

Thursday, July 27, 2017

**IMPACT MODELING AND SHOCK EXPERIMENTS: FROM LARGE TO SMALL**

9:15 a.m. Sweeney C

*Numerical Modeling and laboratory experiment studies on impact processes ranging from large planetary-scale impacts to shock effects on a micro-scale are presented*

**Chairs: Elizabeth Silber  
Falko Langenhorst**

- 9:15 a.m. Silber E. A. \* Johnson B. C.  
[\*The Structure of Europa's Ice Shell: Insights from Numerical Modeling\*](#) [#6148]  
Numerical modeling of impact cratering on Europa to probe the internal structure.
- 9:30 a.m. Ogawa R. Nakamura A. M. \* Hasegawa S.  
[\*The Effect of Temperature and Impact Velocity on Crater Shape on the Surface of Iron Bodies\*](#) [#6074]  
Impact cratering experiments were conducted for iron targets including Gibeon iron meteorite of about 150 K and room temperature. The crater depth-to-diameter ratio was lower for the low temperature and low velocity conditions.
- 9:45 a.m. Bryson K. L. \* Ostrowski D. R.  
[\*Meteorite Fractures and Scaling for Asteroid Strengths\*](#) [#6295]  
Strength plays a role in determining the outcome of impact events. Our objective is to scale fracture parameters in meteorites to their parent body.
- 10:00 a.m. Pittarello L. \* Habler G. Chanmuang C. Abart R.  
[\*Silica Crack Pattern Resembling Ballen Formed in a Circulating Fluidized Bed Boiler: Is Shock Necessary to form Ballen?\*](#) [#6100]  
"Synthetic" ballen silica formed in the boiler of a biomass power plant. Cracks are localized in cristobalite, which surrounds relic quartz fragments. Pressure and temperature conditions in the boiler allow a new discussion of ballen silica formation.
- 10:15 a.m. Jaret S. J. \* Johnson J. R. Sims M. Glotch T. D.  
[\*Apparent Lack of Planar Deformation Features \(PDFs\) in Experimentally Shocked Plagioclase\*](#) [#6158]  
Plagioclase was / Experimentally Shocked / Why No PDFs?
- 10:30 a.m. Rucks M. J. \* Glotch T. D. Whitaker M. L. Parise J. B.  
[\*Investigation of Tissintite Formation Using In-Situ Synchrotron X-Ray Diffraction and Multi-Anvil Techniques\*](#) [#6325]  
Here we report our initial findings in our investigation of tissintite formation using *in-situ* synchrotron X-ray diffraction and multi-anvil techniques. This is the first reported case of synthetic tissintite.
- 10:45 a.m. Langenhorst F. \* Turner D. Mohrholz V. Harries D. Liermann H.-P.  
[\*Dynamic Diamond Anvil Cell Experiments on Olivine: A Novel Approach to Simulate Shock-Metamorphic Effects\*](#) [#6275]  
We present an alternative approach to simulate the formation of shock-metamorphic effects in olivine by synchrotron-based dynamic diamond anvil cell experiments.
- 11:00 a.m. Fazio A. \* Harries D. Nolte S. Mutschke H. Langenhorst F.  
[\*Femtosecond Laser Irradiation of Olivine Single Crystals: Experimental Simulation of Space Weathering\*](#) [#6045]  
Femtosecond laser experiments were successfully carried out to reproduce the spectral, mineralogical, and microstructural modifications caused by the space weathering in olivine.