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Ground-based and Airborne Instrumentation for Astronomy IV

**Ian S. McLean
Suzanne K. Ramsay
Hideki Takami**
Editors

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8446 OT **4MOST: 4-metre multi-object spectroscopic telescope** [8446-27]

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8446 OU **Final design of SITELE: a wide-field imaging Fourier transform spectrometer for the Canada-France-Hawaii Telescope** [8446-28]
F. Grandmont, ABB (Canada); L. Drissen, Univ. Laval (Canada) and Univ. Laval (Canada); J. Mandar, ABB (Canada); S. Thibault, Univ. Laval (Canada); M. Baril, Canada-France-Hawaii Telescope (United States)

8446 OV **KOALA: a wide-field 1000 element integral-field unit for the Anglo-Australian Telescope** [8446-29]
S. C. Ellis, Australian Astronomical Observatory (Australia); M. Ireland, Australian Astronomical Observatory (Australia) and Macquarie Univ. (Australia); J. S. Lawrence, J. Tims, N. Staszak, J. Brzeski, Australian Astronomical Observatory (Australia); Q. A. Parker, Australian Astronomical Observatory (Australia) and Macquarie Univ. (Australia); R. Sharp, Australian National Univ. (Australia); J. Bland-Hawthorn, Sydney Institute for Astronomy, The Univ. of Sydney (Australia); S. Case, M. Colless, Australian Astronomical Observatory (Australia); S. Croom, Sydney Institute for Astronomy, The Univ. of Sydney (Australia); W. Couch, Swinburne Univ. of Technology (Australia); O. De Marco, Macquarie Univ. (Australia); K. Glazebrook, Swinburne Univ. of Technology (Australia); W. Saunders, Australian Astronomical Observatory (Australia); R. Webster, The Univ. of Melbourne (Australia); D. B. Zucker, Macquarie Univ. (Australia)

8446 OW **Integrating the HERMES spectrograph for the AAT** [8446-213]
J. Heijmans, Australian Astronomical Observatory (Australia); M. Asplund, Mount Stromlo Observatory, Australian National Univ. (Australia); S. Barden, Australian Astronomical Observatory (Australia) and National Solar Observatory (United States); M. Birchall, Australian Astronomical Observatory (Australia); D. Carollo, Macquarie Univ. (Australia); J. Bland-Hawthorn, The Univ. of Sydney (Australia); J. Brzeski, S. Case, V. Churilov, M. Colless, R. Dean, G. De Silva, T. J. Farrell, K. Fiegert, Australian Astronomical Observatory (Australia); K. Freeman, Mount Stromlo Observatory, Australian National Univ. (Australia); L. Gers, M. Goodwin, D. Gray, R. Heald, A. Heng, Australian Astronomical Observatory (Australia); D. Jones, Prime Optics (Australia); C. Kobayashi, Univ. of Hertfordshire (United Kingdom);

U. Klauser, Y. Condrat, J. Lawrence, S. Lee, D. Mathews, D. Mayfield, S. Miziarski, G. Monnet, R. Muller, N. Pai, R. Patterson, E. Penny, D. Orr, A. Sheinis, K. Shortridge, S. Smedley, G. Smith, D. Stafford, N. Staszak, M. Vuong, L. Waller, D. Whittard, Australian Astronomical Observatory (Australia); E. Wylie de Boer, Mount Stromlo Observatory, Australian National Univ. (Australia); P. Xavier, J. Zheng, R. Zhelem, Australian Astronomical Observatory (Australia); D. Zucker, Australian Astronomical Observatory (Australia) and Macquarie Univ. (Australia)

8446 OX **SAMI: a new multi-object IFS for the Anglo-Australian Telescope** [8446-31]
J. J. Bryant, Sydney Institute for Astronomy, The Univ. of Sydney (Australia) and CAASTRO (Australia); J. Bland-Hawthorn, Sydney Institute for Astronomy, The Univ. of Sydney (Australia); J. Lawrence, Australian Astronomical Observatory (Australia); S. Croom, Sydney Institute for Astronomy, The Univ. of Sydney (Australia) and CAASTRO (Australia); L. Fogarty, Sydney Institute for Astronomy, The Univ. of Sydney (Australia); M. Goodwin, Australian Astronomical Observatory (Australia); S. Richards, Sydney Institute for Astronomy, The Univ. of Sydney (Australia); T. Farrell, S. Miziarski, R. Heald, Australian Astronomical Observatory (Australia); H. Jones, Monash Univ. (Australia); S. Lee, M. Colless, M. Birchall, A. M. Hopkins, S. Brough, A. E. Bauer, Australian Astronomical Observatory (Australia)

