

Monday, March 20, 2017
GIANT IMPACTS AND LATE ACCRETION IMPACTS
8:30 a.m. Waterway Ballroom 6

[M104]

Chairs: Alan Jackson
Miki Nakajima

- 8:30 a.m. Lock S. J. * Stewart S. T. Mukhopadhyay S.
[*Preservation of Primordial Chemical Signatures in Earth's Mantle by Pressure Induced Freezing After a Giant Impact*](#) [#2390]
Pre-impact chemical signatures are hard to homogenize during and immediately after a giant impact.
- 8:45 a.m. Canup R. M. * Marchi S. Walker R. J.
[*The Fate of Impactor Cores in Large Terrestrial Collisions*](#) [#1640]
We perform simulations of impacts into the early Earth by large differentiated impactors to investigate the fate of the impactor core vs. mantle material.
- 9:00 a.m. Nakajima M. * Canup R. M.
[*Origin of the Martian Moons and Their Water Abundances*](#) [#2900]
We estimate the amount of lost water from a martian-moon-forming disk. This result would offer a clue to understand origin of Phobos and Deimos.
- 9:15 a.m. Werner S. C. *
[*Could Mars Have Witnessed Giant Planet Migration?*](#) [#1856]
The bombardment history due to giant planet migration is studied using crater records on Moon and Mars for a period earlier than 4.1 Ga ago.
- 9:30 a.m. Orgel C. * Michael G. G. Kneissl T.
[*Ancient Bombardment of the Inner Solar System — Reinvestigation of the “Fingerprints” of Different Impactor Populations on the Lunar Surface*](#) [#1033]
We derive the impact CSFDs for 30 lunar basins using a new crater counting method, the buffered non-sparseness correction (BNSC).
- 9:45 a.m. Morbidelli A. Nesvorny D. Laurenz V. Marchi S. Rubie D. C. et al.
[*The Lunar Late Heavy Bombardment as a Tail-end of Planet Accretion*](#) [#2298]
The late heavy bombardment of the Moon was caused by planetesimals left over from the terrestrial planet formation, whose flux decayed over time exponentially.
- 10:00 a.m. Bottke W. F. * Nesvorny D. Roig F. Marchi S. Vokrouhlicky D.
[*Evidence for Two Impacting Populations in the Early Bombardment of Mars and the Moon*](#) [#2572]
Asteroids escaping the main belt can explain all martian $D > 150$ km craters, but a different population hit the ancient lunar farside. Leftover planetesimals?
- 10:15 a.m. Schultz P. H. *
[*The Sizes and Nature of Basin Impactors on Mercury and the Moon*](#) [#2704]
Grooves and scours produced by oblique collisions on the Moon and Mercury are used to constrain the sizes of selected basins, independent of scaling relations.
- 10:30 a.m. Zhu M.-H. * Wünnemann K. Potter R. W. K. Kleine T. Morbidelli A.
[*Forming the Moon's Nearside-Farside Dichotomies via Giant Impact*](#) [#1851]
We propose a giant impact on the Moon's nearside forming its nearside-farside dichotomies in elevation, crustal thickness, and composition.

- 10:45 a.m. Perera V. * Jackson A. P. Gabriel T. S. J. Elkins-Tanton L. T. Asphaug E.
[*Expedited Cooling of the Lunar Magma Ocean Due to Impacts*](#) [#2524]
Impacts puncturing holes into the nascent lunar crust could have expedited the cooling of the lunar magma ocean.
- 11:00 a.m. Jackson A. P. * Perera V. Gabriel T. S. J. Elkins-Tanton L. T. Asphaug E.
[*Impacts into Thin Crust Overlying a Magma Ocean*](#) [#2664]
Impacts into thin crust overlying magma oceans produce thermal holes and extensive fracturing, profoundly altering the evolution of the magma ocean and crust.
- 11:15 a.m. Schlichting H. E. * Elkins-Tanton L. T. Black B. Marchi S.
[*Impact Triggered Atmospheric Loss and Outgassing during Earth's Late Accretion*](#) [#2405]
We find that the atmosphere of the early Earth is set by the interplay of atmospheric erosion by impacts, outgassing, and volatile delivery by impactors.
- 11:30 a.m. Cox M. A. * Cavosie A. J. Reddy S. M. Bland P. A. Valley J. W.
[*The Hunt for Shocked Zircon in the Jack Hills: 21,000 and Counting...*](#) [#1402]
21,000 Jack Hills zircons were handpicked and analysed using a scanning electron microscope with the purpose of finding shock micro-structures within grains.