

X35a      **High-z Galaxies in Cosmological Hydrodynamic Simulations**

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I will discuss the recent development of cosmological hydrodynamic simulations of galaxy formation, in particular with the cosmological zoom-in technique. This method allows us to achieve higher resolution which was not possible with a large-scale cosmological box sizes, and finer details of galactic structures are beginning to be resolved at high-redshift. With the new international code comparison project called the AGORA, I argue that we are entering a new phase of cosmological galaxy formation simulations, which sets new standards of galaxy formation simulations for the next decade.

In addition, I will present some of the scientific highlights of our research on high-redshift galaxies and their implication on the reionization of the Universe. Generally cosmological simulations based on Lambda cold dark matter model predicts numerous faint galaxies at high-redshift with a very steep faint-end slope. Such low-mass galaxies have higher escape fraction of ionizing photons, making them a dominant contributor for reionizing the Universe at  $z > 6$ .