

Título/Title:

Exploring quasar properties at the Edge of the Universe

Orientador/Supervisor:

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Descrição/Description:

Over the last few years, an increasing number of quasars have been discovered at extremely high distances in the Universe. The highest redshift one, at $z=7.1$, emitted its light when the universe had around 5% of its current age, and a few tens are known at the first 10% of the age of the Universe. Understanding how these powerful objects, powered by a supermassive black hole, are detected at different wavelengths is necessary to understand how such massive "beasts" could be formed so quickly, well within the first Gyr after the Big Bang.

In this project, the student will be involved in the work of a team dedicated to understanding galaxy evolution, in particular in the early stages of the Universe. He/she will learn how supermassive black holes are thought to form very early in the Universe, and what are the difficulties in our current understanding of that process. He/she will identify a complete sample of recently discovered distant quasars (within the first Gyr of the Universe history) and search, within available datasets, for their multiwavelength information. In particular, he/she will explore the radio and Xray views of these quasars, which will then be used by our group to prepare the development of the upcoming generation of deep radio surveys (for example, the ASKAP - Evolutionary Map of the Universe) and of the future ESA's X-Ray Observatory Athena.