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Spontaneous Ouzo emulsions co-exist with pre-Ouzo ultra-flexible microemulsions

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In 2003, Isabelle Grillo published a highly publicized article on *Le Pastis*, analyzing with SANS the large-scale structure of droplets responsible for the famous milky appearance of this Mediterranean drink. At the same time, the seminal article of Vitale and Katz on the “*Ouzo effect*” appeared. These two references kindled an ever-growing field of applied and fundamental research. Isabelle recently worked with Leonardo Chiappisi on a South-Italian drink, “*Limoncello*”, where droplets are formed whose size remains much smaller than for Ouzo. With her continuous interest in such common and (only) seemingly simple systems, Isabelle and I joined the team led by Thomas Zemb and Werner Kunz on “*pre-Ouzo*”: nanoscale fluctuations of concentrations in mixtures of liquids, otherwise known as UltraFlexible MicroEmulsions or Surfactant-Free MicroEmulsions, to understand their relation to the Ouzo phenomenon. SAXS data on ID02 and SANS data on D11 and D33 at ILL demonstrated that Ouzo is in fact a metastable equilibrium between **two fluids with nanoscale organization**. I will show the current results of our work and the future steps we will undertake to reveal the complexity of these ordinary fluid mixtures.

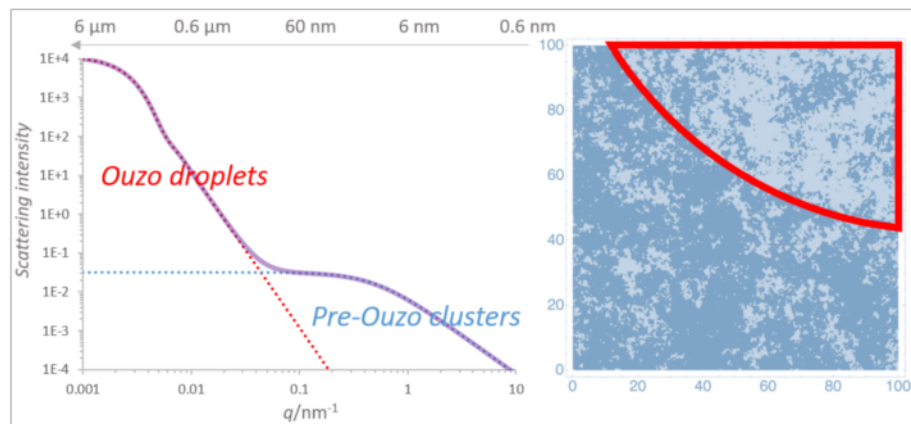


Figure 1: Co-existence of Ouzo and pre-Ouzo as seen by by Small-Angle Scattering

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