHYSICISTS AND RESEARCH ENGINEERS

UNUSUAL OPPORTUNITIES FOR PROFESSIONAL CAREERS. CHALLENGING PROBLEMS IN:

- High Altitude Physics
 - Nuclear Weapons Effects
 - The Theory of Learning
 - System Planning Studies
 - Theory of Communications
 - Magnetohydrodynamics
 - Informionics
- Owned and Managed by Employee-Scientists
 - Southwest Climate • Advanced Degree Desirable
 - Wide Range of Benefits Including Profit Sharing
 - No Production • No Hardware Development

ADDRESS INQUIRIES TO:

THE
Dikewood
CORPORATION

4805 Menaul Blvd. N.E.

Albuquerque, N. M.

EXPERIMENTAL PHYSICIST PhD Level

Expanding Research Program in Vacuum Techniques. Concerns both fundamental studies and experimental investigations in the field of Ionic Pumping and Mass Spectrometry.

Require PhD in Physics. Industrial experience desired.

Excellent salary—Exceptional benefits—Working conditions beyond reproach—Very desirable So. California location with ideal climatic conditions.

This is a challenging position with excellent growth potential. Reply in confidence, including brief resume, to:

Dr. C. F. Robinson
Director of Research
Bell & Howell Research Center
360 Sierra Madre Villa
Pasadena, California

ation. The OEEC fellowships will usually be made for periods of eight weeks to six months, although in exceptional cases a maximum period of one year may be approved. They are designed to assist scientific and technical institutions in sending personnel for study to advanced research and educational institutions primarily in the OEEC member countries or countries cooperating with the Organization: Austria, Belgium, Denmark, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom. Nomination of an individual will be made by his home institution. To qualify, a candidate must have full professional standing in the field with which the fellowship is to be concerned, have at least five years' experience in research, teaching, or other relevant professional work, and have the necessary linguistic capability. An applicant will be judged solely on his ability to carry out his proposed activities program. Evaluation will be carried out for the Science Foundation by panels of scientists appointed by the National Academy of Sciences—National Research Council. Applications and detailed information can be obtained from the Fellowship Office, NAS-NRC, 2101 Constitution Avenue, N.W., Washington 25, D. C., and must be returned to that office by January 6.

Two representatives of the National Science Foundation, Robert T. Webber and Henry Birnbaum, have been assigned to the staff of the United States Embassy in Tokyo to assist in promoting the exchange of scientific knowledge between scientists and institutions in Japan and the United States. Tokyo was chosen for the post, the first of its kind, because of the important basic research being done in Japan and because of the need for better communication between American and Japanese scientists. The two officers, who officially began their duties on October 1, will work in close cooperation with the science attaché, Willis R. Boss. They will study and report on Japanese scientific organization and funding and will make similar information on American science available to Japanese institutions. They will also develop and promote the exchange of documentary information. To accomplish this, they will assist in the publication in English of Japanese scientific articles and abstracts and will support activities for translating and abstracting existing Japanese scientific literature into English.

The Division of Mathematics, National Academy of Sciences—National Research Council, has announced the appearance of its annual list of Visiting Foreign Mathematicians. This bulletin includes information regarding some 140 mathematicians and statisticians spending some part of the current academic year in the United States and gives the dates of their visit, the host institution, and their field of interest, which in some cases includes mathematical techniques commonly applied in physics. Copies may be obtained by writing to the Division of Mathematics, National Academy of

Physicists • Electronic Engineers

*for assignments on APL's
satellite program*

**Research • Development •
Systems Engineering**



You will find association with APL particularly rewarding if you appreciate an atmosphere conducive to original thinking, and if you are capable of making contributions to advance the state-of-the-art.

Satellite Development Group

The group is concerned with research and development of satellite-borne equipment, which will be capable of performing highly complex functions. The instruments have to operate in a space environment on exceedingly low power sources, and they have to work for five to ten years without malfunction.

