This session is devoted to the presentation of several international collaborative campaigns and long term scientific studies developed on the extreme acidic environment of Rio Tinto, located south-west of Spain.

**Chairs:** Felipe Gómez Gómez
Ricardo Amils Pibernat

**10:30 a.m.** Amaral-Zettler L. A. * Zettler E. R. Amils R.
*Pyrotag Sequencing Across Three Domains and Two Seasons Unveils the Rio Tinto’s ‘Rare Biosphere’* [#5337]
We recovered >420,000 pyrotags from dry and rainy season water samples from three geochemically distinct sampling stations in the Rio Tinto (RT). This deep sequencing provides a glimpse at the RT’s ‘Rare Biosphere’ across all three domains of life.

*The Molecular Record of the Acidic Basin of Rio Tinto Shows Biology Preservation Under a Mars-like Diagenesis* [#5230]
It is described the molecular preservation in the acidic sediments of Rio Tinto exposed to an early diagenesis mediated by meteoric solutions and dehydration. Same post-sedimentary processes may have occurred in the acidic sulfates of Mars.

**11:00 a.m.** Direito S. * Foing B. H. Mahapatra P. Gomez F. Rull F.
*CAREX Rio Tinto 2009 Workshop Sample Collection and Analysis from CAREX Field Workshop at Rio Tinto* [#5648]
We described the sample collection protocol, multi-measurements techniques and selected results (using Raman and visible NIR spectrometer) and interpretation from a CAREX field workshop at Rio Tinto in September 2009.

**11:15 a.m.** Rull F. * Klingelhöfer G. Sarrazin P. Medina J. Fleischer I. D. Blake D. Martin Ramos J. D.
*Combined Raman-LIBS, Mössbauer and XRD In-Situ Mineral Analysis of Evaporite Minerals at Rio Tinto (Spain)* [#5472]
In this study a combination of Raman, LIBS, Mössbauer and XRD portable instruments has been used to undertake a common *in-situ* analysis of sulphate minerals at Rio Tinto area within the CAREX Field Procedure Inter-comparison Exercise 2009.

**11:30 a.m.** Stockton A. M. * Chiesl T. N. Lowenstein T. K. Amashukeli X. Grunthaner F. Mathies R. A.
*Microchip Capillary Electrophoresis Analysis of Organic Amines and Amino Acids in Saline and Acidic Samples Using the Mars Organic Analyzer* [#5530]
Optimized analytical protocols increase robustness of the Mars Organic Analyzer, allowing for successful analyses of samples high in salt, acidity, and metal ions, including Saline Valley brine and a subcritical water extract of a Rio Tinto sediment.
11:45 p.m.  Behar A. E.  Stam C. N.  Scalzi G.  Behncke S.  Gómez F.  Venkateswaran K.  
Characterization of the Molecular Diversity of Rio Tinto Using a Novel Hydrothermal Vent Biosampler [#5136]  
A Hydrothermal Vent Biosampler to collect “pristine” biological samples from complex ecosystems was used to collect samples from the highly acidic Rio Tinto waters. DNA was isolated and universal bacterial, eukaryotic and archaeal primers were used.

12:00 p.m.  Preston L. J.  Shuster J.  Fernández-Remolar D.  Banerjee N.  Osinski G. R.  Southam G.  
Contemporary and Paleo-Filamentous Bacteria in Iron Oxide Deposits from Rio Tinto, Spain [#5352]  
Cultured filamentous iron oxidizing bacteria and fossilised bacterial filaments have been studied from Rio Tinto, Spain to enable the assessment of the preservation of organics over time, and the ability to correlate them with a contemporary culture.

12:45 a.m.  DISCUSSION

12:30 p.m.  LUNCH