SEMINARIO DEL DEPARTAMENTO DE FÍSICA TEÓRICA

22 de Abril de 2009, 15 h., C-XI aula 201

Old Galaxies in a Young Universe: Searching for Massive Galaxies at High Redshift

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Abstract: In prevailing hierarchical models for the formation of galaxies, star formation starts out in low mass systems. More massive galaxies are then formed throughout the age of the Universe by merging of galaxies with smaller mass. Therefore, in this picture, the most massive galaxies are expected to be found at relatively low redshifts while the high redshift Universe is populated by galaxies of modest stellar mass.

Recently, using multi-waveband data from the Hubble Ultra-Deep Field and GOODS projects, we found evidence for a population of very massive and evolved galaxies at z > 5. These galaxies have a stellar mass of > 5 x 10^{10} M_{Sun} and were formed when the Universe was < 1 Gyr old. It is not clear how these systems generated such a large mass so early in the history of the Universe. The observed space density of these galaxies is found to be high, imposing one of the strongest constraints on current galaxy formation scenarios. I review the current state of this study, its implication towards galaxy formation scenarios and the role of this population of galaxies on the re-ionization of the Universe.

Also, using the extensive photometric data on the COSMOS project, I will present recent results on the search for z > 7 galaxies (when the Universe was < 1 Gyr old) and evolution of the space density and the Large Scale Structure.

Más información: http://www.ft.uam.es/docencia/seminarios.html