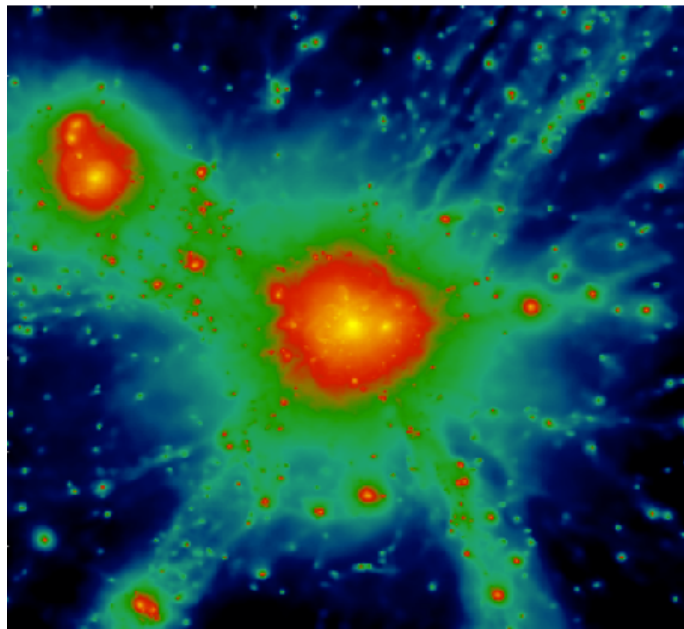


Astrophysical Probes of Dark Matter

Justin Read (ETH Zürich and University of Leicester)

Tuesday, 3 April 2012, 16:00h, Auditorium



In this talk, I discuss what we can learn about dark matter purely from its gravitational influence. I show how we can use computer simulations of structure formation to predict the distribution of dark matter in the Universe, and I discuss the remaining challenges to be overcome on small scales where baryonic physics has an important role to play. I then discuss the observed distribution of dark matter in the Universe from the tiniest dwarf galaxies up to galaxy clusters and the Universe as a whole. Comparing these observations with the simulations, I place constraints on dark matter models. Finally, I discuss the important role astrophysics has to play in direct and indirect particle dark matter searches. There, a knowledge - both theoretical and observational - of the dark matter distribution within our own Galaxy is key. I present a new measurement of the dark matter density near the Sun and I discuss the implications for direct search experiments.

▪Coffee, tea and cookies will be served at 15:45h

▪After the seminar there is a chance for private discussions with the speaker over soft drinks and pretzels

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