IEEE MEETING NOTICE **Buenaventura MTT-S Chapter**

Date and Time: Wednesday, October 19th, 2011 (6:30PM)

Location : Ciao Wireless
4000 Via Pescador, Camarillo, CA 93012

Agenda: 6:30PM Reception & Networking
7PM Presentation

An Instrument to Detect Prebiotic Molecules in Astrobiological Planets

Dr. Valerie Scott
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Abstract: Major goals of space exploration are to look for extant or extinct life (I.e. chemical biomaker molecules) and to determine the factors that make an environment habitable; an extension of this goal is to better understand prebiotic chemistry and the features that allow life to occur. In Situ detection remains the most widely used method in missions that address these questions. Missions to astobialogical or geochemical planetary targets will require an efficient and non-altering extraction technique for efficient detection and characterization of biomarkers-bonds between polymeric structures or those between the target and rigolith will need to be broken while maintaining the chemical integrity of the molecule. A new instrument is described that has been developed for use in the exploration of Mars; however it will be applicable to any mission requiring in situ analysis of plnetary regolith and ice. The instrument is a micro extractor (uEX) that exploits the unique property of water to modify its dielectric constant when effected by radio frequency(RF) radiation. The instrument design will be summarized and initial experiments on the utility of uEX towards breaking specific chemical bonds woill be described.

BIOGRAPHY

Dr. Valerie Scot is a recent graduate from Caltech Chemistry Department where she studied reaction mechanisms and species relevant to small molecule activation and conversion for the development of chemistry for alternate energy feedstocks. Prior to her time at Caltech, she did research at Brandies University on C-F bond activation and conversion of CFCs. She also spent time at Yale University in the Breaker Laboratory studying the biochemical interactions of metabolites with riboswitches and gene expression. She is now a part of the NASA Postdoctoral Program and is starting with new projects related to sample processing for space exploration.

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