

## Speaker 1

### **Dr. Pedro Gonçalves**

Department of Cell Biology and Anatomy  
National Cheng Kung University, Taiwan

### **Social conflicts in fungi**

Fungi are essential biotic components of the Earth due to their nutrient recycling function, and play a major role in the new bioeconomy as living factories for the synthesis of essential biologics. Their biodiversity is astounding, with recent estimates pointing to the existence of 2 to 6 million species. Fungal organisms establish numerous ecological interactions with their surroundings, both in an interspecific as well as in an intraspecific context. For instance, cell-cell communication and fusion is carried out by various fungal organisms to facilitate the establishment of the fungal mycelium, a multicellular syncytial structure that is essential for survival and a landmark of filamentous species. Wild populations of the model *Neurospora crassa* and a combination of genomics, genetics, cell biology and biochemistry have been used to pinpoint loci associated with cooperation and conflict in the context of somatic cell fusion. Social cooperation in fungi and the self/nonself discrimination process that governs it are known as allorecognition, which functions akin to an immune system. I will report the discovery of allorecognition loci in *N. crassa* and discuss how fungal cell fusion can be investigated in a framework of behavioral ecology, in parallel to what has also been broadly described as microbial sociology in amoeba and bacteria.

## Speaker 2

### **Dr. Mitsusuke Tarama**

Department of Physics, Faculty of Science  
Kyushu University

### **Pattern formation of actin cytoskeleton around membranes**

The cytoskeleton is one of the fundamental components of force generation in biological cells. To bridge the gap in the length scale of cytoskeleton molecules and cells, I developed a coarse-grained molecular dynamics model of the cytoskeleton to investigate the mechanism of the higher-order structure formation. In this seminar talk, I will introduce my recent studies on the pattern formation of the actin cytoskeleton. I will mainly talk about the self-organisation of a cortex-like structure. If time allows, I will also present results for the microphase separation of actin cytoskeleton, which are compared to experimental data.

**Time & Date:** 3:00 PM – 5:00 PM Wed., March 15, 2023

**Venue:** Main Conference Room, NanoLSI 4F (On-site)

**Language:** English

**Organizer:** Prof. Carsten Beta (Overseas PI, NanoLSI)

**Registration:** Not required