

## **Fatty non foste a viver come bruti: a multidisciplinary approach to lipidic self-assembly**

Lipids are one of the essential “ingredients” of life, they are ubiquitous molecules that regulate cell compartmentalisation and function. Understanding lipidic behaviour and empirically tuning it has been at the base of human evolution, helping humanity to create novel materials from simple food to COVID-19 vaccines. Our research focusses on the physical chemistry of lipids self-assembly, and their employment as biomimetic materials for biochemical and pharmaceutical applications.

Dr Salvati Manni will illustrate the basics of lipid self-assembly in polar solvents, elucidate the interaction between lipids, water and proteins, and the effects of lipid confinement on water properties.

Dr Fong will demonstrate how precise control over lipid self-assembly through targeted environmental changes allows for the control over the mesophase formed, and consequently material properties such as release rate of drug &/or optical clarity.



**Dr Khay Fong**

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My research has two themes:

1. **Membranes and mesophases** – manipulating lipid self-assembly to make on-demand drug delivery systems and biosensors.
2. **Measuring microplastics**

Dr Fong completed her PhD (Pharmacy, physical chemistry) at Monash University (2013). She subsequently was awarded a Victorian Postdoctoral Research Fellowship which took her to ETH Zurich, Switzerland (2014-15) and back to Monash (2016). She was the first recipient of the National Center of Competence in Research in Bio-Inspired Materials Postdoctoral Research Fellowship for Women at the Adolphe Merkle Institute, Université de Fribourg, Switzerland (2017-18).

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**Dr Livia Salvati Manni**

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My research focuses on the biophysics of lipid self-assembly in water and ionic liquids. I employ neutron and x-ray scattering as main tools to characterize the behaviour of lipidic materials and to develop new biomedical and biochemical tools.

I obtained my PhD from University of Zurich in 2017. Between 2017 and 2019 I was a postdoctoral researcher at ETH Zurich. In 2019 I was awarded a Swiss National Science Foundation early career post doc mobility fellowship to work in the School of Medical Sciences at the University of Sydney.

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