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**Ramón Navarro
Colin R. Cunningham
Allison A. Barto**
Editors

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- 9151 24 **The FRD and transmission of the 270-m GRACES optical fiber link and a high numerical aperture fiber for astronomy** [9151-74]
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- 9151 25 **Manufacture of the combined primary and tertiary mirrors of the Large Synoptic Survey Telescope** [9151-18]
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- 9151 26 **Wavefront detection of extended-beacon based on phase-space optics** [9151-75]
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- 9151 27 **The design of force actuator used in extreme low temperature environment** [9151-76]
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- 9151 28 **Adapting large lightweight primary mirror to space active optics capabilities** [9151-77]
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- 9151 2B **Baseline design of the LSST hexapods and rotator** [9151-80]
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- 9151 2D **Mechanical improvement of the interim LMT/GTM primary surface actuators** [9151-82]
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- 9151 2G **Research on high dynamic range information capture of GEO camera** [9151-85]
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- 9151 2M **Active array design for FAME: freeform active mirror experiment** [9151-91]
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- 9151 5C **Birefringence Bragg Binary (3B) grating, quasi-Bragg grating and immersion gratings** [9151-204]
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A. J. Bourque, J. H. Gurian, DynaVac (United States)
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Introduction

This conference covered an extremely broad range of new developments in optical and mechanical technology for telescopes and instrumentation. Most of the key challenges in ground based and space astronomy over the next decade require better and more accurate manufacturing and deployment of optical components and systems as we move to bigger and more complex telescopes. This conference demonstrates the ingenuity and innovation that this community brings to solving these problems, from manufacturing and metrology of large optical components, to the development of novel photonic devices that have the potential for revolutionising how we build instruments in the future.

While many of these developments are incremental and build on years of experience in industry, universities, and research institutes, we also saw some radically new technologies coming closer to serious application on the sky. For instance, we had excellent presentations and posters on new manufacturing techniques such as etched silicon for immersion gratings, ultra-fast laser Inscription for waveguides and gratings, and novel coating methods. Rapid progress was demonstrated on optical devices and light manipulators, such as huge arrays of image slicers, new applications of robotic manipulators such as 'starbugs', and coronagraphic techniques to address the challenges of high contrast imaging and spectroscopy of exoplanets. The challenges of manufacturing large and complex mirrors, such as those for LSST and the ELTs, continues to push metrology techniques to higher precision and faster data processing. We also saw some new ideas for active and lightweight mirrors for space—on the path to build even bigger space telescopes in the future.

Once again, with had a hard time choosing the best oral paper and poster, but were pleased to present awards sponsored by NOVA (the Netherlands Research School for Astronomy) to:

Best Oral Presentation: Bioinspired broadband antireflection coatings for infrared spectroscopic instruments: Peng Jiang, Jian Ge, Bo Zhao, David B. Tanner, (Univ. of Florida, United States)

Best Poster: Core-to-core uniformity improvement in multi-core fiber Bragg gratings: Emma Lindley (Univ. of Sydney, Australia) ; Seong-Sik Min ; Sergio Leon-Saval ; Nick Cvetojevic ; Nemanja Jovanovic ; Joss Bland-Hawthorn ; Jon Lawrence ; Itandehui Gris-Sanchez ; Tim Birks ; Roger Haynes ; Dionne Haynes

We are grateful to the conference committee for addressing the difficult task of formulating the conference programme from a list of submissions that continues to grow with each conference.

Finally, we would like to thank all the participants for contributing to a lively and stimulating conference and would like to welcome as many as possible back for the next one in Edinburgh in 2016, where we can expect many of these technologies to have moved into use and to see more innovations from our vibrant world-wide community of optical and mechanical engineers and scientists.

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