8446 OY **Prime focus spectrograph: Subaru's future** [8446-32]
H. Sugai, H. Karoji, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); N. Takato, Subaru Telescope, National Astronomical Observatory of Japan (United States); N. Tamura, A. Shimono, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); Y. Ohya, Institute of Astronomy and Astrophysics (Taiwan); A. Ueda, National Astronomical Observatory of Japan (Japan); H. Ling, Institute of Astronomy and Astrophysics (Taiwan); M. Vital de Arruda, Lab. Nacional de Astrofísica (Brazil); R. H. Barkhouser, C. L. Bennett, The Johns Hopkins Univ. (United States); S. Bickerton, Princeton Univ. (United States); D. F. Braun, R. J. Bruno, Jet Propulsion Lab. (United States); M. A. Carr, Princeton Univ. (United States); R. G. Dekany, Caltech Optical Observatories (United States); T. P. Dominici, Lab. Nacional de Astrofísica (Brazil); R. S. Ellis, California Institute of Technology (United States); J. E. Gunn, Princeton Univ. (United States); T. Heckman, The Johns Hopkins Univ. (United States); P. T. P. Ho, Institute of Astronomy and Astrophysics (Taiwan); O. C. Le Fèvre, L. Martin, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France); H. Murayama, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); A. Cesar de Oliveira, Lab. Nacional de Astrofísica (Brazil); C. Mendes de Oliveira, Instituto de Astronomia, Univ. de São Paulo (Brazil); L. Souza de Oliveira, Lab. Nacional de Astrofísica (Brazil); J. D. Orndorff, The Johns Hopkins Univ. (United States); E. Prieto, Observatoire Astronomique de Marseille-Provence (France); M. D. Seiffert, Jet Propulsion Lab. (United States); S. A. Smee, The Johns Hopkins Univ. (United States); R. M. Smith, Caltech Optical Observatories (United States); L. Sodré, Instituto de Astronomia, Univ. de São Paulo (Brazil); S.-Y. Wang, C. H. Yan, Institute of Astronomy and Astrophysics (Taiwan)

SESSION 5 IMAGING SURVEYORS I

8446 OZ **Hyper Suprime-Cam** [8446-33]
S. Miyazaki, Y. Komiyama, H. Nakaya, Y. Kamata, Y. Doi, T. Hamana, National Astronomical Observatory of Japan (Japan); H. Karoji, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); H. Furusawa, S. Kawanomoto, National Astronomical Observatory of Japan (Japan); T. Morokuma, The Univ. of Tokyo (Japan);

Y. Ishizuka, K. Nariai, Y. Tanaka, F. Uraguchi, Y. Utsumi, Y. Obuchi, Y. Okura, National Astronomical Observatory of Japan (Japan); M. Oguri, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); T. Takata, D. Tomono, T. Kurakami, K. Namikawa, T. Usuda, H. Yamanoi, T. Terai, H. Uekiyo, Y. Yamada, M. Koike, National Astronomical Observatory of Japan (Japan); H. Aihara, Y. Fujimori, S. Mineo, H. Miyatake, The Univ. of Tokyo (Japan); N. Yasuda, J. Nishizawa, T. Saito, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); M. Tanaka, T. Uchida, KEK (Japan); N. Katayama, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); S.-Y. Wang, H.-Y. Chen, Institute of Astronomy and Astrophysics, Academia Sinica (Taiwan); R. Lupton, C. Loomis, S. Bickerton, P. Price, J. Gunn, Princeton Univ. (United States); H. Suzuki, Y. Miyazaki, M. Muramatsu, K. Yamamoto, Hamamatsu Photonics K.K. (Japan); M. Endo, Y. Ezaki, N. Itoh, Mitsubishi Electric (Japan); Y. Miwa, H. Yokota, T. Matsuda, R. Ebinuma, K. Takeshi, Canon (Japan)

8446 10 **First light with RATIR: an automated 6-band optical/NIR imaging camera** [8446-34]
 N. Butler, Arizona State Univ. (United States); C. Klein, Univ. of California, Berkeley (United States); O. Fox, NASA Goddard Space Flight Ctr. (United States); G. Lotkin, NASA Goddard Space Flight Ctr. (United States) and Global Science & Technology, Inc. (United States); J. Bloom, Univ. of California, Berkeley (United States); J. X. Prochaska, E. Ramirez-Ruiz, Univ. of California, Santa Cruz (United States); J. A. de Diego, L. Georgiev, J. González, W. H. Lee, M. G. Richer, C. Román, A. M. Watson, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); N. Gehrels, NASA Goddard Space Flight Ctr. (United States); A. Kutyrev, NASA Goddard Space Flight Ctr. (United States) and Univ. of Maryland (United States); R. Bernstein, Univ. of California, Santa Cruz (United States); L. C. Alvarez, U. Ceseña, D. Clark, E. Colorado, A. Córdova, A. Farah, B. García, G. Guisa, J. Herrera, F. Lazo, E. López, E. Luna, B. Martínez, F. M. Murillo, J. M. Murillo, J. Núñez, M. H. Pedrayes, F. Quirós, J. Ochoa, G. Sierra, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); H. Moseley, NASA Goddard Space Flight Ctr. (United States); D. Rapchun, NASA Goddard Space Flight Ctr. (United States) and Global Science & Technology, Inc. (United States); F. D. Robinson, NASA Goddard Space Flight Ctr. (United States) and Orbital Sciences Corp. (United States); M. V. Samuel, NASA Goddard Space Flight Ctr. (United States) and Global Science & Technology, Inc. (United States); L. M. Sparr, NASA Goddard Space Flight Ctr. (United States)

