

**Wednesday, March 9, 2011**  
**SPECIAL SESSION:**  
**COMET HARTLEY 2 AND RELATED BODIES, IN SITU AND REMOTE I**  
**8:30 a.m. Waterway Ballroom 5**

**Chairs: Michael A'Hearn**  
**Lori Feaga**

- 8:30 a.m. A'Hearn M. F. \* DIXI Science Team  
[Comet Hartley 2: A Different Class of Cometary Activity](#) [#2516]  
 Observations of Comet Hartley 2 from the DI Flyby spacecraft show that the activity is unlike that of any comet visited thus far. Icy grains are lofted by CO<sub>2</sub> and then sublime to provide a large fraction of the water seen in the coma.
- 8:45 a.m. Thomas P. C. \* A'Hearn M. F. Belton M. J. S. Carcich B. T. Lisse C. M. Melosh H. J. Schultz P. H. Sunshine J. M. Veverka J. DIXI Science Team  
[The Shape and Geological Features of Comet 103P/Hartley 2](#) [#1741]  
 The shape and geological features were determined from flyby imaging. The bi-lobed nucleus shows a different set of features from others examined at close range.
- 9:00 a.m. Schultz P. H. \* Hermalyn B. Bruck M. A'Hearn M. Farnham T. Belton M. J. S. Thomas P. Sunshine J. Sebastian S.  
[Geology of 103P/Hartley 2 and Nature of Source Regions for Jet-Like Outflows](#) [#2382]  
 The DI Spacecraft Deep Impact Flyby spacecraft captured the first high-resolution views of the surface of an active comet, 103P/Hartley 2. Here we discuss the geology and structures associated with collimated jets.
- 9:15 a.m. Li J.-Y. \* Besse S. DIXI Science Team  
[Photometry of the Nucleus of Comet 103P/Hartley 2](#) [#2446]  
 We will report the results of a detailed photometric analysis for the nucleus of Comet 103P/Hartley 2 collected from the flyby of Deep Impact flyby spacecraft.
- 9:30 a.m. Harmon J. K. \* Nolan M. C. Howell E. S. Giorgini J. D. Taylor P. A.  
[Comet 103P/Hartley: Radar Observations of the Nucleus and Large-Grain Coma](#) [#1480]  
 Arecibo radar observations of Comet Hartley from October 25–31, 2010, provide data complementing the EPOXI flyby, including spin state (period, pole, etc.), surface density, and large-grain production.
- 9:45 a.m. Feaga L. M. \* Sunshine J. M. Groussin O. Besse S. Protopapa S. Merlin F. Farnham T. L. A'Hearn M. F. DIXI Science Team  
[Heterogeneity of Comet 103P/Hartley 2's Gaseous Coma](#) [#2461]  
 Spectral data from the DIXI mission show that the distribution of H<sub>2</sub>O and CO<sub>2</sub> in Hartley 2's coma is asymmetric. We will focus on the composition and distribution of the coma around perihelion. Implications of heterogeneity will be discussed.
- 10:00 a.m. Sunshine J. M. \* Feaga L. M. Groussin O. Besse S. Protopapa S. Merlin F. Farnham T. L. A'Hearn M. F. DIXI Science Team  
[Icy Grains in Comet 103P/Hartley 2](#) [#2292]  
 Hartley 2's coma includes μm-sized water ice grains that are spatially correlated with CO<sub>2</sub>-rich jets, suggesting that CO<sub>2</sub> is dragging the ice from the nucleus. These ice grains then sublime, thus explaining the small comet's enhanced water activity.

- 10:15 a.m. Hermalyn B. \* Schultz P. H. Farnham T. L. Bodewits D.  
A'Hearn M. F. DIXI Science Team  
[\*The Detection and Location of Icy Particles Surrounding Hartley 2\*](#) [#2676]  
The Deep Impact spacecraft flyby of Hartley 2 revealed a field of hundreds of discrete icy particles enveloping the comet and forming a unique near-nucleus environment. This study discusses the identification and location of these particles.
- 10:30 a.m. Movshovitz N. \* Asphaug E.  
[\*The Physics of Granular Flow and the Tidal Disruption of Comet Shoemaker-Levy 9\*](#) [#2652]  
A new discrete element model of a rubble-pile using N-body gravity with intergranular friction and arbitrary grain shapes is used to, among other things, obtain a lower constraint on Comet Shoemaker-Levy 9's bulk density.
- 10:45 a.m. Ortiz J. L. Campo Bagatin A. \* Thirouin A. Duffard R. Licandro J. Richardson D. C.  
Santos-Sanz P. Morales N. Benavide P. G.  
[\*How Important is Rotational Fission in the Trans-Neptunian Region?\*](#) [#2825]  
We introduce the idea that rotational fission is a possible mechanism in the formation of systems of large TNOs: (binary systems, complex systems (Haumea), and TNO pairs. We also present N-body simulations of rotational fission.
- 11:00 a.m. Lisse C. M. \* Kissel J. Melosh J. Schultz P. Kelley M. S. Farnham T. L. Groussin O.  
Li J. Y. Bodewits D. A'Hearn M. F. Sunshine J. DIXI Science Team  
[\*On the Evolution of the Dust Emitted by Comet 103P/Hartley 2 and Observed by EPOXI\*](#) [#2084]  
We present observations and preliminary analyses characterizing dusty material emitted by Comet 103P/Hartley 2, combining high-fidelity *in situ* optical-NIR imaging spectrophotometry and Earth-based measurements during the EPOXI flyby and the comet's close approach to Earth.
- 11:15 a.m. Economou T. E. \* Dust Science Team  
[\*Dust Investigations with Dust Flux Monitoring Instrument on Stardust-NExT Mission to Tempel 1 Comet\*](#) [#2318]  
Results from the Dust Flux Monitoring Instrument (DFMI) on the STARDUST-NexT mission to Comet Tempel 1 will be presented at this conference, if successfully obtained. We expect to see results similar to the encounter with Wild 2 in 2004.
- 11:30 a.m. Bruck M. A. \* Schultz P. H. A'Hearn M. F. Belton M. J. S.  
Farnham T. L. DIXI Science Team  
[\*Hydrodynamical Modeling of Jet Formation on Comet 103P/Hartley 2\*](#) [#2439]  
Fine-scale filamentary features imaged during the EPOXI mission flyby of Hartley 2 provide new constraints to models of collimated jet formation. Here we present work to numerically model cometary jets as constrained by observations of Hartley 2.