A Multi-Parameter Approach to Habitability (M-PAtH)

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Recent research has shown that a planet's ability to maintain liquid water and potentially host life depends on the type of star, the planet's density, atmospheric composition and planet-star interactions. Additionally, there are a variety of previously undefined factors such as magnetic field, albedo, impact events, and plate tectonics that could also affect habitability. Analysing the interrelatedness of these factors on detected exoplanets would help to generate a revised model of planetary habitability and suggest a suitable strategy for future astrobiological and biosignature observations of life in the universe. In conjunction with the rapidly increasing information from exoplanet databases expected within the next 2 years, this research will help provide a flexible framework for prioritisation to determine optimal targets for near-future ground- and space-based spectroscopic observations of planetary atmospheres and the potential detection of life in space.

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