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Cosmic Neutral Hydrogen: A Tool to Study the First Stars

Monday, 19 September 2016, 10:00
Room A304

It is believed that the first stars in the Universe formed when it was about 300 million years old. They are too faint to be observed directly through present day telescopes. Since these stars produce hydrogen ionizing radiation, we can indirectly study them using the reionization of neutral hydrogen in the Universe. In this talk, we will present detailed theoretical models of neutral hydrogen and reionization which, when compared with the observations, give constraints on when the first stars formed. Understanding the nature of the first stars is much more challenging and requires detailed numerical modelling. We will discuss some of the numerical simulations done by our group, and also outline how to detect direct signatures of the first stars using the upcoming low-frequency radio telescopes.