Eirene talks about the chromatin regulation in cortical development and autism. She first introduced the importance of mid-fetal development for neurogenesis and psychiatric illness and indicates the puzzling difficulty of autism spectrum disorder, which is the social communication impairment and repetitive behaviors. In order to study the genetic variants that regulates enhancers that causes autism, she mapped open chromatin regions in the 14-22 week sample fetal brain and isolated the nuclei and access genome-wide chromatin using a ATAC-seq as the sequencing assays. After identifying regional and layered enhancers and integrating entire genome sequencing data from autism patients, Slc6a1 was compared and thought to be a high confidence autism spectrum disorder gene and also associated with epilepsy/absence seizures with developmental delay. One challenge was the studying of transcriptional regulators of enhancers. Another risk factor gene, POGZ gene was studied. Beyond its ability to bind DNA, there is little knowledge about POGZ’s transcription or chromatin state. To further investigate, Eirene generated a knockout mouse and dissected chromatin state phenotypes of mouse. Again, isolating nuclei and underwent the ATAC-seq. And her analysis revealed POGZ enhancer binding promotes transcription of neuronal genes and forms the protein HP1y and ADNP, another autism spectrum risk gene. Eirene’s further research will interrogate POGZ’s transposase domain.