Thursday, April 27, 2017
ORIGIN AND EVOLUTION OF LIFE: EVOLUTION/GENETICS:
EARLY GENOMES, RIBOSOMES, AND TRANSLATION
10:15 a.m. Arizona Ballroom E-G

Chairs: **Gary Olsen**
Loren Williams

10:15 a.m. Olsen G. J. *
What Is Simple Life, and How Did We Get from There to Here? **[#3464]**
This presentation will consider our images of early organisms, and their evolution into modern life.

10:30 a.m. Petrov A. S. * Gulen B. Williams L. D.
The SSU is from Mars, the LSU is from Venus **[#3468]**
We infer steps in the evolution of ribosome, mapping out acquisition of structure and function and reveal the difference between the small and large subunits.

10:45 a.m. Tran Q. * Jacobsen M. C. Fox G. E.
Analysis of Ribosomal RNA Structure May Provide Insight to Early Evolution **[#3646]**
Analysis of the ribosome, a complex and dynamic RNA/protein machine that synthesizes proteins according to the genetic code.

11:00 a.m. Tirumalai M. R. * Kaelber J. T. Park D. Chiu W. Fox G. E.
Molecular Evolution's "Surprise:" A Ribosome with a Unique Insertion **[#3595]**
Understanding ribosomal evolution: Structural elucidation of a unique insertion of ohe ribosome of archaeon Halococcus morrhuae using cryo-electron microscopy.

11:15 a.m. Williams L. D. * Kovacs N. A. Petrov A. S.
Frozen in Time: The History of Protein **[#3496]**
The broad diversity of proteins in nature descended from proto-peptides that were created by the ribosome, on the ribosom,e and for the ribosome.

11:30 a.m. Cantine M. Fournier G. P. *
Phylogenetic Reconstrution of the Earliest Divergences Among Aminoacyl-tRNA Synthetase Protein Families **[#3318]**
The deep pre-LUCA evolutionary histories of aminoacyl-tRNA synthetase protein families are elucidated using novel, multi-stage alignment and rooting strategies.

11:45 a.m. Penisson S. Sniegowski P. D. Gerrish P. J. *
Effects of Genetic Linkage at High Mutation Rates **[#3750]**
The earliest life forms were likely in a constant battle against the detrimental effects of genetic linkage and high mutation rates. We quantify these effects.

12:00 p.m. Jheeta S. *
Hypothesis: ncRNA — Cellular Activity Controller? **[#3262]**
The case for ncRNAs involvement with overall control of cellular activity is strong and it is speculated that this cellular control is passed down the generations.

12:15 p.m. *Lunch*