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## Fundamental cosmology in the E-ELT era

*Thursday 15 September 2016 11:30 (1 hour)*

The observational evidence for the recent acceleration of the universe demonstrates that canonical theories of cosmology and particle physics are incomplete (and possibly incorrect) and that new physics is out there, waiting to be discovered. The most fundamental task for the next generation of astrophysical facilities is to search for, identify and ultimately characterize this new physics. I will highlight the E-ELT's key role in this quest. After a short overview of theoretical motivations for new physics, the discussion will focus on precision spectroscopy tests of fundamental physics and cosmology. I will summarize the current status of these tests, discuss a classification of physically motivated models, and present some forecasts of the improvements that the E-ELT will enable (comparing them to ESPRESSO when appropriate). Time permitting I will also briefly comment on synergies with other E-ELT instruments, and with other facilities such as ALMA and Euclid.

### Summary

**Presenter:** MARTINS, Carlos (University of Porto)

**Session Classification:** Plenary session IV