

Monday Afternoon

Red stars as blue planet hosts

Lalitha Sairam,¹ Institute for Astrophysics, Göttingen

Low mass stars make up nearly 75% of the stellar population making them the most common potential planetary hosts. They are in the focus of ongoing and planned surveys for the habitable planet. One such surveys around M dwarfs is CARMENES, which aim at detecting Earth-like planets in their habitable zone. But due to extremely low luminosities of M-dwarfs, the habitable zone moves closer to the star making the orbiting world extremely vulnerable to the effects of magnetic activity and the high-energy emission from its host. Magnetic activity manifests itself in features such as spots, flares and high-energy coronal emission. These stars are capable of producing flares of short as well as longer durations. It is essential to understand the effects of stellar activity and high-energy environment on the planetary atmosphere. Furthermore, stellar activity is also an important obstacle in planet search surveys mimicking the planetary signature. Hence, it is essential to characterize these stars to disentangle radial velocity variation due to activity from the planetary companion. In this talk, I will give a synopsis of CARMENES survey as well as my study on the stellar activity of nearby low mass stars, which can potentially host exoplanetary systems.

¹lalitha.sairam@iap.res.in