Precision Instrumentation for Observational Astronomy
用于观测天文学的精密仪器

Link to PDF of poster

JON LAWRENCE, AAO-MACQUARIE

The Australian Astronomical Optics - Macquarie University are internationally recognised for innovation across all areas of technology development for astronomical instrumentation.

XIANGYAN YUAN, NIAOT - CHINA

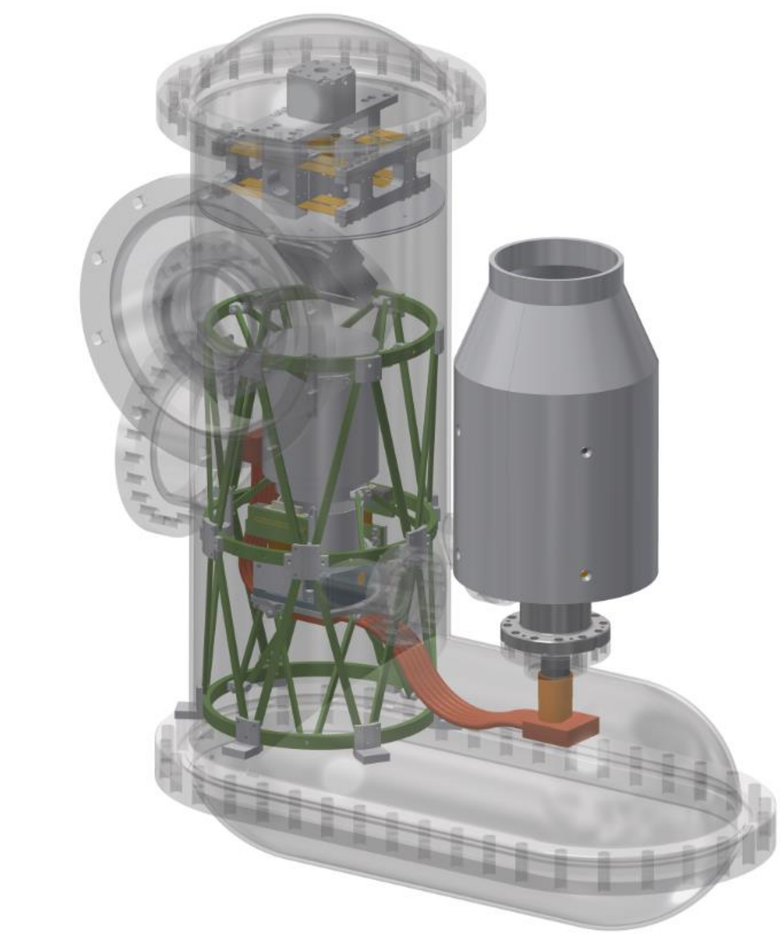
The Nanjing Institute of Astronomical Optics and Technology have a long and successful history in the fabrication and development of telescopes and telescope mirrors, in precision opto-mechanics, and in Antarctic astronomy.

MICHAEL ASHLEY, UNSW, FACULTY OF SCIENCE, SCHOOL OF PHYSICS

The UNSW group has pioneered the field of remote power generation and control systems for Antarctic astronomy.

Astronomical Instrumentation

Observational astronomy utilises sophisticated instrumentation to collect data, in the form of images or spectroscopy of celestial objects. The development of such instrumentation, which includes optical and infrared telescopes, cameras, and spectrographs, requires high-reliability high-precision engineering across multiple disciplines: optics, opto-mechanics, mechatronics and control systems, cryogenics, and software.

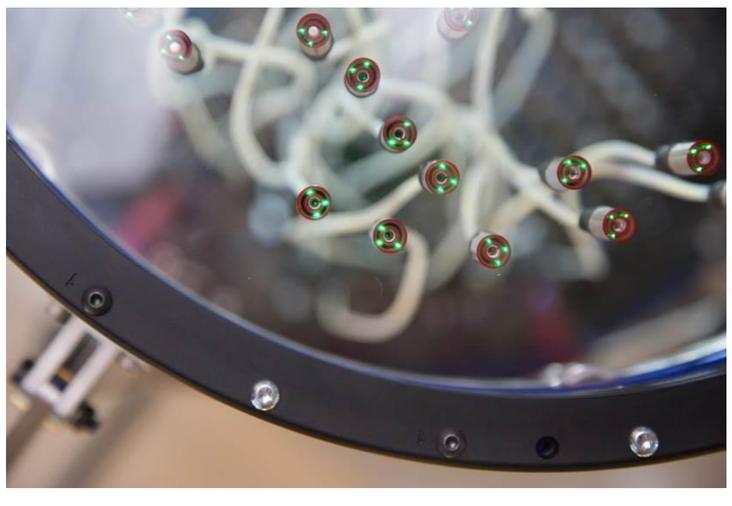


The AST3-NIR/KISS project

The KISS (Kunlun Infrared Sky Survey) project, involving the development of a near-infrared imaging telescope (AST3-NIR), is an example of a recent Australia-China collaboration in this field. AAO-Macquarie are developing the camera (left figure), NIAOT are developing the telescope (right figure), and UNSW are responsible for the power and control system.

Fibre Positioning Robots

NIAOT and AAO-Macquarie have substantial experience in the development of precision mechatronic systems for accurately positioning optical fibres within telescope focal planes, including the LAMOST fixed patrol robots (below left) and the TAIPAN Starbugs robots (below right).



New Opportunities

There are many potential new astronomical instrumentation projects that could bring in new collaborators to augment the skills of the existing team.

All partners are interested in exploring the potential for engaging our expertise in non-astronomical scientific instrumentation, and for use in commercial or industrial applications.

新南威尔士大学火炬创新园区
Torch Innovation Precinct at UNSW

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