
THE ELLIOTT W. MONTROLL LECTURES



University of Rochester
Department of Physics & Astronomy

Wednesday, February 21, 2018
4:00 pm, Lander Auditorium, Hutchison Hall



Professor David Stevenson

Goldberger Professor of Planetary Science
Caltech

Earth & Environmental Science **Colloquium**

Origin of the Moon

David J. Stevenson FRS is the Goldberger Professor of Planetary Science at the California Institute of Technology. He is world-renowned for his studies of the interior structure and magnetism of planets, and of the formation of planets and their lunar systems. He is also a decorated teacher at both graduate and undergraduate levels, and a frequent, highly-regarded, public ambassador of planetary science and exploration.

Prof. Stevenson's many honors include the Urey Prize of the American Astronomical Society; the Hess Medal of the American Geophysical Union; fellowship in both the Royal Society (UK) and the National Academy of Sciences (USA); and Caltech's Richard Feynman Teaching Prize.

There is only one physically sensible story for the origin of the Moon and that involves a giant impact on Earth in the last stages of its formation. There are nonetheless diverging opinions about particular characteristics of that story, driven by the remarkable isotopic similarity of Earth and Moon. There are three main categories of stories: impact by a body that is isotopically very similar to Earth, impact followed by a great deal of mixing between target and projectile (thereby diluting the differences) and impact on a fast rotating Earth (a modification of the fission hypothesis of George Darwin). I will explain the strengths and weaknesses of these various alternatives and how we might go about deciding among them. I will suggest that the most obvious solution (similarity of target and projectile) is likely to be a major part of the story.



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