

Unveiling the history of the Universe's reionisation (Jose Miguel Rodriguez)

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Reionisation was a process that lasted for most of the early history of the Universe and up to a redshift of 6. We propose to follow that history from redshift 15 to redshift 6. For that we should need a set of narrow band filters, spanning Ly_α from $z \sim 6$ to $z \sim 14$.

We will perform imaging through those narrow band filters searching for Ly_α emitters at different redshifts. We are aware that LAEs will not be visible unless they lay within large ionised bubbles. As such these bubbles will likely consist of groups of LAEs. We will explore the Subaru Deep Field, which we know there are several over-densities and what is more important what looks like a filament of dark matter. These filaments are supposed to be more persistence in redshift than mere over-densities. We will use models for determining the number of ionising photons required at each redshift. We will then compare the required number of ionising photons with the observed number of ionised photons determined from the LAEs Ly_α luminosity. The combination of the large collecting area, plus the use of AO will make the ELT very competitive for this task. The outcome will be a determination of whether a double reionisation is required as well as a follow up of the history of the Universe's reionisation.

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