8446 11 **Status of the Dark Energy Survey Camera (DECam) project** [8446-35]
 B. L. Flaugher, Fermi National Accelerator Lab. (United States); T. M. C. Abbott, Cerro Tololo Inter-American Observatory (Chile); R. Angstadt, J. Annis, Fermi National Accelerator Lab. (United States); M. L. Antonik, Univ. College London (United Kingdom); J. Bailey, Argonne National Lab. (United States); O. Ballester, Institut de Física d'Altes Energies (Spain); J. P. Bernstein, Argonne National Lab. (United States); R. Bernstein, UCO/Lick Observatory (United States); M. Bonati, G. Bremer, J. Briones, Cerro Tololo Inter-American Observatory (Chile); D. Brooks, Univ. College London (United Kingdom); E. J. Buckley-Geer, Fermi National Accelerator Lab. (United States); J. Campa, Ctr. de Investigaciones Energéticas, Medioambientales y Tecnológicas (Spain); L. Cardiel-Sas, Institut de Física d'Altes Energies (Spain); F. Castander, Institut de Ciències de l'Espai, CSIC (Spain); J. Castilla, Ctr. de Investigaciones Energéticas, Medioambientales y Tecnológicas (Spain); H. Cease, S. Chappa, E. C. Chi, Fermi National Accelerator Lab. (United States); L. da Costa, Observatório Nacional (Brazil); D. L. DePoy, Texas A&M Univ. (United States); G. Derylo, Fermi National Accelerator Lab. (United States); J. de Vicente, Ctr. de Investigaciones Energéticas, Medioambientales y Tecnológicas (Spain); H. T. Diehl, Fermi National Accelerator Lab. (United States); P. Doel, Univ. College London (United Kingdom); J. Estrada, Fermi National Accelerator Lab. (United States); J. Eiting, A. E. Elliott, The Ohio

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8446 13 **The Keck Cosmic Web Imager: a capable new integral field spectrograph for the W. M. Keck Observatory [8446-37]**

P. Morrissey, M. Matuszewski, C. Martin, California Institute of Technology (United States); A. Moore, Caltech Optical Observatories (United States); S. Adkins, W. M. Keck Observatory (United States); H. Epps, Univ. of California, Santa Cruz (United States); R. Bartos, Jet Propulsion Lab. (United States); J. Cabak, D. Cowley, UCO/Lick Observatory

(United States); J. Davis, A. Delacroix, J. Fucik, Caltech Optical Observatories (United States); D. Hilliard, UCO/Lick Observatory (United States); E. James, W. M. Keck Observatory (United States); S. Kaye, Caltech Optical Observatories (United States); N. Lingner, J. Neill, California Institute of Technology (United States); C. Pistor, D. Phillips, C. Rockosi, UCO/Lick Observatory (United States); B. Weber, Caltech Optical Observatories (United States)

SESSION 6 IMAGING SURVEYORS II

- 8446 14 **Design of FOSC for 360-cm Devasthal Optical Telescope** [8446-38]
 A. Omar, R. K. S. Yadav, V. Shukla, Aryabhata Research Institute of Observational Sciences (India); S. Mondal, S. N. Bose National Ctr. for Basic Sciences (India); J. Pant, Aryabhata Research Institute of Observational Sciences (India)

