

## **Lipid bilayer properties and pore formation characterisation**

Adrien Berthault, Vladimir Baulin

*Universitat Rovira I Virgili, Av. Països Catalans 26, Tarragona, Spain*  
[adrien.berthault@gmail.com](mailto:adrien.berthault@gmail.com), [vladimir.baulin@urv.cat](mailto:vladimir.baulin@urv.cat)

### **Abstract**

Since decades, the study of biological membranes has been a great challenge both for academia and industry. Made of amphiphilic molecules that can self-organise into various structures (micelles, membranes or liposomes), they regulate exchanges between the cell and the extracellular medium. Many techniques and outcomes ensued, leading to the development of analysing tools such as Atomic Force Microscopy and drug delivery methods. From a theoretical standpoint, predictive methods are necessary to explain and anticipate the behaviour of membrane formation and organisation. To answer this question, we propose two complementary approaches, Single Chain Mean Field (SCMF) theory and Bond Fluctuation Model (BFM), to focus on both interactions between molecules and pore formation.