

Tuesday, March 21, 2017

[T203]

SCIENCE IN THE COLD: ICY SATELLITES OF THE OUTER SOLAR SYSTEM

8:30 a.m. Waterway Ballroom 5

Chairs: Noah Hammond
Patrick McGovern

- 8:30 a.m. Zhang Z. * Hayes A. G. de Pater I. Dunn D. E. Janssen M. A. et al.
[VLA Multi-Wavelength Microwave Observations of Saturn's C and B Rings](#) [#1691]
We analyze multi-wavelength VLA data of Saturn's C and B rings to determine particle porosity and non-icy material fraction and compare it with Cassini RADAR.
- 8:45 a.m. Salmon J. * Canup R. M.
[Accretion of Mid-Sized Ice-Rich Moons from Expansion of a Primordial Massive Saturnian Ring](#) [#2455]
We investigate the formation of Saturn's mid-sized moons from a primordial ice-rich ring around Saturn and the delivery of their rock through an LHB-type event.
- 9:00 a.m. Nimmo F. * Spencer D. Kamata S.
[Orbital Evolution, Thermal Histories, and Relaxation of the Saturnian Satellites](#) [#1372]
Relaxed features and inferred strain histories of the Saturnian satellites are combined with thermal-orbital models to investigate their long-term evolution.
- 9:15 a.m. Rivera-Valentin E. G. * Leight C. Barr A. C. Kirchoff M. R.
[On the Late Formation of the Mid-Sized Moons of Saturn: Insights from Iapetus, Rhea, and Dione](#) [#1534]
Saturn's moons form late? / Their craters and insides tell / Rhea speaks of youth.
- 9:30 a.m. Bierhaus E. B. * Dones L. Robbins S. J.
[The Ticking Clock of Impact Craters in the Saturnian System](#) [#1757]
Centuries, eons / Impacts mark time at Saturn / What does the clock say?
- 9:45 a.m. Moore J. M. * Schenk P. M. Korycansky D. G.
[Large Impact Features on Icy Galilean Satellites](#) [#2535]
We present an integrated concept for the development of Galilean icy moon impact morphologies and implications for the thermal evolution of these bodies.
- 10:00 a.m. Hammond N. P. * Barr A. C. Hirth G. Cooper R. F.
[The Weakening or Strengthening of Water Ice in Response to Cyclic Loading](#) [#2173]
Cyclic loading from tides may weaken the surface of icy satellites. To test this hypothesis we performed fatigue experiments on water ice in the laboratory.
- 10:15 a.m. Cameron M. E. * Smith-Konter B. R. Burkhard L. Patthoff D. A. Pappalardo R. T. et al.
[Strike-Slip Tectonism and Shear Failure on Ganymede](#) [#2111]
Icy Ganymede / Strike-slip faulting may occur / Tidal stresses key.
- 10:30 a.m. Stickle A. M. * Roberts J. H.
[Building a Ridge That Iapetus Pays For](#) [#1262]
Low angle impacts / Debris falling slowly down / Can it build a ridge?
- 10:45 a.m. McGovern P. J. * Byrne P. K. Schenk P. M. Collins G. C.
[Icy Shell Stress States Consistent with Hemispheric-Scale Rifting on Rhea, Tethys, and Dione](#) [#2915]
Shells of Saturn's moons / Wax and wane in special ways / Break one side only.

- 11:00 a.m. Medard E. * Kiefer W. S.
[*Differentiation of Water-Rich Planetary Bodies: Dehydration, Magmatism, and Water Storage*](#) [#2749]
Most large satellites in the outer solar system have a hydrous chlorite-serpentinite upper mantle and an andesitic protocrust.
- 11:15 a.m. Rufu R. * Canup R.
[*Triton's Evolution with a Primordial Neptunian Satellite System*](#) [#1820]
We find collisional histories in the Neptunian system that maintain Triton on a retrograde, inclined orbit while dispersing its predecessors.
- 11:30 a.m. Hurford T. A. * Henning W. G. Spitale J. N. Rhoden A. R. Kattenhorn S. A. et al.
[*Triton's Fractures as Evidence for a Subsurface Ocean*](#) [#2376]
Triton surface cracks / Form from tidal decay stress / Likely ocean world.