Thursday, March 22, 2012
POSTER SESSION II: STUDYING IMPACTS THROUGH EXPERIMENTS AND MODELING
6:00 p.m. Town Center Exhibit Area

Collette A. Horanyi M. Drake K. Mocker A. Sternovsky Z. Munsat T. Cintala M.
Experimental Investigation of Light Flash from Hypervelocity Impacts **[#2793]**
We describe laboratory investigations into the phenomenon of visible light flash generated by hypervelocity impact, and the relationship between the flash characteristics (spectrum, duration and intensity) and the characteristics of the impactor.

Zimmerman M. I. Farrell W. M. Stubbs T. J.
Characterizing Electron Oscillations in a Collisionless, Expanding Impact Plasma **[#2071]**
During a meteoritic impact on the Moon, target and impactor material can form an impact plasma. Plasma oscillations and the surface-plasma interaction are characterized via kinetic simulations, with relevance to a planned lunar impact experiment.

Hamura T. Kurosawa K. Hasegawa S. Sugita S.
A Ground-Hugging Downrange Vapor Cloud due to Oblique Impacts **[#1888]**
We experimentary modeled the dynamics of oblique impact vapor clouds as a hypersonic mixture of projectile fragments and their melts and ablated gas species.

Ohno S. Kadono T. Kurosawa K. Sakaiya T. Yabuta H. Shigemori K. Hironaka Y. Sano T. Hamura T. Sugita S. Arai T. Matsui T.
Impact-Induced Sulfur Release from a Carbonaceous Chondritic Impactor: Implication to the K/Pg Event **[#1894]**
We experimentally measure the chemical composition of the S-bearing gases in carbonaceous chondritic impact vapor using a laser gun and a QMS. Reducing S-bearing gasses were the major species and would have also released by the K/Pg impact.

Ormö J. Rossi A. P.
Effect of Impact Angle on the Off-Set of Outer vs. Nested Crater for Concentric Impact Structures in Layered Targets: A Tool to Determine Direction of Impact **[#1138]**
We show with observation and experiments that the concentric shape of craters from oblique impacts into targets with an upper, weaker layer over a more rigid substrate is affected by the impact angle. This is useful to determine direction of impact.

Price M. C. Burchell M.
Using Hydrocode Modelling to Track Ejecta from Oblique Hypervelocity Impacts onto Glass **[#1904]**
Hydrocode modelling has been implemented to track the ejecta from hypervelocity impacts of oblique impactors onto glass. This supports the ongoing Stardust ISPE as a method to aid discrimination between spacecraft secondary impacts and IDP/ISPs.

Miljkovic K. Collins G. S. Mannick S. Bland P. A.
Hydrocode Simulations of Binary Asteroid Impacts **[#1338]**
Numerical modeling provides a unique insight into the processes and parameters that lead to single, elliptical, overlapping, and doublet craters as a result of binary asteroid impacts in different materials and gravities.

Bland P. A. Muxworthy A. R. Collins G. S. Moore J. Davison T. M. Prior D. J. Wheeler J. Ciesla F. J. Dyl K. A.
Effect of Low Intensity Impacts on Chondrite Matrix **[#2005]**
Although the majority of carbonaceous chondrites have only experienced low-intensity (<5 GPa) impacts, we show that compacting initially highly porous matrix aggregates results in large temperature excursions even at low shock pressures.

Wada K. Nakamura A. M.
Numerical Simulations of Penetration into Porous Granular Targets **[#1803]**
We carry out numerical simulations of penetration into porous granular targets under microgravity to elucidate impact processes on asteroids. As a result of our simulations, penetration resistance is obtained and discussed.

Poelchau M. H. Kenkmann T. Dufresne A.
A Simple Analysis of Porosity and Pore Space Saturation Effects on Crater Volume **[#2185]**
The effect of porosity (and pore space saturation) on crater volume in strength-dominated impact experiments is investigated using calculations based on scaling laws for non-porous impacts.

Güldemeister N. Wünnemann K. Buhl E. Kenkmann T. Durr N. Hiermaier S.
Numerical Modeling of Porosity Alteration at the Sub-Surface of Impacts in Sandstone **[#1851]**
In the framework of the MEMIN project the effects of hypervelocity impact shock compression and release in sandstone are investigated. The increase of porosity as a result of the rarefaction wave has been modeled and quantified in impact experiments.

Buhl E. Poelchau M. H. Kenkmann T. Dresen G.
Porosity Reduction in the Sub-Surface of Experimentally Produced Impact Craters in Sandstone **[#1401]**
Subsurface analyses of experimental impacts in sandstone have shown a variation of pore space with increasing depth from the impact point source. Differences between dry and wet targets suggest an effect of pore fluids on deformation mechanisms.

Dufresne A. Poelchau M. H. Kenkmann T. Deutsch A. Hoerth T. Schaefer F.
Morphology of Experimental Impact Craters into Sandstone **[#1821]**
Detailed morphometric crater analyses of hypervelocity impact experiments were carried out to investigate the influence of impact velocity and target pore space saturation on crater size and morphology.

Schultz P. H. Stickle A. M. Crawford D. A.
Effect of Asteroid Decapitation on Craters and Basins **[#2428]**
Asymmetries within and around large impact craters and basins on the Moon are interpreted as the effects of projectile failure. One result is shallow crater excavation downrange, which can support the uplifted rim downrange while collapsing uprange.

Plesko C. S. Jensen B. J. Fredenburg D. A. Wescott B. L. Skinner McKee T. E.
Quasi-Static and Dynamic Compaction of the JSC-1A Lunar Regolith Simulant **[#2746]**
Moon dust simulant / Compressed in stillness and at speed / Toward an EOS.

See T. H. Cardenas F. Montes R.
The Johnson Space Center Experimental Impact Lab: Contributions Toward Understanding the Evolution of the Solar System **[#2488]**
Impact is the only common weathering phenomenon affecting all planetary bodies in the solar system. JSC's Experimental Impact Lab includes three accelerators used in support of research into the role of impact on the evolution of the solar system.