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Mark C. Clampin
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Editors

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 J. Amiaux, Commissariat à l'Énergie Atomique (France); R. Scaramella, INAF - Osservatorio Astronomico di Roma (Italy); Y. Mellier, Institut d'Astrophysique de Paris (France); B. Altieri, European Space Astronomy Ctr. (Spain); C. Burigana, INAF - IASF Bologna (Italy); A. Da Silva, Ctr. de Astrofísica, Univ. do Porto (Portugal); P. Gomez, J. Hoar, European Space Astronomy Ctr. (Spain); R. Laureijs, European Space Research and Technology Ctr. (Netherlands); E. Maiorano, INAF - IASF Bologna (Italy); D. Magalhães Oliveira, Ctr. de Astrofísica, Univ. do Porto (Portugal); F. Renk, European Space Operations Ctr. (Germany); G. Saavedra Criado, European Space Research and Technology Ctr. (Netherlands); I. Tereno, Ctr. de Astronomia e Astrofísica, Univ. de Lisboa (Portugal); J. L. Auguères, Commissariat à l'Énergie Atomique (France); J. Brinchmann, Leiden Observatory, Leiden Univ. (Netherlands); M. Cropper, Mullard Space Science Lab., Univ. College London (United Kingdom); L. Duvet, European Space Research and Technology Ctr. (Netherlands); A. Ealet, Ctr. de Physique des Particules de Marseille (France); P. Franzetti, B. Garilli, INAF - IASF Milano (Italy); P. Gondoin, European Space Research and Technology Ctr.

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- 8442 10 **Wavefront sensing for WFIRST with a linear optical model** [8442-33]
A. S. Jurling, NASA Goddard Space Flight Ctr. (United States) and Institute of Optics, Univ. of Rochester (United States); D. A. Content, NASA Goddard Space Flight Ctr. (United States)
- 8442 11 **Euclid NISP GWA and compensating mechanism** [8442-34]
M. Riva, INAF - Osservatorio Astronomico di Brera (Italy); J.-C. Barriere, CEA-Saclay (France);
D. Ferrand, Observatoire Astronomique de Marseille-Provence (France); T. Maciaszek, Ctr. National d'Études Spatiales (France); E. Prieto, Observatoire Astronomique de Marseille-Provence (France); L. Valenziano, INAF - IASF Bologna (Italy); F. M. Zerbi, INAF - Osservatorio Astronomico di Brera (Italy)

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T. Onaka, The Univ. of Tokyo (Japan); H. Matsuhara, T. Wada, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); D. Ishihara, Nagoya Univ. (Japan); Y. Ohyama, Institute of Astronomy and Astrophysics (Taiwan); I. Sakon, The Univ. of Tokyo (Japan); T. Shimonishi, The Univ. of Tokyo (Japan) and Kobe Univ. (Japan); R. Ohsawa, T. I. Mori, The Univ. of Tokyo (Japan); F. Egusa, F. Usui, S. Takita, H. Murakami, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); S. Oyabu, M. Yamagishi, T. Mori, A. Mouri, T. Kondo, S. Suzuki, H. Kaneda, Nagoya Univ. (Japan); Y. Ita, T. Ootsubo, Astronomical Institute, Tohoku Univ. (Japan)
- 8442 14 **Breakthrough capability for the NASA astrophysics explorer program: reaching the darkest sky** [8442-37]
M. A. Greenhouse, NASA Goddard Space Flight Ctr. (United States); S. W. Benson, R. D. Falck, NASA Glenn Research Ctr. (United States); D. J. Fixsen, Univ. of Maryland, College Park (United States); J. P. Gardner, J. B. Garvin, J. W. Kruk, NASA Goddard Space Flight Ctr. (United States); S. R. Oleson, NASA Glenn Research Ctr. (United States); H. A. Thronson, NASA Goddard Space Flight Ctr. (United States)
- 8442 15 **CASTOR: the Cosmological Advanced Survey Telescope for Optical and Ultraviolet Research** [8442-38]
P. Côte, Herzberg Institute of Astrophysics, National Research Council Canada (Canada); A. Scott, COM DEV Canada (Canada); M. Balogh, Univ. of Waterloo (Canada); R. Buckingham, Northeast Scape (Canada); D. Aldridge, COM DEV Canada (Canada); R. Carlberg, Univ. of Toronto (Canada); W. Chen, COM DEV Canada (Canada); J. Dupuis, Canadian Space Agency (Canada); C. Evans, COM DEV Canada (Canada); L. Drissen, Univ. de Laval (Canada); W. Fraser, Herzberg Institute of Astrophysics, National Research Council Canada (Canada); F. Grandmont, ABB Bomem, Inc. (Canada); P. Harrison, Magellan Aerospace (Canada); J. Hutchings, J. J. Kavelaars, Herzberg Institute of Astrophysics, National Research Council Canada (Canada); J.-T. Landry, ABB Bomem, Inc.