SESSION 7 AIRBORNE INSTRUMENTS

- 8446 16 **The FORCAST mid-infrared facility instrument and in-flight performance on SOFIA** [8446-40]
 J. D. Adams, T. L. Herter, G. E. Gull, J. Schoenwald, C. P. Henderson, Cornell Univ. (United States); L. D. Keller, Ithaca College (United States); J. M. De Buizer, USRA, NASA Ames Research Ctr. (United States); G. J. Stacey, T. Nikola, Cornell Univ. (United States); W. Vacca, USRA, NASA Ames Research Ctr. (United States); L. Hirsch, J. Wang, Cornell Univ. (United States); L. Helton, USRA, NASA Ames Research Ctr. (United States)
- 8446 17 **The SOFIA far-infrared spectrometer FIFI-LS: spearheading a post Herschel era** [8446-41]
 S. Colditz, F. Fumi, Univ. of Stuttgart (Germany); N. Geis, R. Hönl, Max-Planck-Institut für extraterrestrische Physik (Germany); R. Klein, SOFIA-USRA, NASA Ames Research Ctr. (United States); A. Krabbe, Univ. of Stuttgart (Germany) and Deutsches SOFIA Institut (Germany); L. Looney, Univ. of Illinois (United States); A. Poglitsch, W. Raab, Max-Planck-Institut für extraterrestrische Physik (Germany); M. Savage, SOFIA-USRA, NASA Ames Research Ctr. (United States); F. Rebell, C. Fischer, Univ. of Stuttgart (Germany)
- 8446 18 **HIPO in-flight performance aboard SOFIA** [8446-42]
 E. W. Dunham, T. A. Bida, P. L. Collins, G. I. Mandushev, Lowell Observatory (United States); I. S. McLean, Univ. of California, Los Angeles (United States); M. J. Person, Massachusetts Institute of Technology (United States); E. C. Smith, NASA Ames Research Ctr. (United States); B. W. Taylor, Boston Univ. (United States); S. Zoonematkermani, Lowell Observatory (United States)
- 8446 19 **FLITECAM: current status and results from observatory verification flights** [8446-43]
 I. S. McLean, Univ. of California, Los Angeles (United States); E. C. Smith, NASA Ames Research Ctr. (United States); E. E. Becklin, USRA, NASA Ames Research Ctr. (United States); E. W. Dunham, Lowell Observatory (United States); J. W. Milburn, California Institute of Technology (United States); M. L. Savage, USRA, NASA Ames Research Ctr. (United States)
- 8446 1A **Preflight performance of the Echelon-Cross-Echelle spectrograph for SOFIA** [8446-282]
 C. DeWitt, Univ. of California, Davis (United States) and NASA Ames Research Ctr. (United States); M. J. Richter, Univ. of California, Davis (United States); M. E. McKelvey, NASA Ames Research Ctr. (United States); A. Seifahrt, The Univ. of Chicago (United States); M. Case, J. Barthel, Univ. of California, Davis (United States); P. Zell, D. Lynch, NASA Ames Research Ctr. (United States)

SESSION 8 SOLAR INSTRUMENTS

- 8446 1B **ATST visible broadband imager** [8446-45]
W. R. McBride, F. Wöger, S. L. Hegwer, A. Ferayorni, B. S. Gregory, National Solar Observatory (United States)
- 8446 1C **Developments of the wideband spectropolarimeter of the Domeless Solar Telescope at Hida Observatory** [8446-46]
T. Anan, K. Ichimoto, A. Oi, G. Kimura, Y. Nakatani, S. Ueno, Kwasan and Hida Observatories (Japan)
- 8446 1D **SPIES: the spectropolarimetric imager for the energetic sun** [8446-47]
H. Lin, Institute for Astronomy, Univ. of Hawai'i (United States)

SESSION 9 ELT INSTRUMENTS I

- 8446 1F **The instrumentation program for the Thirty Meter Telescope (Invited Paper)** [8446-49]
L. Simard, Thirty Meter Telescope Project (United Kingdom) and Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); D. Crampton, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); B. Ellerbroek, C. Boyer, Thirty Meter Telescope Project (United States)
- 8446 1G **The instrument development and selection process for the Giant Magellan Telescope (Invited Paper)** [8446-50]
G. H. Jacoby, A. Bouchez, Giant Magellan Telescope Organization (United States); M. Colless, Australian Astronomical Observatory (Australia); D. DePoy, Texas A&M Univ. (United States); D. Fabricant, Harvard-Smithsonian Ctr. for Astrophysics (United States); P. Hinz, The Univ. of Arizona (United States); D. Jaffe, The Univ. of Texas at Austin (United States); M. Johns, P. McCarthy, Giant Magellan Telescope Organization (United States); P. McGregor, The Australian National Univ. (Australia); S. Shectman, Carnegie Observatories (United States); A. Szentgyorgyi, Harvard-Smithsonian Ctr. for Astrophysics (United States)

