



# OIST SEMINAR

Date: January 17<sup>th</sup>, 2017 (Tue)

Time: 3:00 pm – 4:00 pm

Venue: C210, seminar room

**Speaker: Professor H. J. Melosh**

(Distinguished Professor of Earth, Atmospheric and Planetary Science,  
Purdue University, USA)

## Planetary Smashups: From the Moon's Origin to the Dino's Demise



### **Abstract**

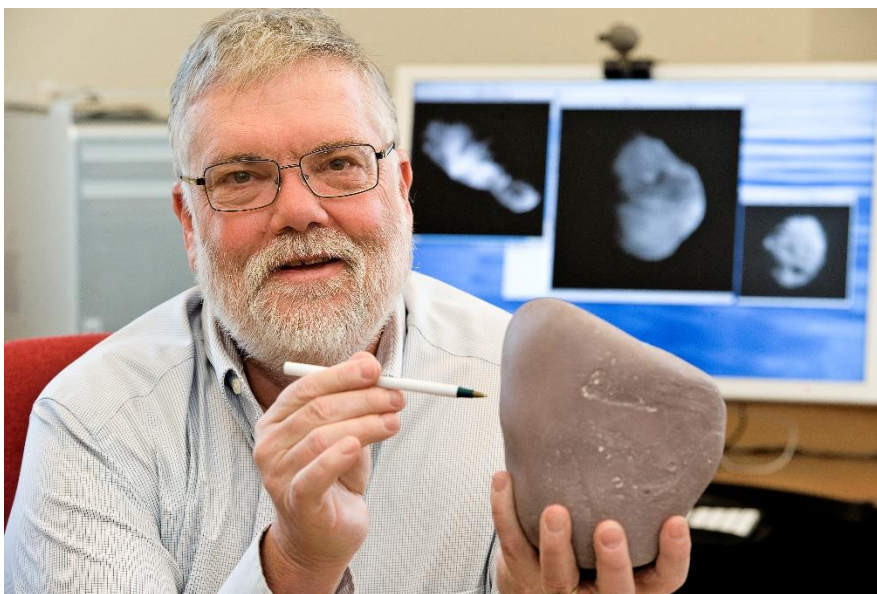
Collisions with asteroids and comets used to be the stuff of science fiction. However, starting with the Apollo missions' revelations about our Moon, it has gradually dawned on the scientific world that collisions between objects from microscopic to planetary dominated nearly every aspect of our planetary system's birth. Long after the birth of our planet, a rare asteroid impact initiated the extinction of the dinosaurs. As recently as Feb. 15, 2013 the atmospheric disintegration of a building-sized space rock terrified residents of the city of Chelyabinsk, Siberia. Impacts on Mars have sent us samples of that planet in the form of meteorites and just might have once transferred living organisms between our two planets. Modern computer models are now revealing just what happens when an irresistible force—a speeding asteroid—meets an immovable object—the Earth, Mars or the Moon.

### **Brief Biography of H. J. Melosh:**

H. J. Melosh is a Distinguished Professor of Earth, Atmospheric and Planetary Science at Purdue University in West Lafayette, IN. He also holds appointments in the departments of Physics and Astronomy and Aeronautical and Aerospace Engineering at Purdue. He received an AB degree in Physics from Princeton University in 1969 and a PhD in Physics and Geology from Caltech in 1973. His principal research interests are impact cratering, planetary tectonics, and the physics of earthquakes and landslides. His recent research includes studies of the giant impact origin of the moon, the K/T impact that extinguished the dinosaurs, the ejection of rocks from their parent bodies and the origin and transfer of life between the planets. He was a science team member of NASA's Deep Impact mission that successfully cratered comet Tempel 1 on July 4, 2005 and flew by comet Hartley 2 on November 9, 2010. He is also a Co-Investigator of the GRAIL mission that returned detailed data on the Moon's gravity field.

Professor Melosh is a Fellow of the Meteoritical Society, the Geological Society of America the American Geophysical Union and American Association for the Advancement of Science. He was awarded the Barringer Medal of the Meteoritical Society in 1999, the Gilbert prize of the Geological Society of America in 2001 and the Hess Medal of the American Geophysical Union in 2008. He was a Guggenheim Fellow in 1996-1997 and a Humboldt Fellow at the Bavarian Geological Institute in Bayreuth, Germany, in 2005-2006. Asteroid #8216 was named "Melosh" in his honor. He was elected to the U.S. National Academy of Sciences in 2003 and the American Academy of Arts and Sciences in 2011. In 2014 he was awarded the McCoy award of Purdue University.

He has published approximately 200 technical papers, edited two books and is the author of a major monograph, *Impact Cratering: A Geologic Process* and a text "Planetary Surface Processes" with Cambridge University Press.



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