(Canada); C. Lange, D. Laurin, Canadian Space Agency (Canada); T. Patel, V. Pillay, Magellan Aerospace (Canada); L. Piche, A. Rader, COM DEV Canada (Canada); C. Robert, Univ. de Laval (Canada); M. Sawicki, R. Sorba, Saint Mary's Univ. (Canada); G. Theriault, ABB Bomem, Inc. (Canada); L. Van Waerbeke, The Univ. of British Columbia (Canada)

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M. Hazumi, High Energy Accelerator Research Organization (Japan) and The Graduate Univ. for Advanced Studies (Japan); J. Borrill, Lawrence Berkeley National Lab. (United States); Y. Chinone, High Energy Accelerator Research Organization (Japan); M. A. Dobbs, McGill Univ. (Canada); H. Fuke, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); A. Ghribi, Univ. of California, Berkeley (United States); M. Hasegawa, K. Hattori, High Energy Accelerator Research Organization (Japan); M. Hattori, Tohoku Univ. (Japan); W. L. Holzappel, Univ. of California, Berkeley (United States); Y. Inoue, The Graduate Univ. for Advanced Studies (Japan); K. Ishidoshiro, High Energy Accelerator Research Organization (Japan); H. Ishino, Okayama Univ. (Japan); K. Karatsu, National Astronomical Observatory of Japan (Japan); N. Katayama, IPMU, The Univ. of Tokyo (Japan); I. Kawano, Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency (Japan); A. Kibayashi, Y. Kibe, Okayama Univ. (Japan); N. Kimura, High Energy Accelerator Research Organization (Japan); K. Koga, RIKEN (Japan); E. Komatsu, The Univ. of Texas at Austin (United States); A. T. Lee, Univ. of California, Berkeley (United States); H. Matsuhara, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); T. Matsumura, High Energy Accelerator Research Organization (Japan); S. Mima, Okayama Univ. (Japan); K. Mitsuda, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); H. Morii, High Energy Accelerator Research Organization (Japan); S. Murayama, Yokohama National Univ. (Japan); M. Nagai, R. Nagata, High Energy Accelerator Research Organization (Japan); S. Nakamura, K. Natsume, Yokohama National Univ. (Japan); H. Nishino, Univ. of California, Berkeley (United States); A. Noda, Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency (Japan); T. Noguchi, National Astronomical Observatory of Japan (Japan); I. Ohta, Kinki Univ. (Japan); C. Otani, RIKEN (Japan); P. L. Richards, Univ. of California, Berkeley (United States); S. Sakai, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); N. Sato, High Energy Accelerator Research Organization (Japan); Y. Sato, Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency (Japan); Y. Sekimoto, National Astronomical Observatory of Japan (Japan); A. Shimizu, The Graduate Univ. for Advanced Studies (Japan); K. Shinozaki, H. Sugita, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); A. Suzuki, Univ. of California, Berkeley (United States); T. Suzuki, O. Tajima, High Energy Accelerator Research Organization (Japan); S. Takada, Univ. of Tsukuba (Japan); Y. Takagi, Yokohama National Univ. (Japan); Y. Takei, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); T. Tomaru, High Energy Accelerator Research Organization (Japan); Y. Uzawa, National Astronomical Observatory of Japan (Japan); H. Watanabe, The Graduate Univ. for Advanced Studies (Japan); N. Yamasaki, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); M. Yoshida, High Energy Accelerator Research Organization (Japan); T. Yoshida, ISAS, Institute of Space and Aeronautical Science, Japan Aerospace

Exploration Agency (Japan); K. Yotsumoto, ARD, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan)

- 8442 1A **WISH for deep and wide NIR surveys** [8442-43]
T. Yamada, Astronomical Institute, Tohoku Univ. (Japan); I. Iwata, Subaru Telescope, National Astronomical Observatory of Japan (United States); M. Ando, Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency (Japan); M. Doi, Institute for Astronomy, The Univ. of Tokyo (Japan); T. Goto, Institute for Astronomy, Univ. of Hawai'i (United States); Y. Ikeda, Photocoding Inc. (Japan); M. Imanishi, Subaru Telescope, National Astronomical Observatory of Japan (United States); A. K. Inoue, Osaka Sangyo Univ. (Japan); S. Iwamura, MRJ (Japan); N. Kawai, Tokyo Institute of Technology (Japan); M. A. R. Kobayashi, National Astronomical Observatory of Japan (Japan); T. Kodama, Subaru Telescope, National Astronomical Observatory of Japan (Japan); Y. Komiyama, National Astronomical Observatory of Japan (Japan); M. Kubo, National Astronomical Institute, Tohoku Univ. (Japan); H. Matsuhara, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); K. Mawatari, Astronomical Institute, Tohoku Univ. (Japan); Y. Matsuoka, Nagoya Univ. (Japan); T. Morokuma, Institute of Astronomy, The Univ. of Tokyo (Japan); H. Nakaya, National Astronomical Observatory of Japan (Japan); K. Ohta, Kyoto Univ. (Japan); A. Okamoto, Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency (Japan); S. Oyabu, Nagoya Univ. (Japan); Y. Sato, H. Sugita, Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency (Japan); R. Tsutsui, Research Ctr. for the Early Universe, The Univ. of Tokyo (Japan); C. Tokoku, Institute of Cosmic Ray Research, The Univ. of Tokyo (Japan); J. Toshikawa, S. Tsuneta, National Astronomical Observatory of Japan (Japan); T. Wada, Institute of Space and Aeronautical Science, Japan Aerospace Exploration Agency (Japan); K. Yabe, National Astronomical Observatory of Japan (Japan); N. Yasuda, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); D. Yonetoku, Kanazawa Univ. (Japan)
- 8442 1B **The i-INSPIRE satellite: a university pico-satellite project** [8442-44]
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- 8442 1C **FalconSAT-7: a membrane photon sieve CubeSat solar telescope** [8442-45]
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- 8442 1D **A conceptual design of a near infrared satellite for PAH survey** [8442-46]
C. Xu, Shanghai Institute of Technical Physics (China); J. Deng, National Astronomical Observatories (China); Y. Zhang, Institute of Microsystem and Information Technology (China)

