

**Tuesday, August 6, 2013**  
**GEOCHRONOLOGY OF IMPACT EVENTS**  
**1:30 p.m. Fraser Auditorium**

*Several dating techniques are used to determine the timing of impact events throughout the solar system.*

**Chairs: John Weirich**  
**Matthew Wielicki**

- 1:30 p.m. Moser D. E. \* Barker I. R. Tait K. T. Darling J. R. Chamberlain K. R. Schmitt A. K. Cupelli C. L. Reinhard D. A. Olson D. Clifton P. H. Larson D. J. Gault B. Bugnet M. Shaulis M. B. Lapen T. J. Irving A. J.  
[Atomic Records of Inner Solar System Impact Processes from U-Pb Dating Phases](#) [#3104]  
 Nano- to atomic-scale records of impact processes on Earth, Moon, Asteroids and Mars; integration of microstructure and isotope geochronology of inner solar system minerals such as zircon and baddeleyite.
- 1:50 p.m. Wielicki M. M. \* Harrison T. M.  
[Terrestrial Impact Zircon Textures: Implications to Impact Geochronology](#) [#3052]  
 We report SIMS U-Pb analysis on the first terrestrial sieve textured zircons isolated from Vredefort impactites to investigate the use of such grains as probes of planetary impact history.
- 2:10 p.m. Crow C. A. \* McKeegan K. D. Gilmour J. D. Crowther S. A. Taylor D. J.  
[Zircons as a Probe of Early Lunar Impact History](#) [#3059]  
 Zircons are ideal for investigating the early lunar bombardment because we can measure both U-Pb crystallization ages and fissionogenic Xe degassing ages for the same crystal. We report U-Pb, Pb-Pb and U-Xe ages for two lunar zircons.
- 2:30 p.m. Bouvier A. \*  
[Pb-Pb Chronometry of the Dark Melt Lithology of the Chelyabinsk LL Chondrite](#) [#3087]  
 I will present results of the Pb-Pb radiochronometry of the dark melt lithology of the Chelyabinsk LL chondrite and discuss the impact history of the chondrite parent bodies.
- 2:50 p.m. *Coffee Break*
- 3:05 p.m. Weirich J. R. \* Wittmann A. Isachsen C. E. Rumble D. Swindle T. D. Kring D. A.  
[Miller Range 05029: Evidence for a Large Impact on the L Chondrite Parent Body >4.5 Ga](#) [#3062]  
 MIL 05029 is a slowly cooled, clast-free L impact melt rock with an  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  age of ~4.52 Ga. Slow cooling implies deep burial and a crater diameter of 25–60 km. This impact may have shattered the parent body and disrupted the onion shell structure.
- 3:25 p.m. Biren M. B. \* van Soest M. C. Wartho J-A. Hodges K. V. Dence M. R. Spray J. G.  
[\(U-Th\)/He Zircon Dating of the Clearwater West Impact Structure, Quebec, Canada](#) [#3117]  
 Our (U-Th)/He dating results from the Clearwater West impact structure, Quebec, Canada are in good agreement with recent Ar-Ar dating and provides us with continued confidence for using the (U-Th)/He in the dating of terrestrial impacts structures.