Contribution ID: **38** Type: **not specified**

Tidal heating in potentially habitable extrasolar planets

Wednesday 26 October 2022 11:45 (15 minutes)

Even though more than 4000 extrasolar planets are discovered so far, Earth is the only planet in the Universe known to have life till date. Among them around 60 planets were listed as Potentially Habitable Extrasolar Planets. This list was prepared on the basis of the details from the Habitable Extrasolar planets Catalog (HEC) which is maintained by the Planetary Habitability Laboratory at the University of Puerto Rico at Arecibo. We have studied the internal heat contribution due to tidal interactions in 60 extrasolar planets which are identified as potentially habitable. The internal heat due to tidal interactions between host star and extrasolar planets can be calculated if we know the orbital parameters and the properties of the host star. The estimated total internal heat at the time of formation of these extrasolar planets is compared with the current tidal heat contributions. The possibility of extreme volcanism in tidal extrasolar planets and its implications on its habitability will be discussed in detail.

Author: Dr M. KUMAR„ Varnana (Department of physics Marivanious College Trivandrum, Kerala, India)

Co-authors: LONGHINOS, Biju (Department of Geology, University College, Trivandrum, Kerala, India); BINOY, Johndas (Department of Physics, Government College for Women , Trivandrum, Kerala, India); GIRISH, T. E. (Department of Physics, University College, Trivandrum, Kerala, India); N. SATHYAN, Thara (Department of Applied Science, University Engineering College, Trivandrum, Kerala, India)

Presenter: Dr M. KUMAR„ Varnana (Department of physics Marivanious College Trivandrum, Kerala, India)

Session Classification: Solar system & extrasolar planets