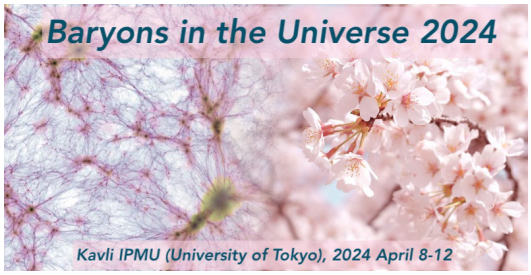

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The impact of feedback on the distribution of baryons within and outside haloes

Monday, 8 April 2024 14:00 (25 minutes)

Simulations indicate that stellar and AGN feedback processes significantly influence star formation and the distribution of baryons in the Universe. Despite this consensus, there is no agreement on the exact model for these processes. The Simba suite of hydrodynamical cosmological simulations (box size 74 Mpc, gas mass resolution 1.82X10^7 M_sun) includes variants with various stellar/AGN feedback models, providing an ideal testbed for assessing the impact of different processes on key observables. I will present the predictions of the different Simba runs on the distribution of baryons within and around haloes, as a function of halo mass and redshift. My results show a distinctive signature of AGN-driven jets on the slope of the gas density profile of groups and clusters. I will also show preliminary results on the impact of baryonic physics on the concentration-mass relationship of dark matter density profiles in the IllustrisTNG and MillenniumTNG simulations. Thanks to the large box size of the MillenniumTNG simulation (740 Mpc), the results probe an expansive range of halo masses (10^9.5 – 10^15 M_sun), over a wide redshift range (0<z<7).

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