

PREBIOTIC MOLECULES IN INTERSTELLAR SPACE: THE ROLE OF ROTATIONAL SPECTROSCOPY AND QUANTUM-CHEMICAL CALCULATIONS

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While it is now well established that the interstellar medium (ISM) is characterized by a rich and complex chemistry, we are far from a complete census of the interstellar molecules and the understanding about how they form and evolve is at a primitive stage. Concerning the former issue, a significant number of features in radioastronomical spectra are still unassigned. To fill this gap, a huge laboratory effort is required, which is increasingly based on integrated experimental and computational strategies. This contribution aims to present examples of an integrated rotational spectroscopy - quantum chemistry approach for supporting radioastronomical observations. In this respect, a significant example is provided by the recent characterization of (Z)-1,2 ethenediol, a key prebiotic intermediate in the formose reaction ^a.

^aMellosso et al. Chem. Commun. **58**, 2750 (2022)