

## **ICTS Seminar**

Title : Controlling contractile instabilities in the actomyosin cortex

Speaker : Masatoshi Nishikawa, Hosei University, Tokyo

Date : Tuesday, November 5, 2019

Time : 2:00 PM

Venue : Emmy Noether Seminar Room

Abstract : The actomyosin cortex is an active contractile material for driving cell- and tissue morphogenesis. The cortex has a tendency to form a pattern of myosin foci, which is a signature of potentially unstable behaviour. A fundamental challenge is to understand how the actomyosin cortex that is prone to such instabilities can reliably drive large scale morphogenetic events. In this talk, I will present in *Caenorhabditis elegans* one-cell stage embryo, that the cortex exhibits the contractile instability, in which the interplay between the active contractility generated by myosin and the RhoA mediated biochemical regulation. We identified a RhoA pacemaking oscillator that controls this instability to prevent the collapse of the cortex into dynamic contractile patches. This work highlights how contractile instabilities that are often inevitable in active contractile material can be biochemically controlled to drive large scale morphogenetic events.