- 8442 1F **The Exoplanet Characterization Observatory (EChO): performance model *EclipseSim* and applications** [8442-48]
R. van Boekel, Max-Planck-Institut für Astronomie (Germany); B. Benneke, Massachusetts Institute of Technology (United States); K. Heng, Institute for Astronomy, ETH Zürich (Switzerland); R. Hu, Massachusetts Institute of Technology (United States); N. Madhusudhan, Yale Univ. (United States); S. Quanz, Institute for Astronomy, ETH Zürich (Switzerland); Y. Bétrémieux, J. Bouwman, G. Chen, Max-Planck-Institut für Astronomie (Germany); L. Decin, Institute of Astronomy, Katholieke Univ. Leuven (Belgium); R. de Kok, SRON Netherlands Institute for Space Research (Netherlands); A. Glauser, Max-Planck-Institut für Astronomie (Germany); M. Güdel, Univ. of Vienna (Austria); P. Hauschildt, Hamburger Sternwarte (Germany); T. Henning, Max-Planck-Institut für Astronomie (Germany); S. Jeffers, Institut für Astrophysik Göttingen (Germany); S. Jin, Max-Planck-Institut für Astronomie (Germany); L. Kaltenegger, Max-Planck-Institut für Astronomie (Germany) and Harvard-Smithsonian Ctr. for Astrophysics (United States); F. Kerschbaum, Univ. of Vienna (Austria); O. Krause, Max-Planck-Institut für Astronomie (Germany); H. Lammer, Institut für Weltraumforschung (Austria); A. Luntzer, Univ. of Vienna (Austria); M. Meyer, Institute for Astronomy, ETH Zürich (Switzerland); Y. Miguel, C. Mordasini, Max-Planck-Institut für Astronomie (Germany); R. Ottensamer, T. Rank-Lueffinger, Univ. of Vienna (Austria); A. Reiners, T. Reinhold, Institut für Astrophysik Göttingen (Germany); H. Schmid, Institute for Astronomy, ETH Zürich (Switzerland); I. Snellen, Leiden Observatory, Leiden Univ. (Netherlands); D. Stam, SRON Netherlands Institute for Space Research (Netherlands); Z. Sun, Max-Planck-Institut für Astronomie (Germany); B. Vandenbussche, Institute of Astronomy, Katholieke Univ. Leuven (Belgium)
- 8442 1G **An integrated payload design for the Exoplanet Characterisation Observatory (EChO)** [8442-49]
B. Swinyard, Univ. College London (United Kingdom) and Rutherford Appleton Lab. (United Kingdom); G. Tinetti, Univ. College London (United Kingdom); P. Eccleston, Rutherford Appleton Lab. (United Kingdom); A. Adriani, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy); J.-P. Beaulieu, Institut d'Astrophysique, CNRS, Univ. Paris VI (France); A. Coustenis, LESIA, CNRS, Observatoire de Paris (France); T. Belenguer Davila, Instituto Nacional de Técnica Aeroespacial (Spain); N. Bowles, Oxford Univ. (United Kingdom); I. Bryson, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); V. Coudé du Foresto, LESIA, CNRS, Observatoire de Paris (France); M. Ferlet, Rutherford Appleton Lab. (United Kingdom); P. Hartogh, Max-Planck-Institute for Solar System Research (Germany); P.-O. Lagage, Service d'Astrophysique, CEA-Saclay (France); T. Lim, Rutherford Appleton Lab. (United Kingdom); G. Malaguti, INAF - IASF Bologna (Italy); M. López-Morales, Institut de Ciències de l'Espai (Spain); G. Micela, INAF - Osservatorio Astronomico di Palermo (Italy); G. Morgante, INAF - IASF Bologna (Italy); H. U. Nørgaard-Nielsen, DTU Space (Denmark); M. Ollivier, Institut d'Astrophysique Spatiale, CNRS, Univ. de Paris-Sud (France); E. Pace, Univ. degli studi di Firenze (Italy); E. Pascale, Cardiff Univ. (United Kingdom); G. Piccioni, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy); G. Ramos Zapata, Instituto Nacional de Técnica Aeroespacial (Spain); J.-M. Reess, LESIA, CNRS, Observatoire de Paris (France); I. Ribas, Institut de Ciències de l'Espai (Spain); A. Sozzetti, INAF - Osservatorio Astrofisico di Torino (Italy); J. Tennyson, M. Tessenyi, Univ. College London (United Kingdom); M. R. Swain, Jet Propulsion Lab. (United States); B. Winter, Mullard Space Science Lab., Univ. College London (United Kingdom); I. Waldmann, Univ. College London (United Kingdom); G. Wright, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); M. Zapatero Osorio, Ctr. de Astrobiología, Instituto Nacional de Técnica Aeroespacial (Spain);

