

## Deep into the core of dense star clusters with ELT

*Tuesday 18 February 2020 11:50 (25 minutes)*

We discuss some science cases that will exploit the Extremely Large Telescope (ELT) diffraction limit power. We focus on a novel and detailed analysis of a young star cluster in the Large Magellanic cloud, R136-like. The main aim of this study is to quantify precision and accuracy of stellar proper motions measurements in crowded field when using an ELT working at its diffraction limit. This can serve as a reference study for future development of ELT scientific cases. In particular we investigate our future ability to detect the dynamical signature of intermediate-mass black holes with mass  $\sim 10^4 M_{\odot}$  through detailed measurements of stellar proper motions.

Finally, using a similar approach, we will explore another natural science target for astrometric measurements with ELT: the Galactic centre Arches' cluster.

**Author:** Dr FIORENTINO, Giuliana (Istituto Nazionale di Astrofisica (INAF))

**Presenter:** Dr FIORENTINO, Giuliana (Istituto Nazionale di Astrofisica (INAF))

**Session Classification:** Popolazioni stellari