

Invited talk

High-resolution Environmental Simulations of The Immediate Area: the HESTIA project

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Owing to its proximity, the local volume or “cosmic near field” is the best observed region in the universe. As such it can provide key measurements that probe the nature of the universe on a fundamental level and in unprecedented detail. By constructing detailed gravitational maps of the local universe via surveys of direct distance measurements and the peculiar velocity field, we are able to reconstruct the full underlying density in the local universe as well initial conditions for cosmological simulations. These initial conditions can be used to simulate the Milky Way and Local Group at unprecedented resolution and constrained environmentally with gasdynamics and star formation. In this talk I will report on the HESTIA project, an attempt to simulate the Milky Way, the Local Group, and Local Universe all at once.