- 8442 1H **Visible/infrared spectrometer for EChO** [8442-50]
 O. Krause, A. M. Glauser, R. van Boekel, Max-Planck-Institut für Astronomie (Germany);
 M. Güdel, Univ. Wien (Austria); T. Henning, Max-Planck-Institut für Astronomie (Germany);
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 Zürich (Switzerland); J.-R. Schrader, SRON Netherlands Institute for Space Research
 (Netherlands); U. J. Wehmeier, ETH Zürich (Switzerland)
- 8442 1I **Design of the MWIR channels of EChO** [8442-51]
 J. M. Reess, LESIA, CNRS, Observatoire de Paris (France); G. Tinetti, Univ. College London
 (United Kingdom); N. Baier, CEA-LETI MINATEC (France); J. F. Beaulieu, Institut
 d'Astrophysique de Paris (France); P. Bernardi, LESIA, CNRS, Observatoire de Paris (France);
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 G. Morinaud, M. Ollivier, Institut d'Astrophysique Spatiale, CNRS, Univ. Paris-Sud (France);
 F. Pinsard, Lab. AIM, CNRS, Univ. Paris Diderot (France); J. P. Zanatta, CEA-LETI MINATEC
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- 8442 1L **The thermal sieve: a diffractive baffle that provides thermal isolation of a cryogenic optical system from an ambient temperature collimator** [8442-55]
 J. H. Burge, D. W. Kim, College of Optical Sciences, The Univ. of Arizona (United States)
- 8442 1M **Innovative optical setup for testing a stereo camera for space applications** [8442-56]
 G. Nalletto, Univ. degli Studi di Padova (Italy), CNR-Istituto di Fotonica e Nanotecnologie
 (Italy), and INAF - Osservatorio Astronomico di Padova (Italy); M. Cesaro, Univ. degli Studi
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 degli Studi di Padova (Italy); G. Cremonese, INAF - Osservatorio Astronomico di Padova
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 C. Re, Univ. degli Studi di Padova (Italy) and Univ. degli Studi di Parma (Italy); R. Roncella,
 Univ. degli Studi di Parma (Italy); G. Salemi, Univ. degli Studi di Padova (Italy); E. Simioni,
 CNR-Istituto di Fotonica e Nanotecnologie (Italy)

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- 8442 1O **A metrology concept for multiple telescope astrometry** [8442-58]
M. Gai, D. Busonero, A. Riva, INAF - Osservatorio Astronomico di Torino (Italy)
- 8442 1P **Gaia's FPA: sampling the sky in silicon** [8442-59]
R. Kohley, European Space Astronomy Ctr. (Spain); P. Garé, European Space Research and Technology Ctr. (Netherlands); C. Vétel, D. Marchais, F. Chassat, EADS Astrium (France)
- 8442 1Q **Gaia in-orbit realignment: overview and data analysis** [8442-60]
A. Mora, European Space Astronomy Ctr. (Spain) and Aurora Technology (Netherlands); A. Vosteen, TNO (Netherlands)
- 8442 1R **Gaia basic angle monitoring system** [8442-61]
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O. Guyon, G. Schneider, Steward Observatory, The Univ. of Arizona (United States); R. Belikov, NASA Ames Research Ctr. (United States); D. J. Tenerelli, Lockheed Martin Space Systems Co. (United States)
- 8442 1T **Using the ISS as a testbed to prepare for the next generation of space-based telescopes** [8442-63]
M. Postman, W. B. Sparks, Space Telescope Science Institute (United States); F. Liu, Jet Propulsion Lab. (United States); K. Ess, NASA Johnson Space Flight Ctr. (United States); J. Green, Jet Propulsion Lab. (United States); K. G. Carpenter, H. Thronson, NASA Goddard Space Flight Ctr. (United States); R. Goullioud, Jet Propulsion Lab. (United States)
- 8442 1U **Wide Field Infrared Survey Telescope [WFIRST]: telescope design and simulated performance** [8442-64]
R. Goullioud, Jet Propulsion Lab. (United States); D. A. Content, NASA Goddard Space Flight Ctr. (United States); G. M. Kuan, J. D. Moore, Z. Chang, E. T. Sunada, Jet Propulsion Lab. (United States); J. Villalvazo, Applied Sciences Lab., Inc. (United States); J. P. Hawk, NASA Goddard Space Flight Ctr. (United States); N. V. Armani, SGT, Inc. (United States); E. L. Johnson, C. A. Powell, NASA Goddard Space Flight Ctr. (United States)

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- 8442 1V **Performance and calibration of the HST Wide Field Camera 3** [8442-65]
J. W. MacKenty, Space Telescope Science Institute (United States)

- 8442 1W **Characterizing persistence in the IR detector within the Wide Field Camera 3 instrument on the Hubble Space Telescope** [8442-66]
K. S. Long, S. M. Baggett, J. W. MacKenty, A. G. Riess, Space Telescope Science Institute (United States)
- 8442 1X **A Spitzer IRAC measure of the zodiacal light** [8442-67]
J. E. Krick, W. J. Glaccum, S. J. Carey, P. J. Lowrance, J. A. Surace, J. G. Ingalls, Spitzer Science Ctr., California Institute of Technology (United States); J. L. Hora, Harvard-Smithsonian Ctr. for Astrophysics (United States); W. T. Reach, SOFIA, NASA Ames Research Ctr. (United States)
- 8442 1Y **Intra-pixel gain variations and high-precision photometry with the Infrared Array Camera (IRAC)** [8442-68]
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- 8442 1Z **Absolute photometric calibration of IRAC: lessons learned using nine years of flight data** [8442-69]
S. Carey, J. Ingalls, Spitzer Science Ctr., California Institute of Technology (United States); J. Hora, Harvard-Smithsonian Ctr. for Astrophysics (United States); J. Surace, W. Glaccum, P. Lowrance, J. Krick, D. Cole, S. Laine, Spitzer Science Ctr., California Institute of Technology (United States); C. Engelke, S. Price, Institute for Scientific Research, Boston College (United States); R. Bohlin, K. Gordon, Space Telescope Science Institute (United States)

