Kentaro Nagamine

**Recent progress in cosmological hydrodynamic simulations of galaxy formation.**

Over the past two decades, the theory of galaxy formation has been developed and polished with the input from *ab initio* cosmological hydrodynamic simulations of structure formation. The simulations have made steady progress in resolution and physical treatment over the years, and finally reaching spatial regimes of 10-100 pc where more realistic interfaces with ISM physics and star formation are becoming possible. In this talk, I will summarize recent development in this endeavor, and how far the cosmological simulations have come in resolving galactic structures as a function of cosmic time, revealing the importance of feedback by supernovae and supermassive black holes in shaping galaxies.