

Opportunities in next generation multi-object spectroscopy: the science and status of the Maunakea Spectroscopic Explorer (MSE)

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2018/05/09, 3:30pm, the Observatory Hall



A future flagship in 21st century ground based astronomy, the Maunakea Spectroscopic Explorer (MSE) is about to enter its Preliminary Design phase. With a growing partnership including China, and exceptional progress defining its design and science case, MSE is poised to revolutionize research involving large scale multi-object spectroscopic datasets. MSE is an 11 m telescope that has fully dedicated banks of low, medium, and high resolution spectrometers feeding more than 4000 fibers. This opens up incredible avenues of research through high impact stand-alone surveys as well as providing strong synergies to other observatories including LSST, Gaia and Euclid. MSE is a replacement of the Canada-France-Hawaii telescope, and can be viewed as an 11m version of SDSS or LAMOST at arguably the best site for optical astronomy on the planet. Here, I will review the science case of MSE. I will provide an update on the current design, including the work being done by Chinese institutions including USTC, and discuss the opportunities available to partners in MSE over the coming months and years.

Alan McConnachie is an observational astronomer primarily interested in understanding galaxy evolution through the study of the nearest galaxies, often based on large datasets from observing programs that map large areas of the sky. He is also interested in the development of novel astronomical instruments and facilities. He has extensive experience in the development, management and leadership of large science collaborations. Alan received his Ph.D. from the University of Cambridge in 2005 before moving to Canada. There, he held independent research fellowships prior to becoming a Research Officer at the National Research Council, based at the Dominion Astrophysical Observatory in Victoria. He is one of the original founders of the MSE project, and has served as its Project Scientist since 2014.