Tuesday, March 20, 2012
POSTER SESSION I: SHOCKING ROCKS:
INVESTIGATING SHOCK EFFECTS IN ROCKS AND MINERALS
6:00 p.m. Town Center Exhibit Area

Kraus R. G. Newman M. G. Stewart S. T.
Hugoniot Measurements on Heterogeneous Geologic Materials **[#2680]**
The Hugoniot of 8% porous Nontronite and a 25% porous sandy soil have been measured in the stress range from 0.5 to 22 GPa.

Sugita S. Kurosawa K. Kadono T. Sano T.
An High-Precistion Semi-Analytical on-Hugoniot EOS for Geologic Materials **[#2053]**
Most modern EOS's for shock compression is highly complicated. Here we a new very accurate but simple semi-analytical on-Hugoniot EOS, which requires only Co, s Cp, and q. Comparison with experimental data shows very good fidelity.

Kraus R. G. Swift D. C. Hicks D. G. Stewart S. T.
High Accuracy Equations of State for Planetary Collision Modeling **[#2649]**
Equation of state properties are now being measured over an extremely wide range of pressures and temperatures. We present multi-phase equations of state for MgO and SiO_2 that accurately describe the material's response to planetary collisions.

Holm S. Ferrière L. Alwmark C.
A Statistical Study of Shocked Quartz Grains from the Siljan Impact Structure (Sweden) — Horizontal Versus Vertical C-Axes **[#1846]**
We investigate if high-index PDF orientations are more frequent in quartz grains with vertical c-axes (determined by the U-stage) and discuss implications for the interpretation of the PDF dataset, including the derived shock pressures.

Collins G. S. Melosh H. J. Pasek M. A.
Can Lightning Strikes Produce Shocked Quartz? **[#1160]**
We simulated approximate P-T-t conditions in lightning strikes. In typical strikes, peak pressures in the soil are <10 GPa; however, in very high-energy, short-duration, narrow-channel strikes peak pressures can exceed 10 GPa outside the channel.

McHone J. F. Shoemaker C. Killgore M. Killgore K.
Two Shatter-Coned NWA Meteorites **[#2359]**
Shatter cones are found in target rocks at more than 70 terrestrial impact sites and are regarded as reliable field criteria for meteoroid impact events. Shatter cones are now seen in chondritic meteorites and indicate early collision events.

Lindgren P. Price M. C. Lee M. R. Burchell M.
Constraining the Pressure Threshold of Impact Induced Calcite Twinning **[#1934]**
To better constrain the pressure threshold of impact-induced calcite twinning, calcite targets have been experimentally impacted. This study has implications for the deformation history of carbonaceous chondrite parent bodies.

Hu J. Sharp T. G. Tricky R. Leinenweber K.
Akimotoite and Silicate-Perovskite in L5-6 S6 Chondrite Acfer 040 Suggesting a High Shock Pressure of 25GPa **[#2728]**
We study the mineralogy and micro-structure of the high-pressure assemblages in the shock-induced melt veins of L5-6 S6 chondrite Acfer 040 to estimate its shock pressure and to understand the origins of silicate-perovskite and akimotoite.

Wright S. P.
Not Just Fresh Basalt: A Range of Shocked Alteration Products and Soil from Lonar Crater, India **[#2765]**
Several Deccan basalt lava flows were aqueously altered (via groundwater) prior to shock compression and emplacement as clasts in the Lonar suevite breccia. These, along with a shocked soil, are unique mixtures of glass and alteration products.

Kurosawa K. Ohno S. Sugita S. Mieno T. Hasegawa S.
Shock-Induced Decarbonation in an Open System Using a 2-Stage Light Gas Gun **[#1730]**
We present a new experimental method for gas-phase chemical analysis in an open system using a two-stage light gas gun at ISAS/JAXA to investigate the decarbonation pressure of calcite. The "effective" decarbonation pressure of calcite is ~60 GPa,.

Kowitz A. Schmitt R. T. Reimold W. U. Hornemann U.
Development of Fractures, Melt and Local Shock Effects on Shock Recovery Experiments at Low Shock Pressure with Dry Seeberger Sandstone **[#1201]**
Shock experiments were carried out with dry Seeberger sandstone at 5, 7.5, 10, and 12.5 GPa. The shocked samples show subplanar fractures, melting, and local shock features along shear zones, e.g., diaplectic quartz glass, SiO_2 melt, microbreccia, and PDF.

Moser D. Grosse C. Güldemeister N. Buhl E. Wünnemann K. Kenkmann T.
Looking Beneath an Impakt Crater — Non-Destructive Testing for Hypervelocity Impact Experiments **[#2207]**
In the framework of the "MEMIN" project, ultrasound tomography gives an overview about the inner damage zone. The comparison to numerical simulations and optical evaluation will give an association about terrestrial craters.

Stickle A. M. Schultz P. H.
Subsurface Damage Features Following Projectile Decapitation **[#1269]**
Laboratory experiments demonstrate that decapitated projectile fragments reimpacting the target control subsurface damage features. Decoupling the downrange re-impact results in a damage zone more consistent with numerical models.

Kimberley J. Ramesh K. T.
Real-Time Observation of Early Stage Damage During Hypervelocity Impacts into Basalt Targets **[#2344]**
Hypervelocity impacts were conducted on basalt targets bonded to glass allowing for the early stages of damage accumulation to be observed in real time. Results show that significant damage accumulates before the arrival of tensile wave reflections.

Takagi Y. Hasegawa S. Kurosawa K.
Cratering Experiments on Basalt Targets **[#2002]**
Impact cratering experiments using basalt target were performed. Diameters, depths, and volumes of 16 craters were measured. Preliminary analyses of these values showed scaling laws consistent with previous studies.

Munsat T. Collette A. Drake K. Grun E. Horanyi M. Kempf S. Mocker A. Northway P. Robertson S. Shu A. Sternovsky Z. Thomas E.
The Dust Accelerator Facility of the Colorado Center for Lunar Dust and Atmospheric Studies **[#2730]**
The Colorado Center for Lunar Dust and Atmospheric Studies has developed a new hypervelocity dust accelerator, which accelerates ~1 μm particles to 10's of km/s. We describe the experimental capabilities and the results of our first campaign.