Emphasis is on conceptual design rather than hardware fabrication. Engineers will work without close supervision, will enjoy freedom to create and investigate, and do not have to spend much time writing proposals. BS or more in physics or electronic engineering required. Two or more years of experience in transistor switching circuits and familiarity with utilization of memory and/or logical devices desired.

Satellite Ground Systems Group

This group is responsible for the design of data handling systems for use in shipboard and airborne navigational equipment, and for ground tracking equipment. Assignments involve development of novel and highly sophisticated data processing systems, systems coordination, and technical supervision of contractors.

BS or more in physics or electronic engineering plus four to five years of experience in data processing systems required.

**For details about these career opportunities, address your inquiry to:
Professional Staff Appointments**

**The Applied Physics Laboratory
The Johns Hopkins University**

8611 Georgia Avenue, Silver Spring, Md.
(Suburb of Washington, D. C.)

JARRELL-ASH MICROFOCUS X-RAY UNIT

Features

BETTER FOR . . .

- High Resolution
- Low Angle Studies
- High Speed
- Microradiography
- Lattice Defect Studies
- Microsamples



The Jarrell-Ash Microfocus X-Ray unit is the best instrument for all photographic diffraction work. It is manufactured in the U.S.A. exclusively by Jarrell-Ash Co.*

* licensed by
Hilger & Watts, Ltd.

WRITE FOR CATALOGUE MF12-59

SALES OFFICES IN:

Costa Mesa, Cal.	Dearborn, Mich.
San Mateo, Cal.	New Brunswick, N. J.
Atlanta, Ga.	Pittsburgh, Pa.
Lombard, Ill.	Dallas, Tex.
Toronto, Canada	Zurich, Switzerland

JARRELL-ASH CO.

26 FARWELL STREET, NEWTONVILLE 60, MASS.

Sciences—National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

Grants and Fellowships

Funds to assist US biophysicists to attend next summer's International Congress of Biophysics have been obtained by the NAS-NRC ad hoc Committee on International Relations in Biophysics. The Congress will take place in Stockholm, Sweden, from July 31 through August 4. Application forms, which must be returned no later than December 31, can be obtained from the Committee on International Relations in Biophysics, Division of Biology and Agriculture, National Academy of Sciences—National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

One-year appointments for "the development of creative abilities and advanced education of young investigators of unusual promise" are offered under a National Academy of Sciences—National Research Council program of postdoctoral resident research associateships. Eligibility requirements include US citizenship, a doctoral degree or its equivalent, and evidence of "superior ability for creative research". The associateships are tenable at the National Bureau of Standards, Naval Ordnance Laboratory, Naval Research Laboratory, Naval Weapons Laboratory, Navy Electronics Laboratory, US Army Chemical Corps Biological Laboratories, several laboratories of the Agricultural Research Service, and four technical centers of the Air Research and Development Command. Research opportunities at the regular and senior postdoctoral levels are also available at the Goddard Space Flight Center, the Quartermaster Research and Engineering Center Laboratories, and the Quartermaster Food and Container Institute. Brochures describing these separate associateships in detail can be obtained from the Fellowship Office, National Academy of Sciences—National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D. C. In order to be considered for 1961-62 awards, applications must be filed with the Fellowship Office before February 1.

A new postdoctoral research fellowship program has been inaugurated with the support of the Air Force Office of Scientific Research. Awards will be made in various branches of the natural and applied sciences to US citizens at the postdoctoral level for work carried out at educational institutions and research laboratories in the US and abroad. Application materials are available from the NAS-NRC Fellowship Office at the above address and must be returned by January 9.

The Institute of Mathematical Sciences at New York University is again offering temporary memberships to mathematicians and other scientists holding the PhD degree who intend to study and do research in the fields in which the Institute is particularly active. These fields include functional analysis, function theory, differential equations, mathematical physics, fluid dynamics and magnetohydrodynamics, electromagnetic theory,