

# 国台学术报告 NAOC COLLOQUIUM

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**TIME: Wednesday 3:00 PM, Oct 24, 2012**      **LOCATION: A601 NAOC**

## Finding fossils on our doorstep: How modern surveys are driving our understanding of galaxy evolution



**Dr. Martin C. Smith (SHAO)**

Martin C. Smith is a research professor at the Shanghai Astronomical Observatory, where he has been employed since September 2012. His main research deals with the analysis and interpretation of data from large spectroscopic surveys like SDSS/SEGUE and LAMOST. In particular, he is interested in utilising such data sets to understand both the structure of the Milky Way and its formation. Prior to this he worked at the Kavli Institute in Beijing (2009-2012), the Institute of Astronomy in Cambridge (2007-2009) and at the Kapteyn Institute in the Netherlands (2004-2007). He obtained his Ph.D at the University of Manchester (2000-2003), under the guidance of Shude Mao, studying gravitational microlensing and its application to our understanding of the Milky Way.

### Abstract

Recent years have seen many breakthrough developments in understanding the origins of our galaxy. By looking at the properties of the stars around us we are able to decipher not only the current structure of our galaxy, but also the processes which shaped its evolution. The field of “Galactic Archaeology”, as it has become known, now plays a crucial role in advancing our knowledge of galaxy formation throughout the universe.

Such work can only be undertaken with large and diverse samples of data. My colloquium will review some of the current observational efforts, which are being driven by large multi-national projects. The most significant such survey is the Sloan Digital Sky Survey (SDSS) which, over the past decade, has revolutionised our understanding of this field. I will discuss a selection of their important results, including my own work on the properties of the Galactic disc and halo.

My work has covered a range of topics, focussing on how the kinematics of stars can be used to probe the potential of the Milky Way. The importance of this is that such dynamical methods are able to determine the total distribution of mass, both luminous and dark, thus giving us insights into dark matter in the Milky Way.

I will conclude by discussing some future prospects, introducing the potential impact of the LAMOST project on this field.

*All are welcome! Tea, coffee, biscuits will be served at 2:45 P.M.*