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- 8442 20 **Space active optics: performance of a deformable mirror for in-situ wave-front correction in space telescopes** [8442-70]
M. Laslandes, C. Hourtoule, E. Hugot, M. Ferrari, Lab. d'Astrophysique de Marseille, CNRS, Aix Marseille Univ. (France); C. Lopez, Thales SESO (France); C. Devilliers, A. Liotard, Thales Alenia Space (France); F. Chazallet, Shaktiware (France)
- 8442 21 **MOIRE: initial demonstration of a transmissive diffractive membrane optic for large lightweight optical telescopes** [8442-71]
P. D. Atcheson, C. Stewart, J. Domber, K. Whiteaker, J. Cole, P. Spuhler, A. Seltzer, Ball Aerospace & Technologies Corp. (United States); J. A. Britten, S. N. Dixit, Lawrence Livermore National Lab. (United States); B. Farmer, L. Smith, NeXolve Corp. (United States)
- 8442 22 **Spherical primary optical telescope (SPOT) segments** [8442-72]
C. Hall, QED Technologies, Inc. (United States); J. Hagopian, NASA Goddard Space Flight Ctr. (United States); M. DeMarco, QED Technologies, Inc. (United States)
- 8442 23 **The path to far-IR interferometry in space: recent developments, plans, and prospects** [8442-73]
D. Leisawitz, S. A. Rinehart, NASA Goddard Space Flight Ctr. (United States)

- 8442 24 **Update on multivariable parametric cost models for ground and space telescopes** [8442-75]
H. P. Stahl, NASA Marshall Space Flight Ctr. (United States); T. Henrichs, Middle Tennessee State Univ. (United States); A. Luedtke, Brown Univ. (United States); M. West, The Univ. of Texas at Austin (United States)

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- 8442 25 **Design of large aperture solar optical telescope for the SOLAR-C mission** [8442-76]
Y. Suematsu, Y. Katsukawa, H. Hara, National Astronomical Observatory of Japan (Japan); T. Shimizu, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); K. Ichimoto, Hida Observatory, Kyoto Univ. (Japan)
- 8442 26 **In-orbit determination of the straylight in the SOHO/LASCO-C2 coronagraph and its temporal evolution** [8442-77]
A. Llebaria, J. Loirat, P. Lamy, Observatoire Astronomique de Marseille-Provence, CNRS, Univ. de Provence (France)
- 8442 27 **Optimization of the occulter for the Solar Orbiter/METIS coronagraph** [8442-78]
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- 8442 29 **Science operations with the James Webb Space Telescope** [8442-80]
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- 8442 2L **JWST's cryogenic position metrology system** [8442-91]
T. L. Whitman, ITT Exelis Geospatial Systems (United States); R. P. Hammond, J. Orndorff, S. Hope, S. A. Smee, The Johns Hopkins Univ. (United States); T. Scorse, K. A. Havey, Jr., ITT Exelis Geospatial Systems (United States)

- 8442 2M **Status of the James Webb Space Telescope integrated science instrument module** [8442-92]
R. A. Lundquist, NASA Goddard Space Flight Ctr. (United States); V. Balzano, Space Telescope Science Institute (United States); P. Davila, M. P. Drury, J. L. Dunn, S. D. Glazer, M. A. Greenhouse, E. Greville, G. Henegar, E. L. Johnson, J. C. McCloskey, R. G. Ohl IV, R. A. Rashford, G. C. Hobbs, S. Lambros, D. McGuffey, M. F. Voyton, NASA Goddard Space Flight Ctr. (United States)

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- 8442 2O **The JWST near-infrared spectrograph NIRSpec: status** [8442-94]
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- 8442 2Q **Ambient alignment verification of JWST-MIRI** [8442-96]
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- 8442 2R **The JWST Fine Guidance Sensor (FGS) and Near-Infrared Imager and Slitless Spectrograph (NIRISS)** [8442-97]
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- 8442 2S **Non-redundant Aperture Masking Interferometry (AMI) and segment phasing with JWST-NIRISS** [8442-98]
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- 8442 2T **The Exoplanet Characterisation Observatory (EChO) payload electronics** [8442-99]
M. Focardi, M. Pancrazzi, Univ. degli studi di Firenze (Italy); A. M. Di Giorgio, S. Pezzuto, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy); G. Micela, INAF - Osservatorio Astronomico di Palermo (Italy); E. Pace, Univ. degli studi di Firenze (Italy)
- 8442 2U **Mechanical and thermal architecture of an integrated payload instrument for the Exoplanet Characterisation Observatory** [8442-102]
P. Eccleston, T. Bradshaw, Rutherford Appleton Lab. (United Kingdom); J. Coker, Mullard Space Science Lab., Univ. College London (United Kingdom); M. Crook, Rutherford Appleton Lab. (United Kingdom); G. Morgante, L. Terenzi, INAF - IASF Bologna (Italy); B. M. Swinyard, Rutherford Appleton Lab. (United Kingdom); B. Winter, Mullard Space Science Lab., Univ. College London (United Kingdom)
- 8442 2V **EChO SWIR: exoplanet atmospheres characterization observatory sort-wave infrared channel of the EChO payload** [8442-103]
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- 8442 2W **The visible and near infrared (VNIR) spectrometer of EChO** [8442-104]
A. Adriani, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy); E. Oliva, INAF - Osservatorio Astrofisico di Arcetri (Italy); G. Piccioni, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy); E. Pace, M. Focardi, Univ. degli Studi di Firenze (Italy); C. Di Turi, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy) and Univ. degli Studi di Roma La Sapienza (Italy); G. Filacchione, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy); M. Pancrazzi, Univ. degli Studi di Firenze (Italy); A. Tozzi, D. Ferruzzi, C. Del Vecchio, INAF - Osservatorio Astrofisico di Arcetri (Italy); F. Capaccioni, INAF - Istituto di Astrofisica e Planetologia Spaziali (Italy); G. Micela, INAF - Osservatorio Astronomico di Palermo (Italy)

