Bayesian analysis of fluorescence microscopy data

Abstract

Fluorescence microscopy methods have had significant contributions in shedding light on numerous biological problems. These techniques employ different fluorophore properties, such as intensity, i.e. super-resolution microscopy, lifetime, i.e. fluorescence life-time imaging microscopy (FLIM), and spectrum ،i.e. spectral imaging, or a combination of these properties to learn about details of sub-cellular environments. The raw data acquired using a fluorescence microscope is often a sequence of frame images which require processing to decode its biological information. In this talk, I will briefly talk about different fluorescence microscopy techniques and a few developed microscopes. Next, I will discuss the Bayesian framework and its application for the analysis of fluorescence microscopy data.