



Among recent developments in upper atmosphere research at Sandia are rocket-boostered particle samplers called SAND (Sampling Aerospace Nuclear Debris). SAND will explore the regions between balloon ceilings and satellite perigees to enable radioactive debris inventories and to develop forecasting schemes for debris dispersal. SAND-LO will extract particulate matter by filters in 8 ft. long whirling vanes during parachute retarded descent from 225 to 100 kft. SAND-HI, operating from 200 to 600 kft or higher, looks to condensation of near-molecular particles upon a 10 ft. circular mylar sail deployed by centrifugal force. Both will hermetically seal the sample for recovery and laboratory analysis. Flight tests are now underway. When operational, SAND will also augment other systems in an international program of high altitude geochemical and geophysical studies.

Sandia scientists and engineers do related work in many diversified fields including: Aerothermodynamics; Polymers, Plastics and Foams; Solid State Physics; Human Factors Engineering; Aerospace nuclear safety; Electronic and mechanical design and development of systems and components.

Sandia Corporation is a Bell System subsidiary and a prime contractor of the Atomic Energy Commission engaged in research, design and development of the non-nuclear phases of nuclear weapons. At Sandia you would work in Albuquerque or in Livermore in the San Francisco Bay area.

Sandia Corporation recruits on many major campuses and is primarily interested in recent and current outstanding graduates in many of the engineering and scientific disciplines at all degree levels. Consideration of applicants is based solely on qualifications and without regard to race, creed, color or national origin. U. S. citizenship is, however, required. For current opportunities, contact the Sandia recruiter at your college or write Professional Employment Organization 3151, Ref. 559-6, Sandia Corporation, Post Office Box 5800, Albuquerque, New Mexico, 87115.

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Sciences, University of Colorado, Boulder, Colo., or Prof. M. I. Budyko, Main Geophysical Observatory, M. Spasskoya 7, Leningrad K-18, USSR.

### *Space and Vacuum Techniques*

The French Society of Vacuum Technicians and Engineers, with the endorsement of the National Center for Space Studies, is organizing an international congress on vacuum techniques in space research to be held in Paris from June 29 to July 4.

A series of invited papers dealing with vacuum techniques in space physics will review physical and chemical factors, radiation in space, the electrical state, and micrometeorite fluxes. In addition, papers on space simulation will deal with ultrararefied media, temperature, thermal exchanges and associated radiations, and experiments on ionized media. There will also be a program of contributed papers on development of materials, components, and devices used for obtaining low pressures.

All correspondence should be addressed to the Technical and Administrative Secretariat, Mme. J. Mainier, 147 Blvd. de Strasbourg, Nogent-sur-Marne, Seine, France.

### *Astronautics*

The International Astronautical Federation will hold the fifteenth International Astronautical Congress in Warsaw, from September 7 to 21. In addition to the general sessions, which will cover bioastronautics, power systems, celestial mechanics, re-entry, systems, and ground installations, the meeting will devote a major part of its program to the problems of manned lunar exploration. These sessions will include flight programs, propulsion techniques, navigation, and an invited panel discussion of a possible international lunar laboratory. Other special events will include a discussion of education in astronautics and an invited symposium on space vehicles in ionized media.

Information regarding the submission of summaries of contributions, due before April 15, can be obtained from the International Astronautical Federation, 250 rue Saint-Jacques,