SESSION 10 ELT INSTRUMENTS II

- 8446 1H **The GMT-CfA, Carnegie, Catolica, Chicago Large Earth Finder (G-CLEF): a general purpose optical echelle spectrograph for the GMT with precision radial velocity capability** [8446-52]
A. Szentgyorgyi, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. Frebel, Kavli Institute for Astrophysics and Space Research, Massachusetts Institute of Technology (United States); G. Fürész, E. Hertz, T. Norton, Harvard-Smithsonian Ctr. for Astrophysics (United States); J. Bean, The Univ. of Chicago (United States); H. Bergner, Harvard-Smithsonian Ctr. for Astrophysics (United States); J. Crane, Carnegie Observatories (United States); J. Evans, I. Evans, T. Gauron, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. Jordán, Pontificia Univ. Católica de Chile (Chile); S. Park, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. Uomoto, Carnegie Observatories (United States); S. Barnes, Stuart Barnes Optical Design (New Zealand); W. Davis, M. Eisenhower, Harvard-Smithsonian Ctr. for Astrophysics (United States); H. Epps, UCO/Lick Observatory (United States); D. Guzman, Pontificia Univ. Católica de Chile (Chile); K. McCracken, M. Ordway, D. Plummer, W. Podgorski, D. Weaver, Harvard-Smithsonian Ctr. for Astrophysics (United States)

- 8446 1I **GMT integral-field spectrograph (GMTIFS) conceptual design** [8446-53]
P. J. McGregor, G. J. Bloxham, R. Boz, J. Davies, M. Doolan, M. Ellis, J. Hart, The Australian National Univ. (Australia); D. J. Jones, Prime Optics (Australia); L. Luvaul, J. Nielsen, S. Parcell, R. Sharp, D. Stevanovic, P. J. Young, The Australian National Univ. (Australia)
- 8446 1J **The EAGLE instrument for the E-ELT: developments since delivery of Phase A** [8446-54]
S. L. Morris, Univ. of Durham (United Kingdom); J.-G. Cuby, Lab. d'Astrophysique de Marseille, CNRS, Aix Marseille Univ. (France); M. Dubbeldam, Univ. of Durham (United Kingdom); C. Evans, UK Astronomy Technology Ctr. (United Kingdom); T. Fusco, ONERA (France); P. Jagourel, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); R. Myers, Univ. of Durham (United Kingdom); P. Parr-Burman, UK Astronomy Technology Ctr. (United Kingdom); G. Rousset, LESIA, Observatoire de Paris, CNRS (France); H. Schnettler, UK Astronomy Technology Ctr. (United Kingdom)
- 8446 1K **Second-Earth imager for TMT (SEIT): concept and its numerical simulation** [8446-56]
T. Matsuo, Kyoto Univ. (Japan); T. Kotani, National Astronomical Observatory of Japan (Japan); N. Murakami, Hokkaido Univ. (Japan); H. Kawahara, Tokyo Metropolitan Univ. (Japan); Y. Fujii, The Univ. of Tokyo (Japan); S. Oya, Subaru Telescope, National Astronomical Observatory of Japan (United States); M. Kurita, N. Natsume, Kyoto Univ. (Japan); N. Narita, National Astronomical Observatory of Japan (Japan); K. Takizawa, National Institute for Basic Biology (Japan); M. Ikoma, The Univ. of Tokyo (Japan); J. Minagawa, National Institute for Basic Biology (Japan); N. Baba, Hokkaido Univ. (Japan); M. Tamura, National Astronomical Observatory of Japan (Japan)
- 8446 1L **The opto-mechanical design of HARMONI: a first light integral field spectrograph for the E-ELT** [8446-55]
N. A. Thatte, M. Tecza, Univ. of Oxford (United Kingdom); D. Freeman, Kidger Optics Associates (United Kingdom); A. M. Gallie, D. Montgomery, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); F. Clarke, Univ. of Oxford (United Kingdom); A. B. Fragoso-Lopez, J. Fuentes, Instituto de Astrofísica de Canarias (Spain); F. Gago, European Southern Observatory (Germany); A. Garcia, SENER Ingenieria y Sistemas (Spain); F. Gracia, Instituto de Astrofísica de Canarias (Spain); J. Kosmalski, Observatoire de Lyon (France); J. Lynn, Univ. of Oxford (United Kingdom); D. Sosa, Instituto de Astrofísica de Canarias (Spain); S. Arribas, Consejo Superior de Investigaciones Científicas (Spain); R. Bacon, Observatoire de Lyon (France); R. L. Davies, Univ. of Oxford (United Kingdom); T. Fusco, ONERA (France); D. Lunney, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); E. Mediavilla, Instituto de Astrofísica de Canarias (Spain); A. Remillieux, Ctr. Recherche Astrophysique de Lyon, Observatoire de Lyon (France); H. Schnettler, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom)

