

# **European Extremely Large Telescope and Search for Life beyond the Solar System**

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About 25 years ago, the first planets beyond our Solar System have been discovered. Since then, this research field exploded and over three thousands planets are known to date. Some have been declared as 'habitable' - what does this mean? What type of life do we expect there? Do we understand what life is and how it emerged? These are topics often studied under the umbrella of 'Astrobiology'.

Starting with what we know about life on Earth - how it started, how it evolved, how it impacted the planet - researcher try to understand what type of life could exist and where. Within our Solar System, many places could host life: from Mars to Moons of giant planets, i.e. also outside the so-called 'habitable zone'. Beyond our Solar System, the host stars of planets range from dwarfs to giants offering a wide range of characteristics that might be favourable to life.

I will offer an overview of where we stand with respect to the search for life and introduce the Extremely Large Telescope (ELT) currently being built. What breakthroughs are we expecting from it?

And will we ever be able to reach any of these planets? I will end by briefly exploring where we stand with respect to interstellar travel.