- 8442 27 **A detector technology investigation for the Exoplanet Characterisation Observatory (EChO)** [8442-107]
E. Pascale, Cardiff Univ. (United Kingdom); S. Forder, P. Knowles, SELEX Galileo Infrared Ltd. (United Kingdom); R. V. Sudiwala, Cardiff Univ. (United Kingdom); B. Swinyard, M. Tessenyi, Univ. College London (United Kingdom)
- 8442 30 **The study of magnetic activity and exoplanet magnetospheres using EChO VNIR-channel spectropolarimetry** [8442-108]
M. Focardi, M. Pancrazi, E. Pace, Univ. degli studi di Firenze (Italy); S. N. Shore, Univ. degli studi di Pisa (Italy) and National Institute of Nuclear Physics (Italy)

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- 8442 31 **An end-to-end approach to the EUCLID NISP on-board pre-processing operations: tests and latest results** [8442-109]
C. Bonoli, F. Bortoletto, M. D'Alessandro, INAF - Osservatorio Astronomico di Padova (Italy); L. Corcione, S. Ligi, INAF - Osservatorio Astronomico di Torino (Italy); L. Nicastro, M. Trifoglio, L. Valenziano, INAF - IASF Bologna (Italy); F. M. Zerbi, INAF - Osservatorio Astronomico di Brera (Italy); P.-E. Crouzet, A. Jung, European Space Research and Technology Ctr. (Netherlands)
- 8442 32 **The on-board electronics for the near infrared spectrograph and photometer (NISP) of the EUCLID Mission** [8442-110]
L. Corcione, S. Ligi, INAF - Osservatorio Astrofisico di Torino (Italy); F. Bortoletto, C. Bonoli, INAF - Osservatorio Astronomico di Padova (Italy); L. Valenziano, INAF - IASF Bologna (Italy); R. Toledo-Moreo, Univ. Politécnic de Cartagena (Spain); M. D'Alessandro, INAF - Osservatorio Astronomico di Padova (Italy); M. Trifoglio, G. Morgante, INAF - IASF Bologna (Italy); C. Colodro-Conde, Univ. Politécnic de Cartagena (Spain); R. Reboló-López, Instituto de Astrofísica de Canarias (Spain); J. Muñoz, SENER Ingeniería y Sistemas SA (Spain); I. Villò, Univ. Politécnic de Cartagena (Spain)
- 8442 33 **The command and data processing unit of the EUCLID visible imager: impact of the data compression needs on the unit design** [8442-111]
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- 8442 34 **Euclid NISP thermal control design** [8442-112]
G. Morgante, INAF - IASF Bologna (Italy); T. Maciaszek, Ctr. National d'Etudes Spatiales (France); L. Martin, Lab. d'Astrophysique de Marseille (France); M. Riva, INAF - Osservatorio Astronomico di Brera (Italy); F. Bortoletto, INAF - Osservatorio Astronomico di Padova (Italy); E. Prieto, Lab. d'Astrophysique de Marseille (France); C. Bonoli, INAF - Osservatorio Astronomico di Padova (Italy); L. Corcione, INAF - Osservatorio Astronomico di Torino (Italy); V. De Caprio, INAF - IASF Milano (Italy); F. Grupp, Max-Planck-Institut für extraterrestrische Physik (Germany); S. Ligi, INAF - Osservatorio Astronomico di Torino (Italy); M. Trifoglio, L. Valenziano, INAF - IASF Bologna (Italy); F. M. Zerbi, INAF - Osservatorio Astronomico di Brera (Italy)

