

Title: On “Life-Like” Photoactuation

Speaker: Professor Arri Priimägi, Tampere University, Finland

Date & time: 13.00, 1st March

Location: Old Gym LG06

Abstract: Biological systems, viewed within the materials science perspective, are excessively complex. They are adaptive, multifunctional and -responsive, dissipative, self-regulating, and capable of evolving and learning from their past experiences. Hence, biological systems have provided a great source of inspiration for scientists aiming to design functional and “intelligent“ materials. Liquid crystal network- (LCN) and hydrogel-based soft actuators provide a rich platform for simplistically mimicking some of the properties of natural systems, as demonstrated by recent examples of systems that are deemed autonomous, adaptive, or self-regulating, i.e., “life-like” in a simplified sense. Yet again, all these systems fall way short on their natural counterparts in terms of complexity, capability to respond to environmental cues, and to evolve based on past experiences. Having this in mind, is such terminology justified? Is it useful for driving the field forward? The aim of this talk is to reflect on this question, using our own work on light-responsive soft actuating systems as an example.

Biography: Arri Priimägi is a professor of chemistry in the Faculty of Engineering and Natural Sciences at Tampere University, and the leader of Smart Photonic Materials research group. The group’s focal areas of research revolve around different aspects of photocontrollable functional systems, ranging from synthesis of molecular photoswitches to applications of light-responsive thin films in photonics and biomaterials sciences, and light-fuelled polymer network actuators in soft robotics.