

Tuesday, July 18, 2017
THE ENVIRONMENTAL CONDITIONS FOR THE
ORIGIN OF LIFE ON THE EARLY EARTH
8:30 a.m. Price Center Theatre

Chair: Francis Westall

- 8:30 a.m. Ueno Y. * Endo Y. Zang X. Kawade W.
[Revisiting Redox State of the Early Earth's Atmosphere and Prebiotic Synthesis](#) [#4129]
Our recent experiment showed that Archean atmosphere would have been reducing, possibly including and levels of CO or CH₄ to explain S-MIF record. In such a CO-bearing atmosphere, UV induced photochemistry can create various building blocks of life.
- 9:10 a.m. Damer B. F. * Djokic T. Van Kranendonk M. J. Deamer D. W.
[Oldest Convincing Evidence for Life on Earth Discovered in Archean Subaerial Hot Springs: Implications for an Origin of Life on Land](#) [#4162]
New discoveries of well-preserved stromatolites in a 3.48 Ga Archean hot spring in Western Australia depict a vibrant microbial community thriving in fresh water on land, suggesting this as a locality for the origin and early evolution of life.
- 9:30 a.m. Kakegawa T. *
[High Abundance of Borate in Hadean Proto-Arc Environments to Form Prebiotic Ribose and Nucleotide?: Geological Constraints from Isua Supracrustal Belt](#) [#4074]
New geological information from Isua Supracrustal Belt gives a model to illustrate where and how prebiotic ribose and nucleotide formed. This geological model is consisting with current prebiotic experimental results.
- 9:50 a.m. Pasek M. A. * Herschy B.
[Solubilization and Activation of Phosphorus on the Early Earth](#) [#4117]
We present here a new route to the formation of reactive phosphorus compounds. This route couples redox chemistry of phosphorus (reduction by iron, oxidation by simple oxidants) to the production of polyphosphates.
- 10:10 a.m. Morasch M. * Liu J. Braun D.
[Thermally Driven Accumulation and Dry-Wet Cycles of Nucleotides](#) [#4153]
We show how a nonequilibrium system in form of a temperature gradient across porous rock creates high local concentrations and dry-wet cycles of nucleotides and other molecules.
- 10:30 a.m. *Coffee Break*