

126th WPI-IIIS Seminar

Hippocampal ripples downregulate synaptic weights during slow-wave sleep

Synapses are potentiated during awake periods and are cooled down during sleep, during which long-term depression (LTD) may also help erase unwanted memory engrams. However, the neural entity that causes LTD has not yet been identified, even though 40 years have passed since hippocampal LTD was first described. We discovered that slow-wave ripples (SWRs) perform this function. The event frequency of SWRs increases up to approximately 1 Hz after learning and then serves as a low-frequency stimulation protocol that induces LTD. Through this LTD, SWRs refine neuron ensembles that are replayed during slow-wave sleep. Therefore, our findings advocate another new and important role of SWRs whose role was previously known to contribute to memory consolidation.



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Date: **Thursday, January 11, 2018**

Time: **12:00 – 13:00**

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



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