## Astrobiology News February 2019: A Multidisciplinary Approach to Investigating Life's Origins

Over the past couple of decades, we've discovered thousands of worlds orbiting distant stars. In combination with decades of research indicating that stars form with planets, we now think there may be more planets than stars in the observable Universe! While the list of potentially habitable worlds seems to grow daily, how abundant life actually is depends upon a question we have yet to answer - how does life get started?

The Prebiotic Chemistry and Early Earth Environments Consortium  $(PCE_3)^1$  is the third of five Research Coordination Networks (RCNs) created by NASA to address the increasingly central role of astrobiology in NASA's science mission to search for life beyond Earth. As with every initiative in astrobiology, PCE<sub>3</sub> is drawing on experts across multiple disciplines to conduct research into life's beginning on Earth, and to explore whether and how life arose elsewhere in the Universe.<sup>2</sup>

A central goal of PCE<sub>3</sub> is to "break down language and ideological barriers" in order to facilitate better communication across different disciplines – most notably, between early Earth geoscientists and prebiotic chemists, so that research into the conditions leading to life can be rooted in realistic planetary conditions. Among the tools to facilitate new collaborations is a virtual portal that will make the growing body of knowledge about conditions on the early Earth broadly accessible to diverse scientific communities. Including realistic planetary conditions in prebiotic chemistry experiments will enable models for the emergence of life that are consistent with what we know of Earth's early history. These studies will, in turn, inform the search for life on other worlds.

What I find most exciting about this new initiative is its potential to provide a paradigm for dialog across different communities in order to inspire novel collaborations and suggest new research avenues. In our highly specialized world, working across different disciplines can be cumbersome at best, if not impossible, given barriers due to disciplinespecific language and methods. I encourage you to check out this new consortium, as well as the RCNs organized in 2015 (the Nexus for Exoplanet System Science – NExSS<sup>3</sup>) and 2018 (the Network for Life Detection – NfoLD<sup>4</sup>), and to reflect on how similar initiatives and technology might be employed to facilitate effective communication and collaborations across the sciences and humanities.

Until next month,

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<sup>2</sup> <u>https://astrobiology.nasa.gov/news/new-nasa-research-consortium-to-tackle-lifes-origins/</u>

<sup>3</sup> <u>https://astrobiology.nasa.gov/research/astrobiology-at-nasa/exoplanets/</u>

<sup>4</sup> <u>https://www.nfold.org/</u>

<sup>&</sup>lt;sup>1</sup> <u>http://prebioticchem.info/</u>