Geology Open Night, Friday, January 29, 2016

ESS 001; 7:30 P.M.

For more information: http://www.geo.sunysb.edu/openight/index.html

Hanna Nekvasil

"Uncommon behavior of a common mineral lends new insight into the ancient lunar crust"

Our interpretation of lunar history is strongly intertwined with the model of a lunar magma ocean in which plagioclase began crystallizing late and floated and accumulated to form an anorthositic crust. However, to date, the search continues for direct evidence of a deep origin of minerals that make up the anorthosite that could validate this fundamental model. Such evidence has been elusive as laboratory investigation of nominally equivalent terrestrial minerals has shown that these minerals do not change their crystallization behavior over the pressure range of the lunar magma ocean and therefore, are poor indicators of pressure. With new investigation of a long standing enigma regarding the compositional invariance of plagioclase in lunar anorthosite, we have shown that plagioclase of the highly calcic composition of the lunar anorthosite is not only sensitive to pressure but shows evidence for a high pressure origin. This provides the first diagnostic means of assessing the possibility of a lunar magma ocean source of the Highlands anorthosite.

Hanna Nekvasil is a Professor in the Department of Geosciences at Stony Brook University. She received her B.A from Cornell University in 1979 and her Ph.D. from Penn State in 1985. She has been a professor in the Department of Geosciences at Stony Brook since 1988, where she has focused on understanding the igneous history of the Earth, Moon, and Mars primarily through simulating, in the laboratory, the conditions of crystallization on these planetary bodies. Recently, her group was the first to identify a mineral on the Moon that contained water and showed that the Moon was not as dry as first thought. Today she will report on their new results that provide the first definitive criteria to assess whether a lunar magma ocean actually existed in the Moon's past.

Directions to SUNY Stony Brook and ESS Building

⇨ From exit 62 of the Long Island Expressway (LIE, I-495) follow Nicolls Road (Route 97) north for nine miles. Pass the South and Main entrances to the University.

⇨ Enter the North entrance which will be on your left.

⇨ At the top of the small hill, turn right on Circle Road.

⇨ Proceed about 1 mile.

⇨ Turn left onto Campus Drive and then immediately turn left again onto John S. Toll Drive.

⇨ Proceed about 50 yards then turn right into the large paved parking lot.

⇨ The Earth and Space Sciences building is the large concrete building at the northeast end of the parking lot.

Map of campus is on the web at: http://www.stonybrook.edu/sb/map/

TEACHER IN SERVICE CREDITS

If your school requires you to have a sequence of educational opportunities in order to receive in-service credit, please advise them that during the Spring 2015 semester we will provide attendance certification for each of the lectures attended.

Please contact the respective department for more information.