Department of Theoretical Physics

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Reionization: looking near and far

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Room A304

The epoch of reionization is a major transition period for the Universe. During this time, the first luminous sources form, which begin to reionize the intergalactic medium that is mostly neutral hydrogen as a result of recombination. Eventually, as dark matter haloes grow, galaxies begin to form, completing reionization. In this talk, I will briefly review existing observational constraints on the reionization era and the ongoing results from 21-cm experiments that map neutral hydrogen. Using a suite of radiative transfer simulations, I will explore the prospect of constraining the properties and evolution of ionizing sources, focusing on the size of sources and radiative feedback on star formation in dwarf galaxies. Reionization also has consequences for the Local Group, or the neighbourhood of the Milky Way. Using constrained simulations, I will present the reionization history of the Local Group and discuss potential implications.