Contribution ID: **441** Type: **Talk**

【7】How to identify another Earth-like planet: Ideas and Challenges

Wednesday, 1 September 2021 19:30 (1h 15m)

The detection of exoplanets orbiting other stars has revolutionized our view of the cosmos. First results suggest that it is teeming with a fascinating diversity of rocky planets, including those in the habitable zone. Even our closest star, Proxima Centauri, harbors a small planet in its habitable zone, Proxima b. With upcoming telescopes, we will be able to peer into the atmospheres of rocky planets and get a glimpse into other worlds. Using our own planet and its wide range of biota as a Rosetta stone, I will discuss the possibilities and challenges to explore how we could detect habitability and signs of life on exoplanets over interstellar distances. The discussion on what makes a planet a habitat and how to detect signs of life is lively. This talk will show the latest results, the challenges of how to identify and characterize such habitable worlds, and how near-future telescopes will revolutionize the field. For the first time in human history, we have developed the technology to detect potential habitable worlds. Finding thousands of exoplanets has taken the field of comparative planetology beyond the Solar System.

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Session Classification: Public Lecture