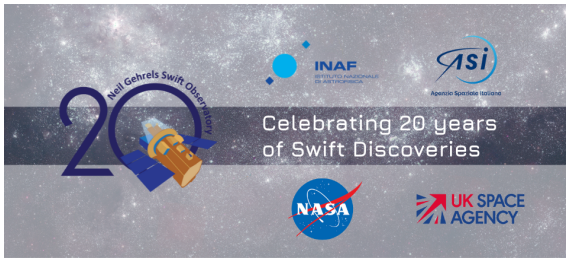

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The quest of life-as-we-know-it outside the Solar system: the time-evolution of the ultraviolet habitable zone

Tuesday 25 March 2025 14:29 (1 minute)

The majority of discovered rocky exoplanets in the habitable zone (HZ) orbits around old M-dwarfs, but it is unclear if the high-energy emission of these stars provides a suitable environment for the origin of life. According to Spinelli el al. 2023, the current Near Ultraviolet (NUV) luminosity of M-dwarfs hosting HZ exoplanets is too low to trigger RNA precursors formation on them. By combining Swift-UV/Optical and GALEX data, we investigate the temporal evolution of their ultraviolet habitable zone (UHZ), the annular region around a star in which an exoplanet could experience a suitable ultraviolet environment for the presence and emergence of life, and its intersection with the HZ around K and M stars. I will show the temporal evolution of radial extension of the UHZ and its intersection with the classical HZ for different stellar types, focusing also on the curious case of Proxima Cen.

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