- 8442 35 **Design concept of the electrical ground support equipment for the AIV and calibration of the Euclid NISP instrument** [8442-113]
M. Trifoglio, INAF - IASF Bologna (Italy); C. Bonoli, F. Bortoletto, INAF - Osservatorio Astronomico di Padova (Italy); A. Bulgarelli, C. R. Butler, INAF - IASF Bologna (Italy); C. Colodro-Conde, Univ. Politécnica de Cartagena (Spain); V. Conforti, INAF - IASF Bologna (Italy); L. Corcione, INAF - Osservatorio Astronomico di Torino (Italy); E. Franceschi, F. Gianotti, INAF - IASF Bologna (Italy); S. Ligori, INAF - Osservatorio Astronomico di Torino (Italy); T. Maciaszek, Ctr. National d'Études Spatiales (France); G. Morgante, INAF - IASF Bologna (Italy); J. Muñoz, SENER Ingeniería y Sistemas S.A. (Spain); L. Nicastro, INAF - IASF Bologna (Italy); E. Prieto, Observatoire Astronomique de Marseille-Provence (France); R. Rebolo-López, Instituto de Astrofísica de Canarias (Spain); M. Riva, P. Spano, INAF - Osservatorio Astronomico di Brera (Italy); R. Toledo-Moreo, Univ. Politécnica de Cartagena (Spain); L. Valenziano, INAF - IASF Bologna (Italy); I. Villó, Univ. Politécnica de Cartagena (Spain); F. M. Zerbi, INAF - Osservatorio Astronomico di Brera (Italy)

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- 8442 37 **Keeping the Hubble Space Telescope in focus** [8442-115]
C. Cox, M. Lallo, Space Telescope Science Institute (United States)
- 8442 38 **Modifications to the warm Spitzer data reduction pipeline** [8442-117]
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- 8442 39 **The IRAC point response function in the warm Spitzer mission** [8442-118]
J. L. Hora, Harvard-Smithsonian Ctr. for Astrophysics (United States); M. Marengo, R. Park, D. Wood, Iowa State Univ. (United States); W. F. Hoffmann, The Univ. of Arizona (United States); P. J. Lowrance, S. J. Carey, J. A. Surace, J. E. Krick, W. J. Glaccum, J. G. Ingalls, S. Laine, Spitzer Science Ctr., California Institute of Technology (United States); G. G. Fazio, M. L. Ashby, Z. Wang, Harvard-Smithsonian Ctr. for Astrophysics (United States)

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- 8442 3A **Optical transmission for the James Webb Space Telescope** [8442-119]
P. A. Lightsey, B. B. Gallagher, N. Nickles, T. Copp, Ball Aerospace & Technologies Corp. (United States)
- 8442 3B **James Webb Space Telescope stray light performance status update** [8442-120]
P. A. Lightsey, Z. Wei, Ball Aerospace & Technologies Corp. (United States)
- 8442 3C **Multi-field alignment of the James Webb Space Telescope** [8442-121]
D. S. Acton, J. S. Knight, Ball Aerospace & Technologies Corp. (United States)
- 8442 3D **Simulating point spread functions for the James Webb Space Telescope with WebbPSF** [8442-122]
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- 8442 3E **The Near Infrared Spectrograph (NIRSpec) on-ground calibration campaign** [8442-123]
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- 8442 3F **The spectro-photometric calibration of the JWST NIRSpec instrument** [8442-124]
T. Böker, S. Birkmann, G. de Marchi, P. Ferruit, G. Giardino, M. Sirianni, European Space Research and Technology Ctr. (Netherlands); T. Beck, Space Telescope Science Institute (United States)
- 8442 3G **The accuracy of the NIRSpec grating wheel position sensors** [8442-125]
G. De Marchi, S. M. Birkmann, T. Böker, P. Ferruit, G. Giardino, M. Sirianni, European Space Research and Technology Ctr. (Netherlands); M. Stuhlinger, European Space Astronomy Ctr. (Spain); M. B. te Plate, J.-C. Salvignol, European Space Research and Technology Ctr. (Netherlands); R. Barho, X. Gnata, R. Lemke, M. Kosse, P. Mosner, EADS Astrium GmbH (Germany)
- 8442 3H **James Webb Space Telescope first light boresight to spacecraft alignment determination** [8442-126]
P. A. Lightsey, D. S. Acton, J. S. Knight, A. Contos, Ball Aerospace & Technologies Corp. (United States)
- 8442 3I **Global alignment optimization strategies, procedures, and tools for the James Webb Space Telescope (JWST) Integrated Science Instrument Module (ISIM)** [8442-127]
B. J. Bos, J. M. Howard, NASA Goddard Space Flight Ctr. (United States); P. J. Young, Young Engineering Services (United States); R. Gracey, Ball Aerospace & Technologies Corp. (United States); L. T. Seals, R. G. Ohl, NASA Goddard Space Flight Ctr. (United States)
- 8442 3J **Measuring segmented primary mirror WFE in the presence of vibration and thermal drift on the light-weighted JWST** [8442-128]
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- 8442 3K **Cryogenic performance test results for the flight model JWST fine guidance sensor** [8442-130]
N. Rowlands, S. Delamer, C. Haley, E. Harpell, M. B. Vila, G. Warner, J. Zhou, COM DEV Space Systems (Canada)
- 8442 3M **Space environment challenges with the tunable Fabry-Pérot etalon for the JWST fine guidance sensor** [8442-133]
C. Haley, N. Roy, Z. Osman, N. Rowlands, A. Scott, COM DEV Canada (Canada)