SESSION 11 ELT INSTRUMENTS III

- 8446 1M **METIS: the thermal infrared instrument for the E-ELT** [8446-57]
B. R. Brandl, Leiden Observatory, Leiden Univ. (Netherlands); R. Lenzen, Max-Planck-Institut für Astronomie (Germany); E. Pantin, CEA Saclay, DSM/DAPNIA/Service d'Astrophysique (France); A. Glasse, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); J. Blommaert, Katholieke Univ. Leuven (Belgium); M. Meyer, ETH Zürich (Switzerland); M. Guedel, Univ. of Vienna (Austria); L. Venema, NOVA - ASTRON (Netherlands); F. Molster, NOVA, Leiden Univ. (Netherlands) and Dutch Space (Netherlands); R. Stuik, E. Schmalzl, J. Meisner, Leiden Observatory, Leiden Univ. (Netherlands); E. Le Floch, CEA Saclay,

DSM/DAPNIA/Service d'Astrophysique (France); W. Brandner, S. Hippler, Max-Planck-Institut für Astronomie (Germany); I. Snellen, Leiden Observatory, Leiden Univ. (Netherlands); K. Pontoppidan, Space Telescope Science Institute (United States)

8446 1N **GMACS: a wide field, multi-object, moderate-resolution, optical spectrograph for the Giant Magellan Telescope** [8446-58]

D. L. DePoy, R. Allen, Texas A&M Univ. (United States); R. Barkhouser, The Johns Hopkins Univ. (United States); E. Boster, D. Carona, Texas A&M Univ. (United States); A. Harding, R. Hammond, The Johns Hopkins Univ. (United States); J. L. Marshall, Texas A&M Univ. (United States); J. Orndorff, The Johns Hopkins Univ. (United States); C. Papovich, K. Prochaska, T. Prochaska, J. P. Rheault, Texas A&M Univ. (United States); S. Smee, The Johns Hopkins Univ. (United States); S. Shectman, Carnegie Observatories (United States); S. Villanueva, Jr., Texas A&M Univ. (United States)

8446 1O **NIRMOS: a wide-field near-infrared spectrograph for the Giant Magellan Telescope** [8446-59]

D. Fabricant, R. Fata, W. R. Brown, B. McLeod, M. Mueller, T. Gauron, J. Roll, H. Bergner, J. Geary, V. Krادينov, T. Norton, M. Smith, J. Zajac, Harvard-Smithsonian Ctr. for Astrophysics (United States)

8446 1P **TIGER: a high contrast infrared imager for the Giant Magellan Telescope** [8446-60]

P. Hinz, J. Codona, O. Guyon, W. Hoffmann, A. Skemer, Steward Observatory, The Univ. of Arizona (United States); J. Hora, V. Tolls, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. Boss, A. Weinberger, Carnegie Institution of Washington (United States); P. Arbo, T. Connors, O. Durney, T. McMahon, M. Montoya, V. Vaitheeswaran, Steward Observatory, The Univ. of Arizona (United States)

Part Two

SESSION 12 PLANET FINDERS I

8446 1R **ESPRESSO: the ultimate rocky exoplanets hunter for the VLT** [8446-62]

D. Mégevand, Observatoire de l'Univ. de Genève (Switzerland); F. M. Zerbi, INAF - Osservatorio Astronomico di Brera (Italy); A. Cabral, Univ. de Lisboa (Portugal); P. Di Marcantonio, INAF - Osservatorio Astronomico di Trieste (Italy); M. Amate, Instituto de Astrofísica de Canarias (Spain); F. Pepe, Observatoire de l'Univ. de Genève (Switzerland); S. Cristiani, INAF - Osservatorio Astronomico di Trieste (Italy); R. Rebolo, Instituto de Astrofísica de Canarias (Spain); N. C. Santos, Ctr. de Astrofísica da Univ. do Porto (Portugal); H. Dekker, European Southern Observatory (Germany); M. Abreu, Ctr. de Astronomia e Astrofísica, Univ. de Lisboa (Portugal); M. Affolter, Univ. of Bern (Switzerland); G. Avila, European Southern Observatory (Germany); V. Baldini, INAF - Osservatorio Astronomico di Trieste (Italy); P. Bristow, European Southern Observatory (Germany); C. Broeg, Univ. of Bern (Switzerland); P. Carvas, Univ. de Lisboa (Portugal); R. Cirami, INAF - Osservatorio Astronomico di Trieste (Italy); J. Coelho, Univ. de Lisboa (Portugal); M. Comari, INAF - Osservatorio Astronomico di Trieste (Italy); P. Conconi, INAF - Osservatorio Astronomico di Brera (Italy); I. Coretti, G. Cupani, V. D'Odorico, INAF - Osservatorio Astronomico di Trieste (Italy); V. De Caprio, INAF - Osservatorio Astronomico di Brera (Italy); B. Delabre, European Southern Observatory (Germany); P. Figueira, Ctr. de Astrofísica da Univ. do Porto (Portugal); M. Fleury, Observatoire de l'Univ. de Genève (Switzerland); A. Fragoso, Instituto de Astrofísica de Canarias (Spain); L. Genolet, Observatoire de l'Univ. de Genève (Switzerland); R. Gomes, Univ. of Lisbon (Portugal); J. Gonzalez Hernandez,

