

Plenary Talk PV XIII Fri 8:30 Audimax
From Astrophysics to Life: The Making of Habitable Planets
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More than one thousand extrasolar planets have been firmly detected, and the search is on for Earth-like planets potentially maintaining conditions conducive to the formation and evolution of life. But what makes a planet habitable? In search of life-friendly conditions on other planets, we follow the water, the all-important liquid for life as we know it. Where does this water come from, how does it get onto Earth-like planets, and how long does it stay there? Our search takes us back to the earliest moments of planet formation in protoplanetary gas and

dust disks around young stars where water abounds. Liquid water needs to be incorporated into growing planets, probably necessitating complex transport mechanisms in disks. But even so, planetary surfaces are at the mercy of hostile conditions in a stellar environment dominated by plasma flows, high-energy particles, ultraviolet and X-ray radiation orders of magnitude stronger than seen around our present-day Sun. A delicate balance between properties of the host star, the planet, its interior, and its atmosphere may pave the way to habitability, or else a hostile planetary environment will prevail. Understanding astrophysical conditions for planetary habitability has only just begun.