

ICB PhD public presentations**MULTIMODAL FLUORESCENCE
ANALYSIS OF BIOMOLECULAR
INTERACTIONS****Prerit Mathur**

ICB / The deMello group

Supervisor: Prof. Dr. Andrew deMello

Co-examiners: Prof. Dr. Govind Kaigala,

Prof. Dr. Benjamin Schuler and Dr. Stavros Stavrakis

**17/10/2023, 4:30 pm****ETH Hönggerberg, HCI G3 and on Zoom**<https://ethz.zoom.us/j/64029612454>

Project Summary: Biomolecules form the basis of life. Changes in their properties and interactions with other species regulate all processes important for our biome. For example, the self-assembly of protein compartments has been implicated in the origin of life itself. Unsurprisingly, the quest to understand and control biomolecules and biomolecular interactions requires the quantification of their properties and interactions. We use fluorescence correlation spectroscopy (FCS) and fluorescence lifetime imaging (FLIM) for the sensitive detection of biomolecules in a range of environments. Additionally, we use microfluidic technologies to precisely control and confine fluid flows in such systems. Specifically, by leveraging the localisation capability of open-space microfluidics, we demonstrate that biomolecular interactions may be detected, probed and quantified under a range of conditions.

CV. Prerit received his B.Tech. in mechanical engineering from IIT Delhi, India. He then joined ETH Zurich to pursue a master's in mechanical engineering. In 2020, he joined the group of Prof. Andrew deMello as a PhD student combining microfluidic and optics for bioanalysis.