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- 8442 3P **The focal plane camera for fine guiding and NIR survey on SPICA** [8442-138]
D.-H. Lee, W.-S. Jeong, Korea Astronomy and Space Science Institute (Korea, Republic of); T. Matsumoto, Korea Astronomy and Space Science Institute (Korea, Republic of) and Institute of Astronomy and Astrophysics (Taiwan); B. Moon, W. Han, Y. Park, K. Park, U.-W. Nam, Korea Astronomy and Space Science Institute (Korea, Republic of); C. Lee, Korea Advanced Institute of Science and Technology (Korea, Republic of); S. Mitani, Japan Aerospace Exploration Agency (Japan)
- 8442 3Q **High-resolution and high-precision color-differential astrometry for direct spectroscopy of extrasolar planets onboard SPICA: science and validation experiment** [8442-139]
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- 8442 3R **SPICA/SAFARI Fourier transform spectrometer mechanism evolutionary design** [8442-140]
T. C. van den Dool, B. Kruizinga, B. C. Braam, TNO (Netherlands); R. F. M. M. Hamelinck, Entechna Engineering (Netherlands); N. Loix, Micromega Dynamics S.A. (Belgium); D. Van Loon, SRON Netherlands Institute for Space Research (Netherlands); J. Dams, Magnetic Innovations BV (Netherlands)
- 8442 3S **Recent progress in the development of mid-infrared medium resolution spectrometer (MRS) installed in SPICA/MCS** [8442-141]
I. Sakon, The Univ. of Tokyo (Japan); H. Kataza, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); T. Onaka, R. Ohsawa, The Univ. of Tokyo (Japan); Y. Okada, Univ. zu Köln (Germany); Y. Ikeda, N. Fujishiro, Photocoding Inc. (Japan) and Kyoto Sangyo Univ. (Japan); K. Mitsui, N. Okada, National Astronomical Observatory of Japan (Japan)
- 8442 3T **Experimental and numerical study of stitching interferometry for the optical testing of the SPICA Telescope** [8442-142]
H. Kaneda, Nagoya Univ. (Japan); M. Naitoh, T. Imai, H. Katayama, Earth Observation Research Ctr., Japan Aerospace Exploration Agency (Japan); T. Onaka, The Univ. of Tokyo (Japan); T. Nakagawa, M. Kawada, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); M. Yamagishi, T. Kokusho, Nagoya Univ. (Japan)
- 8442 3U **Cooled scientific instrument assembly onboard SPICA** [8442-143]
H. Matsuhara, T. Nakagawa, Y. Kawakatsu, H. Murakami, M. Kawada, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); H. Sugita, T. Yamawaki, S. Mitani, K. Shinozaki, Y. Sato, Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency (Japan); G. Crone, K. Isaak, A. Heske, European Space Research and Technology Ctr. (Netherlands)
- 8442 3V **Detector systems for the mid-infrared camera and spectrometer on board SPICA** [8442-145]
T. Wada, H. Kataza, H. Matsuhara, M. Kawada, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); D. Ishihara, Nagoya Univ. (Japan)

- 8442 3W **The instrument control unit of SPICA SAFARI: a macro-unit to host all the digital control functionalities of the spectrometer** [8442-146]
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Introduction

A broad range of optical, infrared, and millimeter wave space telescopes and instruments are enabling a dramatically increased understanding of the origin and structure of the universe, the numbers and characteristics of exosolar planets, and other questions of profound astrophysics importance. The same foundational instrument technologies are also providing increasingly detailed solar studies and enabling new lunar and planetary missions. This conference, part of a continuing series of biannual symposia, was structured to provide a broad overview of these concepts and technologies, including performance and early results from recently launched systems, status reports on planned systems, and insights into new technologies and concepts for future systems.

The conference consisted of a total of 96 oral presentations divided among 19 sessions that were conducted over a total of six days. These were supplemented by a one day poster session that included 87 poster presentations.

Currently active and planned missions addressed within the conference included:

- Astrophysics: Current and recent missions included Hubble, Spitzer, AKARI, and Herschel. Planned missions under active development included GAIA, JWST, WFIRST, EUCLID, EChO, and several Explorer class missions.
- Solar System Missions: SOHO, SOLAR-C, and Rosetta.

The Conference explored the current state of the art of space telescope and observatory concepts, technologies from the visible through the infrared to millimeter wave. The meeting elicited ideas responsive to current risks and opportunities. Papers were presented that addressed multiple topic areas, including the following:

- Optical, IR, and millimeter wave astronomical space telescopes and instruments including their on-orbit performance:
 - Concepts and technologies for exoplanet detection and characterization
 - Approaches to increasing insight into dark matter and dark energy and the origin, evolution, and structure of the universe
- Innovative telescopes and instrumentation for solar system studies:
 - Solar astrophysics
 - Structure and evolution of the constituent bodies, large and small, of the solar system
- Highly innovative space telescope and instrument concepts
- Smaller and more affordable mission concepts:
 - Technology demonstrations
 - Expanded performance of space telescopes against additional science questions

- Life cycles and costs that support student involvement while producing valuable science
- Enabling subsystem and component technologies for space telescopes, such as:
 - Innovative real time metrology and wavefront sensing and control
 - Technologies and architectures for achieving high thermal stability of large telescopes
 - New detector and sensor technologies
 - Enhanced spectrometers
 - Coating technologies
- Approaches that leverage results and programs in other areas:
 - Balloon and sounding rocket astronomical observatories and instruments
 - Synergism with science missions in other spectral regions
 - Earth observation concepts and technologies
- Systems engineering for space telescopes, to include:
 - System modeling of telescopes and space observatories and simulations of their performance
 - Ground fabrication, integration, and testing of telescopes, instruments, and complete telescope structures and observatories

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