Instituto de Astrofísica de Canarias (Spain); I. Hughes, Observatoire de l'Univ. de Genève (Switzerland); O. Iwert, F. Kerber, European Southern Observatory (Germany); M. Landoni, INAF - Osservatorio Astronomico di Brera (Italy); J. Lima, Univ. of Lisbon (Portugal); J.-L. Lizon, European Southern Observatory (Germany); C. Lovis, C. Maire, Observatoire de l'Univ. de Genève (Switzerland); M. Mannelta, INAF - Osservatorio Astronomico di Trieste (Italy); C. Martins, Ctr. de Astrofísica da Univ. do Porto (Portugal); A. Moitinho, Univ. of Lisbon (Portugal); P. Molaro, INAF - Osservatorio Astronomico di Trieste (Italy); M. Monteiro, Ctr. de Astrofísica da Univ. do Porto (Portugal); J. L. Rasilla, Instituto de Astrofísica de Canarias (Spain); M. Riva, INAF - Osservatorio Astronomico di Brera (Italy); S. Santana Tschudi, Instituto de Astrofísica de Canarias (Spain); P. Santin, INAF - Osservatorio Astronomico di Trieste (Italy); D. Sosnowska, Observatoire de l'Univ. de Genève (Switzerland); S. Sousa, Ctr. de Astrofísica da Univ. do Porto (Portugal); P. Spanò, INAF - Osservatorio Astronomico di Brera (Italy); F. Tenegi, Instituto de Astrofísica de Canarias (Spain); G. Toso, INAF - Osservatorio Astronomico di Brera (Italy); E. Vanzella, M. Viel, INAF - Osservatorio Astronomico di Trieste (Italy); M. Zapatero Osorio, Ctr. de Astrobiología, Instituto Nacional de Técnica Aeroespacial (Spain)

- 8446 1S **The habitable-zone planet finder: a stabilized fiber-fed NIR spectrograph for the Hobby-Eberly Telescope** [8446-63]
 S. Mahadevan, L. Ramsey, C. Bender, R. Terrien, J. T. Wright, S. Halverson, The Pennsylvania State Univ. (United States); F. Hearty, M. Nelson, A. Burton, Univ. of Virginia (United States); S. Redman, National Institute of Standards and Technology (United States); S. Osterman, Univ. of Colorado at Boulder (United States); S. Diddams, National Institute of Standards and Technology (United States); J. Kasting, The Pennsylvania State Univ. (United States); M. Endl, McDonald Observatory, The Univ. of Texas at Austin (United States); R. Deshpande, The Pennsylvania State Univ. (United States)
- 8446 1T **Infrared Doppler instrument for the Subaru Telescope (IRD)** [8446-64]
 M. Tamura, National Astronomical Observatory of Japan (Japan) and GUAS (Japan); H. Suto, J. Nishikawa, T. Kotani, National Astronomical Observatory of Japan (Japan); B. Sato, TITECH (Japan); W. Aoki, National Astronomical Observatory of Japan (Japan); T. Usuda, Subaru Telescope, National Astronomical Observatory of Japan (United States); T. Kurokawa, K. Kashiwagi, Tokyo Univ. of Agriculture and Technology (Japan); S. Nishiyama, National Astronomical Observatory of Japan (Japan); Y. Ikeda, Photocoding (Japan); D. Hall, K. Hodapp, Institute for Astronomy, Univ. of Hawai'i (United States); J. Hashimoto, J. Morino, National Astronomical Observatory of Japan (Japan); S. Inoue, Y. Mizuno, Y. Washizaki, Y. Tanaka, S. Suzuki, Tokyo Univ. of Agriculture and Technology (Japan); J. Kwon, T. Suenaga, D. Oh, GUAS (Japan); N. Narita, E. Kokubo, National Astronomical Observatory of Japan (Japan); Y. Hayano, Subaru Telescope, National Astronomical Observatory of Japan (United States); H. Izumiura, E. Kambe, National Astronomical Observatory of Japan (Japan); T. Kudo, Subaru Telescope, National Astronomical Observatory of Japan (United States); N. Kusakabe, National Astronomical Observatory of Japan (Japan); M. Ikoma, The Univ. of Tokyo (Japan); Y. Hori, National Astronomical Observatory of Japan (Japan); M. Omiya, TITECH (Japan); H. Genda, The Univ. of Tokyo (Japan); A. Fukui, National Astronomical Observatory of Japan (Japan); Y. Fujii, The Univ. of Tokyo (Japan); O. Guyon, Subaru Telescope, National Astronomical Observatory of Japan (United States); H. Harakawa, TITECH (Japan); M. Hayashi, National Astronomical Observatory of Japan (Japan); M. Hidai, Tokai Univ. (Japan); T. Hirano, M. Kuzuhara, The Univ. of Tokyo (Japan); M. Machida, Kyusyu Univ. (Japan); T. Matsuo, T. Nagata, Kyoto Univ. (Japan); H. Ohnuki, TITECH (Japan); M. Ogiwara, Nagoya Univ. (Japan); S. Oshino, R. Suzuki, H. Takami, National Astronomical Observatory of Japan (Japan); N. Takato, Subaru Telescope, National Astronomical Observatory of Japan

