ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

PHYSICS COLLOQUIUM

Thursday, 17 April 2008
17:00-18:00

3rd Floor Seminar Room

"Latest news from deep infrared surveys: environment effects & ubiquity of AGNs in massive galaxies"

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Abstract

Deep extragalactic infrared surveys have revealed that luminous infrared galaxies, radiating the bulk of their bolometric luminosity in the dust regime, have been dominating the global star formation activity in the Universe at epochs when most of present-day stars were built. Combining the deepest datasets in the X-ray, optical, near to far infrared and radio, together with extensive spectroscopic follow-ups, we show that these galaxies were among the most massive ones at their epoch and surprisingly, morphologically relaxed, for the majority of them. How can this be reconciled with the observation that local massive galaxies are, in general, red-dead galaxies having stopped to form stars for billions of years? Was star formation quenched during the past history of those local red galaxies or was their gas reservoir exhausted and not refiled by infalling intergalactic matter? Three quenching mechanisms have been proposed to explain the bimodality of local galaxies between blue-actively star forming galaxies and red-dead galaxies: supernova driven winds, active galactic nuclei (AGN) and environment effects. Since star formation was heavily obscured in the past, we will see that infrared surveys changed our understanding of the events of strong star formation activity in the past history of galaxies. More surprisingly, while it was naturally expected that X-rays would be unique to probe the role of AGNs as a potential quenching mechanism, the deepest X-ray surveys are missing about 50% of the AGNs responsible for the bulk of the cosmic X-ray background, hence a large fraction of the accretion power in the history of the Universe. Unexpectedly, it is again the infrared that revealed their frequent presence amongst massive galaxies. We will discuss the role of accretion on galaxy formation/evolution based on these new results.