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News Release

GRADUATE RESEARCH CENTER OF THE SOUTHWEST

SOUTHWEST CENTER FOR ADVANCED STUDIES



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RELEASE AT IOWA CITY, IOWA, SEPT. 26, 1966 - SCIENCE WRITER SEMINAR

THIRD "TEXAS" INTERNATIONAL SYMPOSIUM ON RELATIVISTIC ASTROPHYSICS TO BE HELD IN
NEW YORK CITY - JANUARY 23-27, 1967

The Third "Texas" Symposium on Relativistic Astrophysics will be held January 23-27 in New York City. The formal name will probably be "International Symposium on Relativistic Astrophysics". The "Texas" tag comes from the fact that the new meeting is a continuation of symposia held at the Southwest Center for Advanced Studies in Dallas in 1963, and at The University of Texas, Austin, Texas, in 1964.

Sponsors of the 1967 program are Belfer Graduate School of Science of Yeshiva University, New York City; The Goddard Institute for Space Studies, New York City; the Southwest Center for Advanced Studies (post-doctoral teaching and fundamental research arm of the Graduate Research Center of the Southwest at Dallas), and The University of Texas.

Organizers are Dr. A. W. G. Cameron of Belfer Graduate School; Prof. Ivor Robinson, who heads the SCAS Mathematics and Mathematical Physics Division; and Drs. Alfred E. Schild and Engelbert L. Schucking of The University of Texas.

Science reporting opportunities, by date, include:

Monday, January 23 - Observations of quasi-stellar sources (quasars). Absorption lines have been discovered in the spectra of some quasars having red shifts different from those of the emission lines; this leads to questions about the stability of the gas content of quasars, and the characteristics of the apparent gas-emission processes.

Quasars emit several times as much infrared energy as that of the visible region; this adds to the overall problem of accounting for their huge energy outputs, and compounds the questions about mechanisms responsible for their electromagnetic radiation.

News about the proportion of radio sources which are quasars has led to some conclusions about cosmological theories; there are still questions about the validity of such analyses.

Lunar occultation experiments show some quasars have very complicated geometric structure in their radio-emitting regions.

The smallest quasar has been re-measured by a new method involving variations in the solar wind (the supersonic streaming of gas thrown spaceward by the sun). 3C-273, a key topic in the 1963 discussions at Dallas, has been measured at only 34 parsecs in diameter (653 million million miles). This is relatively small for an object that

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Monday, January 23 (cont)

radiates as much energy as a galaxy, or billions of stars -- about as much as 3 trillion suns.

Certain spectacular examples have been found in rapid optical and radio variations among quasars; much more spectacular than reported in the previous sessions.

Tuesday, January 24 - A new subject, opened in the past year: "Fireball Physics".

Bell Telephone Laboratories report an apparently isotropic background radiation at a temperature of 3°K . The extent of isotropy may be determined with improved precision by the end of 1966.

New information is expected on measurements of interstellar molecular lines of CN and CH.

The astrophysical implications of these measurements include: If such background radiation really arises from a primordial fireball in the early expanding stages of the universe, then it is to be expected that the early hot universe synthesized large amounts of primordial helium.

The paramount question: Do the oldest stars have a high helium content? This will be debated.

Were other light elements besides helium produced in significant quantity in the early universe?

Wednesday, January 25 - X-Ray and Gamma Ray Astronomy.

At least 25 discrete X-Ray sources have been discovered since 1964's Texas Symposium; four of these are identified with four of the five strongest radio sources, two galactic and two extra-galactic. Most X-ray sources are strongly concentrated toward the galactic plane, indicating they are objects within our galaxy. Are they super-nova remnants?

Time-varying fluxes of the X-ray sources add to the difficulty of understanding their generation mechanism.

The first Gamma-ray source apparently identifies with one of the extra-galactic X-ray sources.

The organizers hope that V. L. Ginzburg of the Lebedev Institute in Moscow can accept an invitation to discuss current theory.

Thursday, January 26 - Cosmic Rays and Cosmic Neutrinos.

Medium, heavy, and very heavy elements are over-abundant in solar cosmic rays, relative to amounts of hydrogen and helium in solar composition. A new technique provides measurements of very, very heavy elements (beyond iron); these also turn out to be over-abundant. This allows rejection of some proposed mechanisms for the acceleration of these overabundant ions.

Cosmic neutrinos of very high energy are also being detected.

News about the dynamics of cosmic ray gas seems to have far-reaching astrophysical

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implications, especially related to star formation.

Friday, January 27 - (Morning) The Role of Stellar Collisions in Evolution of Dense Galactic Centers. What part do stellar collisions possibly play in quasi-stellar formations?

(Afternoon) Panel discussion on status of observational cosmology.

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Probable session chairmen: Martin Schwarzschild, Princeton; G. A. Gamow, University of Colorado; Edward E. Salpeter, Cornell; Iosif Samuilovich Shklovski, Sternberg State Astronomical Institute, Moscow; B. Y. Mills, Chatterton Astronomy Department, University of Sydney, N.S.W.; Yuval Ne'eman, University of Tel Aviv and Southwest Center for Advanced Studies, Dallas; Fred Hoyle, Cambridge University.

Tentative Speakers List: January 23, Maarten Schmidt, California Institute of Technology; Allan Sandage, Mt. Wilson and Palomar Observatories; Frank Low, University of Arizona; Martin Ryle, Cambridge University; Cyril Hazard, Cornell University.

January 24, A. Penzias, Bell Laboratories; P. Thaddeus, Goddard Institute for Space Studies; Jesse L. Greenstein, California Institute of Technology; R. V. Wagoner, California Institute of Technology; P. J. E. Peebles, Princeton University.

January 25, Harold Friedman, Naval Research Laboratory; Kenneth G. McCracken, University of Adelaide and Southwest Center for Advanced Studies, Dallas; J. G. Duthie, Rochester University; V. L. Ginzburg, Lebedev Physical Institute; Peter Morrison, Massachusetts Institute of Technology.

January 26, John Simpson, University of Chicago; R. M. Walker, Washington University; E. N. Parker, University of Chicago.

January 27, Thomas Gold, Cornell University; S. A. Colgate, New Mexico Institute for Mining and Technology.

January 27 (Panel), R. P. Feynman, California Institute of Technology; Ginzburg, Ryle; R. K. Sachs, The University of Texas; Sandage, and Ya. B. Zel'dovich, U.S.S.R. Academy of Sciences, Moscow.

EDS: The above speaker listing should be understood as subject to change, and incomplete. At this date, acceptances have been received from Schmidt, Sandage, Penzias, Thaddeus, Wagoner, Friedman, McCracken, Duthie, Walker, Parker, Gold.

There will be many more prominent scientists who are not chairmen or speakers. Total attendance will probably exceed 300.