

## Preface

Brown dwarfs and Exoplanets have surprised us because of their unexpected diversity, from almost-room temperature T and Y dwarfs to short and long-period giant planets, from super Earth mass planets to free-floating planetary-mass objects. These fascinating objects are challenging our understanding of planetary and stellar formation and opening new questions about a variety of evolutionary pathways. The detection and characterisation of habitable rocky planets, even odder planets, and ever fainter and cooler brown dwarfs are a strong motivation for the development of new technologies. This international conference focused on the technological developments that are needed to make significant progress on the observational front, leading to cutting edge discoveries of new types of exoplanets and brown dwarfs. It provided a venue to encourage interactions and synergies between specialists in different technologies. The meeting was held at the Jianguo Hotel in Shanghai, China. The participants had the opportunity to witness the total solar eclipse of 22nd of July 2009, which lasted over 5 minutes (the longest of this century), although the viewing from Shanghai itself was not clear because of thick clouds and rain. Nevertheless, some participants were fortunate to catch a clear glimpse of it by traveling by their own means to nearby locations.

The topics covered during the week-long conference were the following: High-precision Astrometry, Optical and Infrared Transits, High-precision Optical and Infrared Doppler Measurements, High-contrast Imaging, Transmission Spectroscopy, High-Sensitivity Spectroscopy, Wide-field Infrared Surveys, and Millimetre and sub millimetre Interferometry.

The members of the Scientific Organizing Committee were the following people: Co-Chair: Eduardo Martin (Spain/USA), Co-Chair: Jian Ge (USA), Co-Chair: Xiangqun Cui (China), Jean Luc Beuzit (France), Magali Deleuil (France), Rudolf Dvorak (Austria), Paul Ho (Taiwan/USA), Xiaoyu Hong (China), David Pinfield (UK), Don Pollacco (UK), Michel Shao (USA), Wes Traub (USA), Ji Yang (China) and Stephane Udry (Switzerland).

The members of the Local Organizing Committee were the following people: Weipeng Lin (chair, SHAO), Li Chen (co-chair, SHAO), Guoxuan Dong (China), Jinxin Hao (China), Liang Cao (SHAO), Rohit Deshpande (USA), Xu-Ce Dong (SHAO), Gang-Jie Gao (SHAO), Scott Fleming (USA), Jia-Xin Han (SHAO), Jane Liu (USA), Wen-Tao Luo (SHAO), Michele Montgomery (USA), Wen-Ting Wang (SHAO), and Yu Yu (SHAO).

The sponsors of the conference were the following institutions: US National Science Foundation, Shanghai Astronomical Observatory, Chinese Academy of Sciences, National Science Foundation of China, Nanjing Institute of Astronomical Optics and Technology, University of Science and Technology of China and Purple Mountain Observatory.





Research, Science and Technology of Brown Dwarfs and Exoplanets

