

Our astrochemical origins

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Astrochemistry is a blend of different disciplines, from chemistry to astronomy, including computational sciences and biology. One of the fundamental question in astrochemistry is related to the emergence of chemical complexity observed by observatories like ALMA, and to the understanding of complex physical processes as star- and planet-formation, and the origin of life. In this talk I will introduce the astrochemistry field, showing its different applications, from primordial molecules to planetary atmospheres. I'll introduce the concept of “chemical clocks” and how the chemistry can help disentangling among the main processes which lead to the formation of stars, protoplanetary discs (and planetesimals). It will be a journey from the simple chemistry of the early Universe to the complexity of the small and dense regions of the interstellar medium, where fractionation processes, spin-state conversions and ion-neutral processes play a fundamental role to unveil our astrochemical origins.

