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Howard A. MacEwen
Giovanni G. Fazio
Makenzie Lystrup
Editors

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Introduction

This conference met throughout the duration of the SPIE Astronomical Telescopes and Instrumentation Conference 2016 in Edinburgh, Scotland, United Kingdom. It was part of a series of annual conferences addressing systems and technologies in the optical, infrared, and millimeter wavelength region that are held alternately in the Eastern and Western hemispheres, the preceding conference having been held in 2014 in Montreal, Quebec, Canada.

Many of the presentations addressed major milestones in the space telescope development that have recently passed or are rapidly approaching. In particular:

- NASA is currently preparing foundational material for the 2020 Astrophysics Decadal Survey that the National Academies of Science will be starting in about two years. One of the major efforts underway in this project is a set of four community mission concept studies to be presented to the Survey team. The objectives, technologies, approach, teaming, and current status and progress of each of the four Science Technology Definition Teams (STDTs) were presented in a joint session with Conference 9905, Space Telescopes and Instrumentation 2016: Ultraviolet to Gamma Ray.
- The James Webb Space Telescope (JWST) is well along in construction and testing, and is scheduled for launch in October 2018. The current status and development plans for this program were discussed in detail during three oral presentation sessions and in a number of Poster Papers.
- The Euclid dark universe mission of the European Space Agency (ESA) passed its Preliminary Design Review in December 2015, and is ramping up into development, construction, and testing phases. The status of this program was summarized during an oral presentation session and a number of Poster Papers.
- Finally, major technology development efforts for NASA's Wide Field InfraRed Space Telescope (WFIRST) are well underway in preparation for an expected program initiation once funding pressures from the JWST program have eased in the 2017–2018 time frame. Several of these projects were presented during the conference, again both orally and in poster formats.

In addition to the presentations related directly to specific, identifiable programs, there were a number of projects and studies of concepts and technologies in earlier stages of development that were addressed during the conference. This included brief discussion of aspects of systems, some currently operational, some

in various stages of development (including those with technology development well underway), and some still very much in the early concept development stages. A major topic under this heading was the development and testing of coronagraphic technology (both internal and external) for exoplanet detection and characterization (indeed, four oral presentation sessions were devoted to this topic). Other topics addressed under this general heading included infrared technologies and systems (notably for the far infrared); astrometry; deep surveys; new system concepts; advanced telescope technologies; very small satellites; and in-space assembly and servicing for space telescopes.

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