

139th WPI-IIIS Seminar

Temporal Coding-Induced Synaptic Plasticity Determines Clock-Driven Sleep Quality

Neurons use two main schemes to encode information: rate coding (frequency of firing) and temporal coding (timing or pattern of firing). Here, we demonstrate for the first time that temporal coding alone can signify a specific internal state to control a behavioral output. We first show that the clock neuron network in *Drosophila* exhibits distinct temporal patterns of spiking during the day vs the night. We next delineate the molecular processes by which the circadian clock generates distinct temporal codes. From a large-scale genetic screen, we identify 2 molecules that are critical for clock-dependent temporal coding. In this seminar, I will talk about how temporal coding alters sleep/wake behavior.



Dr. Masashi Tabuchi

Department of Neurology,
School of Medicine, Johns Hopkins University

Date: **Tuesday, November 27, 2018**

Time: **12:00 – 13:00**

Venue: **1F Auditorium, IIIS Building**



Contact: International Institute for Integrative Sleep Medicine, University of Tsukuba
029-853-8080 (ext. 8080) | iiis_seminar@un.tsukuba.ac.jp