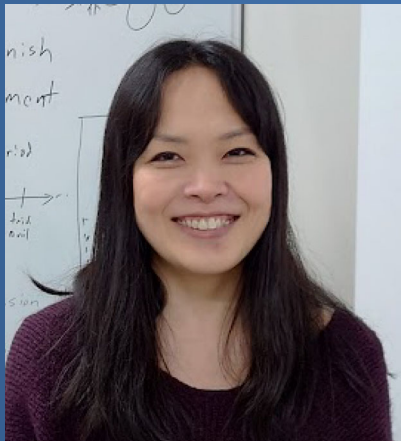


# 220<sup>th</sup> WPI-IIIS Seminar

## Elucidating the prefrontal cortical network structure underlying cognitive flexibility

Cognitive flexibility, the ability to modify behaviors/thoughts to adjust to changing demands (tasks), depends on dynamic adjustment of task-specific prefrontal cortex (PFC) networks. Because of the complexity of activity patterns in PFC, however, the basis of such rapid, task-dependent re-wiring remains unknown. Here I present findings that identify key mechanisms underlying PFC network re-structuring. We find that dopamine responsive PFC neurons influence task-switching associated network-reconfiguration involving modulation of inhibitory connections onto PFC readout neurons. In addition to providing insights into how PFC enables cognitive flexibility, our findings lay the foundation for understanding how adverse conditions can disrupt this fundamental ability.



### Dr. Miho Nakajima

Laboratory for Distributed Cognitive Processing,  
Riken Center for Brain Science

Date: **Monday, February 10, 2025**

Time: **10:00 – 11:00**

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

**\* On-site participation only**



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