



## National Capital Area Skeptics Public Lecture Series

20/20 SINCE 1987

Bethesda Library, 7400 Arlington Rd., Bethesda, Maryland

FREE admission – Everyone welcome, members and non-members

For more information, call the 24-hour NCAS Skeptic Line recording at 301-587-3827.

E-mail: [ncas@ncas.org](mailto:ncas@ncas.org)

[www.ncas.org](http://www.ncas.org)

2 PM, Saturday, April 14

### **The Moon:**

### **A New Destination for Humanity**

Paul D. Spudis, PhD

Paul Spudis served on the President's Commission on Implementation of US Space Exploration Policy in 2004. The commission's report concluded that the new vision for NASA to extend human presence across the solar system, starting with a human return to the Moon by the year 2020 in preparation for human exploration of Mars and other destinations, is a sustainable and affordable long-term human and robotic program to explore space. Some skeptics have questioned the value of returning humans to the Moon instead of pressing on to Mars, while others doubt the benefits of any human space exploration program. Dr. Spudis will address these objections, as well as other related topics of interest to skeptics.

2 PM, Saturday, May 12

### **Applying the Scientific Method to Test CAM Modalities**

Robert Clarke, PhD, DSc

The National Institutes of Health's National Center for Complementary and Alternative Medicine (NCCAM) is the Federal Government's lead agency for scientific research on complementary and alternative medicine (CAM), including acupuncture, chiropractic, herbal treatments, hypnotherapy, massage therapy, meditation and naturopathy as well as many other types of care. How can complementary and alternative healing practices be explored in the context of rigorous science?

**Special Day and Time:**

**7:30 PM, Thursday, June 14**

### **The Comprehensible Cosmos: Where Do the Laws of Physics Come From?**

Victor J. Stenger, PhD

In a series of remarkable developments in the 20th century and continuing into the 21st, elementary particle physicists, astronomers, and cosmologists have removed much of the mystery that surrounds our understanding of the physical universe. We now have mathematical models that are consistent with all observational data, including measurements of incredible precision, and we have a good understanding of why those models take the form they do.

But the question arises: Where do the "laws" revealed by the mathematical models come from? Some conjecture that they represent a set of restraints on the behavior of matter that are built into the structure of the universe, either by God or some other ubiquitous governing principle. In this challenging, stimulating discussion of physics and its implications, physicist Victor Stenger disputes this notion. Instead, he argues that physical laws are simply restrictions on the ways physicists may draw the models they use to represent the behavior of matter if they wish to do so objectively. Since mathematical descriptions of data must be independent of any specific point of view, that is, they must possess "point-of-view invariance" (maximum objectivity), they naturally conform to certain fundamental laws that insure that objectivity, such as the great conservation principles of energy and momentum. The laws of physics, however, are not simply an arbitrary set of rules since the observed data beautifully demonstrate their accuracy.

**Please see reverse side for speaker biographies.**



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### Speaker Biographies

**Dr. Spudis** is a planetary scientist at the Johns Hopkins University Applied Physics Laboratory where he studies impact and volcanic processes on the planets, specializing in the geology of the Moon. He was the deputy leader of the science team for the Department of Defense Clementine mission to the Moon in 1994. Spudis has served on several NASA and National Academy of Sciences advisory committees and was a member of the White House Synthesis Group, which examined architectures for lunar and Martian exploration in 1991. His B.S. in geology is from Arizona State University; his M.S. is from Brown University, and his Ph.D. is from Arizona State University.

**Robert Clarke**, Ph.D., D.Sc., F.I.Biol., F.R.S.Chem., F.R.S.Med. is Professor of Oncology and Professor of Physiology & Biophysics at Georgetown University, and Co-Director of the Division of Molecular Endocrinology, Nutrition and Obesity, and Co-Director of the Breast Cancer Program at the Lombardi Comprehensive Cancer Center (Georgetown University). Dr. Clarke earned a D.Sc. in 1999, a Ph.D. in 1986, and a M.Sc. in 1982 (each in Biochemistry) from the Queen's University of Belfast (U.K.) and a B.Sc. (Biological Sciences) in 1980 from the University of Ulster (U.K.). An elected Fellow of the Royal Society of Chemistry (U.K.), the Royal Society of Medicine (U.K.), and the Royal Institute of Biology (U.K.), Dr. Clarke also is a member of the American Association of Cancer Research, Endocrine Society (U.S.A.), Society for Endocrinology (U.K.), New York Academy of Sciences, and the American Chemical Society. He is currently Chair of a NIH grant review study section ("Basic Science") for the National Center for Complementary and Alternative Medicine.

**Victor Stenger** is emeritus professor of physics at the University of Hawaii and adjunct professor of philosophy at the University of Colorado. He is a fellow of the Committee for Skeptical Inquiry and a research fellow of the Center for Inquiry. Stenger has also held visiting positions on the faculties of the University of Heidelberg in Germany, Oxford in England (twice), and has been a visiting researcher at Rutherford Laboratory in England, the National Nuclear Physics Laboratory in Frascati, Italy, and the University of Florence in Italy. Stenger spent forty years doing research in elementary particle physics and astrophysics during the golden age of those subjects. In his last project before retiring, Stenger collaborated on the underground experiment in Japan that showed for the first time that the neutrino has mass.

He is the author of several popular-level books that span physics, cosmology, philosophy, religion, and pseudoscience, including *The Comprehensible Cosmos: Where Do the Laws of Physics Come From?* and the *New York Times* best seller *God: The Failed Hypothesis. How Science Shows That God Does Not Exist.*