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Ground-based and Airborne Instrumentation for Astronomy II

Ian S. McLean
Mark M. Casali
Editors

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Introduction

Developments in astronomical instrumentation for both ground-based and airborne observatories have never been more intensive or challenging. New instruments are increasingly more complex and sophisticated in design, more demanding in performance, and often more costly to produce. Balancing cost against performance is more important than ever. In addition to the challenges of equipping the largest telescopes such as Keck, VLT, Subaru, Gemini, HET, SALT, GTC, Magellan, and LBT, ideas have already emerged on how to approach instrumentation for even larger telescopes with apertures of 20 meters or more. Equally important, innovative optical/IR instrumentation for many kinds of smaller telescopes has provided new opportunities and challenges in recent years. Adaptive optics, wide-field multi-object surveys, and 3D spectroscopy continue to grow, and optical/IR detectors continue to improve.

This conference on Ground-based and Airborne Instrumentation for Astronomy was established with the following aims: (1) to provide an overview of the performance and lessons learned from those instruments already in operation (partly through invited reviews); (2) to give insight into the design and status of future instruments proposed, planned, or already in development; (3) to create a forum for the exchange of more detailed technical information on achievements and problems amongst instrument builders in both the academic and industrial worlds.

At this conference, more than 250 papers (both poster and oral contributions) were delivered on the design, development, and performance of UV, optical, and infrared instrumentation for both ground-based and airborne astronomy. Specific areas of interest included:

- performance of recently developed instrumentation
- lessons learned from existing major instrumentation programs
- design reports of new instruments: imagers, spectrographs, and polarimeters
- new components/techniques, e.g., IFUs, polarizers, grisms, VPH gratings, and coronagraphs
- instruments for airborne astronomy
- instruments for ground-based solar telescopes
- instrumentation for future extremely large telescopes
- the overlap between AO and instrumentation

The conference was subdivided into 14 sessions spread over 5 days, including a joint session with the associated conference (7015) on Adaptive Optics. There is little doubt that the aims of the meeting were achieved and this record of the proceedings is an impressive testimony to the state of the art in astronomical instrumentation today.

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