

## CBC SEMINAR ANNOUNCEMENT



**Professor Takeaki Ozawa**  
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### **Luminescent sensors and optical switches for intracellular signaling analysis**

Engineered fluorescent and bioluminescent proteins are now widely used for analysis of small molecules and various intracellular events in live cells. The luminescent proteins are entirely genetically encoded and can be engineered to generate functional probes. I herein describe a novel design of engineered fluorescent proteins and luciferases for the analysis of intracellular signaling; the principle is based on complementation and reconstitution of the split-reporter fragments when they are brought sufficiently close together. To demonstrate the usefulness of the split reporters, I will focus on the methods for imaging dynamics of RNAs and different apoptotic signals in a single living cells. I also show novel techniques of bioluminescence imaging of GPCRs and caspase activation in vivo. In addition to the imaging technologies, an optogenetic tool for controlling a kinase activity with external light will be discussed. These less-invasive techniques are widely applicable for understanding complex biological systems with high spatiotemporal resolution.

**Date:** 29th September 2017 (Friday)  
**Time:** 11:00am – 12:30pm  
**Venue:** SPMS Research & Graduate  
Studies Office Conference Room  
**Host:** Assoc Professor Xing Bengang