



LECTURE

The Plasma Universe: Gravity *Plus* Electromagnetism

HPS Visiting Scholar Series - Department of History
Presented at the Department of Physics Colloquium

Timothy E. Eastman, Ph.D.
Senior Physicist, NASA Goddard
Sciences and Exploration Directorate

CPNS SENIOR RESEARCH FELLOWS

Michael Epperson
Research Professor,
Director, CPNS
California State University
Sacramento

Elias Zafiris
Quantum Theorist and
Mathematician
Institute of Mathematics
University of Athens

Timothy E. Eastman
Senior Physicist
NASA Goddard

Stuart Kauffman
Depts. of Biochemistry and
Mathematics and Complex
Systems Center
University of Vermont

Roland Omnès
Quantum Theorist
University of Paris, CNRS

Over the past century, Einstein and others inspired us to recognize and model stellar worlds (galaxies and beyond) based on Einstein's mathematical model for gravity. Assuming absolutely complete neutralization (shielding) of electromagnetic forces on large scale, such models have treated the vast domains of intergalactic space as just that, "empty" space. Over the past half century, Van Allen and others inspired us to recognize and model domains of space plasma (planetary magnetospheres and beyond) based on basic plasma physics and Maxwell's electromagnetic theory. This latter "space age" research has revealed the substantial, yet limited, shielding of electromagnetic forces on large scale. Indeed, space plasma research has revealed that there is no such thing as truly "empty" space. The potential impact of this insight on cosmology models is unknown - a critical question for a new generation.

This lecture is free and open to the public.

WHEN: Thursday, November 6, 4:00 – 5:20

WHERE: Mendocino Hall, Room 1015