

## **Proxima b, red dwarf planets and the search for life beyond the solar system**

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The discovery of Proxima b is an exciting development but it should not have taken anybody by surprise because 1) red dwarfs are the most numerous stars, 2) previous surveys already indicated an overabundance of Earth-sized/mass planets in compact orbits around red dwarfs, and 3) warm terrestrial planets around red dwarfs are 50 to 100 times easier to detect than around sun-like stars. One of the non-obvious highlights of 2016 (Pale Red Dot on Proxima, but also the results of the TRAPPIST/SPECULOOS project) was that dedicated star-by-star experiments enabled by flexible telescope access are key to unveil the very nearby population of small exoplanets amenable for characterization. With planet-star ratios comparable to those of hot-Jupiters, the transiting fraction of these planets will be the first initially characterized using low-resolution space-based spectroscopy (HST/JWST), and high-resolution ground-based spectroscopy (VLT class instruments). In a longer time-frame, extreme adaptive optics systems combined with spectral-enhancement methods hold the promise for direct imaging of terrestrial planets around these very nearby red dwarfs, thus obtaining complementary -possibly unique- measurements on their atmospheres. Besides the scientific relevance of the detection of very nearby planets, these science cases are intrinsically interesting to the general public. This intrinsic interest is a resource yet to be exploited in the improvement of awareness and public support on astronomy and science, especially within Europe.