Australian National University

PUBLIC LECTURE

RSB Director's seminar series

The biology of astrobiology

Friday 28 August 1-2pm
with light lunch commencing 12.30pm

Speaker

Charles Lineweaver
Research School of Astronomy and Astrophysics, and Research School of Earth Science, ANU

Location

Slatyer seminar room
R.N. Robertson Building, 46 Sullivans Creek Road, ANU

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This lecture is free and open to the public

RSB event information:
biology.anu.edu.au/news-events/

'Are We Alone in the Universe?' Astronomers and biologists are collaborating to try to answer this question. Astronomers have found thousands of planets orbiting other stars. Many of these planets have temperatures compatible with liquid water. Within the next 10 years, astronomers will be trying to remotely detect 'biosignatures': the chemical disequilibrium of atmospheric gases produced by life (for example, the oxygen and methane in the Earth's atmosphere).

Biologists are producing increasingly complete 16s RNA and multi-gene consensus phylogenetic trees of all life on Earth–giving us important clues about the Last Universal Common Ancestor (LUCA) and about the origin of life on Earth. We have reasonable expectations that the most fundamental features of life on Earth could be features that we should expect in life elsewhere. I will discuss the synergy between the efforts of astronomers and biologists and the progress we think we are making. I will also describe how a mountain-top overview of the billion year evolution of metazoans has led us to an atavistic model of oncogenesis that is more predictive than the standard somatic mutation model.

Charles H. Lineweaver is an associate professor and astrobiologist at The Australian National University's Research School of Astronomy and Astrophysics, and Research School of Earth Science. His astrobiological research involves the origin of the Earth, the origin of life and the origin of cancer. He studies the statistical distribution of exoplanets, the cosmic microwave background radiation, and cosmological prerequisites for the formation of terrestrial planets and life. Dr. Lineweaver earned a Ph.D. in physics at the University of California, Berkeley in 1994.

Presented by

The Research School of Biology
ANU College of Medicine, Biology & Environment