

**Monday, August 13, 2012**  
**TISSINT: PICRITIC SHERGOTTITE FALL IN MOROCCO**  
**9:15 a.m. MR 1/2**

*Tissint is only the fifth martian meteorite fall worldwide, and the first since Zagami in 1962; it has already been the subject of extensive study by a large number of research groups, and it is clear from the initial results of this work that Tissint is a critical sample in attempts to understand both martian interior and surface processes*

**Chairs: Hasnaa Chennaoui Aoudjehane**  
**Anthony Irving**

- 9:15 a.m. Chennaoui Aoudjehane H. \* Jambon A. Boudouma O. Barrat J. A. Greenwood R. C. Franchi I. A.  
[\*Tissint: The First Martian Meteorite Fall of the Century in Morocco\*](#) [#5069]  
 Tissint is the fifth martian meteorite fall known. It's an exceptional shergottite as it's very fresh without any terrestrial alteration. We present in this abstract field evidences of the mineralogy, petrography, and geochemistry of Tissint.
- 9:30 a.m. Irving A. J. \* Kuehner S. M.  
[\*Extensive Magmatic Zonation in the Mafic Silicate Phases in Tissint and an Evaluation of its Excess Cumulus Olivine Content\*](#) [#5244]  
 Patterns of compositional zoning in Tissint olivine and pyroxenes are presented, and the issue of accumulation of early-formed crystals into parent liquids of depleted olivine-phyric shergottites is discussed.
- 9:45 a.m. Baziotis I. P. Liu Y. McSween H. Y. Jr. Bodner R. Taylor L. A. \*  
[\*Tissint Meteorite: A Fresh Piece of Martian Lava with New Discoveries\*](#) [#5250]  
 The Tissint olivine-phyric lherzolite, a July 2011 fall of a shergottite, presents a unique opportunity to recreate the source of this martian meteorite, based upon the major- and trace-element chemistry of its mineralogy.
- 10:00 a.m. Sanborn M. E. \* Wadhwa M. Balta J. B. McSween H. Y. Jr.  
[\*Trace Element Geochemistry of Tissint, the Newest Shergottite Fall\*](#) [#5100]  
 We report trace-element abundances in individual mineral phases, as well as in the bulk rock, of Tissint with the goal of understanding its petrogenetic history in relation to the other known olivine-phyric shergottites.
- 10:15 a.m. Lin Y. T. \* Hu S. Feng L. Zhang J. C. Hao J. L. Xu L.  
[\*Petrography and Shock Metamorphism of the Tissint Olivine-Phyric Shergottite\*](#) [#5131]  
 The Tissint olivine-phyric shergottite was heavily shocked, as indicated by maskelynite and shock-induced melt pockets and veins. Olivine grains in contact with the melt veins commonly show dissociation texture and has a Raman peak at  $\sim 666\text{ cm}^{-1}$ .
- 10:30 a.m. Stephen N. R. \* Genge M. Russell S.  
[\*The Tissint Meteorite: A Pristine and Unique Sample of the Martian Sub-Surface\*](#) [#5234]  
 The Tissint meteorite provides a rare opportunity to study an unaltered Shergottite owing mainly to its quick recovery. Here we discuss the preliminary geochemical and spectral features relating to Tissint and how they compare to similar Shergottites.
- 10:45 a.m. Smith C. L. \* Ahmed F.  
[\*X-Ray Microtomography of the Tissint Martian Meteorite\*](#) [#5138]  
 We have carried out X-ray microtomography scans of fragments of the Tissint meteorite. Different mineral phases and textural features such as voids and cracks are resolvable down to the micrometer scale using this nondestructive technique.

- 11:00 a.m. Wright I. P. \* Abernethy F. A. J. Verchovsky A. B. Grady M. M.  
[\*Carbon and Nitrogen Systematics of the Tissint Meteorite\*](#) [#5204]  
The Tissint meteorite is the first olivine-phyric shergottite collected as an observed fall. We are interested in the light-element history of this meteorite, for comparison with other shergottites.
- 11:15 a.m. Murty S. V. S. \* Mahajan R. R. Ranjith Kumar P. M. Chennaoui Aoudjehane H.  
[\*Noble Gases in the Martian Meteorite Tissint\*](#) [#5038]  
Noble gas studies in the martian meteorite fall Tissint gave an exposure age of 1.0 Ma and also show excess  $^{82}\text{Kr}$  due to (n,  $\gamma$ ) reactions on Br, indicating >22 cm preatmospheric size. Presence of Mars atmospheric component is indicated by  $^{129}\text{Xe}$ .
- 11:30 a.m. Brennecka G. A. \* Borg L. E. Wadhwa M.  
[\*The Age of Tissint: Sm-Nd and Rb-Sr Isotope Systematics\*](#) [#5157]  
We present a preliminary Sm-Nd age of  $596 \pm 23$  Ma for the depleted shergottite, Tissint. Sm-Nd and Rb-Sr isotope systematics suggest this meteorite has a distinct mantle source when compared to other SNC meteorites.
- 11:45 a.m. Nishiizumi K. \* Caffee M. W. Irving A. J.  
[\*Exposure History of Tissint: Evidence for 1.1 Million Year Launch Pairing with Other Depleted Olivine-Phyric Shergottites\*](#) [#5349]  
We report the exposure age of the Tissint martian meteorite based on measurements of cosmogenic radionuclides.
- 12:00 p.m. Gattacceca J. Rochette P. \* Cournède C. Hewins R. Sautter V. Scorzelli R. Uehara M. Zanda B.  
[\*Magnetism of Tissint Martian Meteorite\*](#) [#5185]  
We present the magnetic mineralogy and paleomagnetic signal of Tissint.
- 12:15 p.m. Hoffmann V. H. \* Mikouchi T. Funaki M. Kaliwoda M. Hochleitner R. Yamamoto Y. Kodama K.  
[\*Tissint — Magnetic Record Dominated by Fine-Particles of Magnetite\*](#) [#5227]  
Our magnetic study of Tissint revealed the dominating magnetic recorder is fine magnetite particles. The observed variation in magnetic signature is probably due to severe shock producing magnetite nano-particles in olivine with variable abundance.