

Research projects at LAMBE: From past to future

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After a brief reminder of the research projects on which I was involved during the last decade, I will present how this gained expertise can benefit to my research activities at LAMBE. My first focus will be on the physical chemistry of sparkling beverages, and more specifically on the physics behind the effervescence process in Champagne wines. Although such a topic anchored in enology may seem far from fields of research developed at LAMBE, and in particular in the theoretical team 2, champagnes will be shown to be appealing systems to investigate transport properties in multicomponent mixtures and coarse-grained vegetal fibers, water networks at gas/liquid interfaces, evaporation dynamics of droplets, or carbon dioxide evasion into the atmosphere, as many subjects whose understanding can be exploited to tackle problems relevant in other fields of research. Then, I will present the main objectives of the COST project COSY, dedicated to the development of a European community on confined molecular systems, from helium droplets and metal clusters to biomolecules and molecules relevant in astrochemistry. This ambitious project aims at tackling both the theoretical, experimental and industrial aspects of the synthesis and characterization of these systems, which should make it a noteworthy platform to stimulate collaborations between LAMBE members and some COSY partners. Finally, I will mention a project in planetology that could benefit from theoretical expertises present at LAMBE, before summarizing the presentation on a schematic manner.

