



**Università degli Studi di Roma “Tor Vergata”**

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**Dipartimento di Scienze e Tecnologie Chimiche**

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## **AVVISO DI SEMINARIO**

La Prof.ssa Gabriela Calderò

il giorno 25/10/2018 alle ore 15 : 00

Nell' Aula seminari del Dipartimento di Scienze e Tecnologie Chimiche

*Terrà un seminario dal titolo:*

**Nano-emulsions prepared by low-energy methods as microbubble precursors.**

*Proponente; Prof. Paradossi*



### Abstract:

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Nano-emulsions are colloidal dispersions frequently used in the biomedical field for drug delivery and also as templates for the preparation of nanoparticles. Recently, attention has been focused on their potential as microbubble precursors. Small droplets have the advantage of being able to reach fine capillaries easily. If suitable liquids are used, they can be vaporized "in situ" allowing phase change from liquid nanodroplets to gas microbubbles. In this context, perfluorohexane is a good candidate for microbubbles preparation as it is liquid at room temperature but easy to vaporize, shows low solubility in aqueous media, and has a high capacity for gas transport. However, the low affinity of perfluorohexane for both, aqueous and oil media, its high density and high vapour pressure make emulsification a challenging task. In this study, the formation of nano-emulsions by a low-energy method has been investigated in a PBS / Polysorbate 80 / [PLGA + perfluorohexane + ethyl acetate] system at 25°C. Colloidal stability has been characterized and improved by the use of additives. Further, nano-emulsions have been used to prepare perfluorocarbon-loaded nanocapsules. Preliminary results on their use as microbubble precursors will be presented and discussed.