Wednesday, March 9, 2011
IMPACT EXPERIMENTS
8:30 a.m. Montgomery Ballroom

Chairs: **Mary Sue Bell**
Michael Poelchau

8:30 a.m. Fritz J. * Wünnemann K. Greshake A. Fernandes V. A. S. M.
Boettger U. Hornemann U.
Shock Pressure Calibration for Lunar Plagioclase **[#1196]**
Shock recovery experiment on Ca-rich plagioclase (An_{94}) were performed to investigate on the mechanisms of shock deformation in silicates and to provide quantitative shock pressure calibration for lunar rocks and Ca-rich plagioclase-bearing meteorites.

8:45 a.m. Bezaeva N. S. * Badjukov D. D. Raitala J. Rochette P. Gattacceca J.
Experimental Shock Metamorphism of Terrestrial Basalts Induced by Shock Waves up to 115 GPa: Agglutinate-Like Particles' Formation, Petrology and Magnetism **[#2826]**
We investigated particles that were found in products from high-velocity shock experiments with peak shock pressures up to 115 GPa. Texturally, the particles are similar to lunar agglutinates. The particles have specific magnetic characteristics.

9:00 a.m. Okamoto C. * Arakawa M. Hasegawa S.
Impact Experiments of Metal Core-Rocky Mantle Targets Simulating Collisional Disruption of Iron Meteorite Parent Bodies **[#2331]**
The collisional processes of differentiated bodies play an important role to clarify the origin of iron meteorites. Thus, we conducted impact experiments on metal core-silicate mantle targets simulating differentiated bodies.

9:15 a.m. Gavin P. * Chevrier V. Ninagawa K. Gucsik A. Hasegawa S.
Experimental Investigation into the Effects of Meteoritic Impacts on the Near- and Mid-Infrared Spectra of Martian Phyllosilicates **[#1921]**
NIR and MIR spectral analysis, as well as shock pressures and temperatures reached during impact experiments, help determine whether phyllosilicates found in association with impact craters on Mars were pre-existing or were formed as a result of the impact.

9:30 a.m. Ebert M. * Hecht L. Deutsch A. Kenkmann T.
MEMIN: Chemical Modification of Projectile Spheres, Target Melts and Shocked Quartz in Hypervelocity Impact Experiments **[#1400]**
We present results of hypervelocity cratering experiments using iron meteorite as projectile and a sandstone target. The ejecta show shock features (melting, PDFs, lechatelierite) and physical as well as chemical mixing between projectile and target.

9:45 a.m. Hoerth T. * Schäfer F. Thoma K. Poelchau M. Kenkmann T. Deutsch A.
Ejecta Dynamics during Hypervelocity Impacts into Dry and Wet Sandstone **[#1993]**
Hypervelocity impact experiments into dry and water saturated porous Seeberger sandstone were conducted at the two-stage light gas accelerator at the Ernst-Mach-Institute (EMI) and the ejecta dynamics were analyzed.

10:00 a.m. Moser D. Grosse C. U. *
Non-Destructive Testing of the Fracture Zone Generated by Model Impacts Underneath Sandstone Craters by Means of Ultrasound and Acoustic Emission **[#2493]**
To give an overview about the fracture zone in impact craters, we used different geophysical-based methods. The measurements have the potential to be compared to geophysical measurements of the subsurface damage zone in terrestrial craters.

10:15 a.m. Barnouin O. S. * Ernst C. E. Heinick J. T. Sugita S. Cintala M. J.
Crawford D. A. Matsui T.
Experimental Results Investigating the Impact Velocity Effects on Crater Growth and the Transient Crater Diameter-to-Depth Ratio **[#2258]**
We performed vertical hypervelocity impacts at the NASA Ames Vertical Gun Range to evaluate if increasing impact velocity, which alters the coupling time between the projectile and target, yields changes in the rate of crater growth and transient crater shape.

10:30 a.m. Kenkmann T. * Burgert P.
Impact Crater Collapse: First Experimental Results from Analogue Modeling Using Particle Image Strainometry **[#1511]**
A new experimental set-up and the application of three-dimensional particle image strainometry allows us to measure displacements, particle vectors, strain, and strain rate during the collapse of a paraboloid cavity. The experiments mimic impact crater modification.

10:45 a.m. Morris A. J. W. Price M. C. Cole M. J. Kearsley A. T. Burchell M. J. *
Cratering Efficiency in Rocks as a Function of Rock Temperature **[#1943]**
The effect of target temperature on the size of impact craters is reported for laboratory impacts on rocks (limestone, sandstone and hematite)using a two stage light gas gun, with target temperatures in the range 150–500 K.

11:00 a.m. Onose N. * Okudaira K. Hasegawa S.
Energy Partition into Compaction of a Target in Impact Cratering on a Gypsum Target **[#1758]**
Compaction of targets is one of the important candidates for redistribution of the impact generated energy. In this paper, it is estimated through a simple model to be 0.28 to 0.56 of the kinetic energy of a projectile.

11:15 a.m. Ohno S. * Kadono T. Kurosawa K. Hamura T. Sakaiya T. Sugita S. Shigemori K.
Hironaka Y. Watari T. Matsui T.
Experimental Study of SO3/SO_2 Ratio in Impact Vapor Clouds Using A High-Speed Laser Gun **[#1752]**
We conducted hypervelocity impact experiments using a laser gun and measured the chemical compositions of the impact-induced SOx. The result clearly shows that the sulfur oxides released by the Chicxulub impact was dominated by SO3, not SO_2.

11:30 a.m. Ormö J. * Housen K. R. Holsapple K. A. Lepinette A.
Melero Asensio I. Torres Redondo J.
Low-Velocity Experimental Impact Cratering Facility for the Study of Wet Target Impacts **[#1047]**
At the new experimental cratering facility at CAB impact experiments complement field observation and numerical simulation in order to use craters as indicators for paleonvironments important as potential habitats.