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From the Big Bang to the Origins of Life
an Approach to the Formation of the RNA World

Speaker:
James Ferris

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Togo Salmon Hall, Room 120

ABSTRACT

The processes that led to the origins of life began with the Big Bang and proceeded via the formation of the elements, galaxies, solar systems and planets. The potential for life elsewhere in our galaxy and solar system will be discussed. Possible stages in the chemical evolution of the complex organic compounds on the prebiotic Earth will be outlined with an emphasis on a postulated route to RNA. In one scenario for the origins of life RNA is proposed to be a central molecule in the "RNA World" where life was based on RNA. In this proposal the RNA world preceded the DNA-protein world, which is the basis of life on Earth today.

BACKGROUND

James Ferris is Professor of Chemistry and Director of the New York Center for Studies on the Origins of Life: A NASA Specialized Center of Research and Training at Rensselaer Polytechnic Institute in Troy, NY. He has been Chair of the Chemistry Department, President of the International Society for Studies on the Origins of Life (ISSOL) and is a fellow of the American Association for the Advancement of Science. He has served on a number of panels of the National Research Council of the National Academy of Sciences including the Space Studies Board, the Task Group on Sample Return From Small Solar Systems Bodies, and is currently the Chair of Task Group Exploring Organic Environments in the Solar System. He served as the editor of the ISSOL journal Origins of Life and Evolution of the Biosphere. In 1996 he was awarded the Oparin Medal of ISSOL for "the best sustained scientific research program in the origin of life. His current research is focused on the laboratory investigation of the synthesis of RNA under primitive Earth conditions and the atmospheric photochemistry in Saturn's moon Titan.