

Title:

Wide field and deep spectroscopy in the Euclid/JWST era

Abstract:

Over the next few years dense redshift surveys such as GAMA, DEVILS, WAVES and MOONS will provide a vital resource for the timely exploitation of legacy science from both Euclid and JWST. Here we report on the science programs from the Baldry et al Euclid Legacy Science program and the Windhorst et al JWST Interdisciplinary Scientist program. Both programs outline science which builds upon or benefits from dense spectroscopic programs. In particular we discuss Euclid and JWST science in the context of the 4MOST WAVES (2million galaxy) and ESO MOONS (1 million galaxy) surveys in particular.

With WAVES+Euclid we will explore both the very low mass and low surface brightness Universe, as well as the evolution of mass, energy and structure since $z=1$. With MOONS this will be extended out to $z=2.5$, providing a complete empirical edifice describing how dark matter and stellar mass have grown over a 12 billion year timeline. The data obtained with WAVES-Deep, in particular, will provide a new catalogue of almost 30,000 dark matter haloes out to $z=0.8$, many of which will provide an optimal compact high-mass lenses ideal for use by JWST to probe the extremely high redshift Universe ($z>10$). Finally some comments will be made related to the advent of the Australian Space Agency, and Australia's role in facilitating NASA and ESA space missions through Australian-based ground-station support stations.