(United States); Y. Takahashi, The Univ. of Tokyo (Japan); C. Tachinami, TITECH (Japan); H. Terada, Subaru Telescope, National Astronomical Observatory of Japan (United States)

8446 1U

The Gemini Planet Imager: integration and status [8446-65]

B. A. Macintosh, Lawrence Livermore National Lab. (United States); A. Anthony, J. Atwood, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); N. Barriga, Gemini Observatory (United States); B. Bauman, Lawrence Livermore National Lab. (United States); K. Caputa, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); J. Chilcote, Univ. of California, Los Angeles (United States); D. Dillon, Univ. of California at Berkeley (United States); R. Doyon, Univ. de Montréal (Canada); J. Dunn, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); D. T. Gavel, Univ. of California, Santa Cruz (United States); R. Galvez, S. J. Goodsell, Gemini Observatory (United States); J. R. Graham, Univ. of California at Berkeley (United States) and Jet Propulsion Lab. (United States); M. Hartung, Gemini Observatory (United States); J. Isaacs, Univ. of Wisconsin (United States); D. Kerley, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); Q. Konopacky, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); K. Labrie, Gemini Observatory (United States); J. E. Larkin, Univ. of California, Los Angeles (United States); J. Maire, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); C. Marois, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); M. Millar-Blanchaer, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); B. R. Oppenheimer, American Museum of Natural History (United States); A. Nunez, Gemini Observatory (United States); D. W. Palmer, Lawrence Livermore National Lab. (United States); J. Pazder, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); M. Perrin, Space Telescope Science Institute (United States); L. A. Poyneer, Lawrence Livermore National Lab. (United States); C. Quiroz, F. Rantakyro, Gemini Observatory (United States); V. Reshetov, L. Saddlemyer, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); N. Sadakuni, Univ. of California at Berkeley (United States); D. Savransky, Lawrence Livermore National Lab. (United States); A. Sivaramakrishnan, Space Telescope Science Institute (United States); M. Smith, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); R. Soummer, Space Telescope Science Institute (United States); S. Thomas, Gemini Observatory (United States); J. K. Wallace, Jet Propulsion Lab. (United States); J. Weiss, Univ. of California, Los Angeles (United States); S. Wiktorowicz, Univ. of California at Berkeley (United States)

SESSION 13

PLANET FINDERS II

8446 1V

Harps-N: the new planet hunter at TNG [8446-66]

R. Cosentino, INAF - Telescopio Nazionale Galileo (Spain); C. Lovis, F. Pepe, Observatoire Astronomique de l'Univ. de Genève (Switzerland); A. Collier Cameron, Univ. of St. Andrews (United Kingdom); D. W. Latham, Harvard-Smithsonian Ctr. for Astrophysics (United States); E. Molinari, INAF - Telescopio Nazionale Galileo (Spain); S. Udry, Observatoire Astronomique de l'Univ. de Genève (Switzerland); N. Bezawada, M. Black, A. Born, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); N. Buchschacher, Observatoire Astronomique de l'Univ. de Genève (Switzerland); D. Charbonneau, Harvard-Smithsonian Ctr. for Astrophysics (United States); P. Figueira, Univ. do Porto (Portugal); M. Fleury, Observatoire Astronomique de l'Univ. de Genève (Switzerland); A. Galli, INAF - Telescopio Nazionale Galileo (Spain); A. Gallie, X. Gao, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); A. Ghedina, C. Gonzalez, M. Gonzalez, J. Guerra, INAF - Telescopio Nazionale Galileo (Spain); D. Henry, UK Astronomy Technology Ctr., Royal

Observatory (United Kingdom); K. Horne, Univ. of St Andrews (United Kingdom); I. Hughes, Observatoire Astronomique de l'Univ. de Genève (Switzerland); D. Kelly, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); M. Lodi, INAF - Telescopio Nazionale Galileo (Spain); D. Lunney, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); C. Maire, M. Mayor, Observatoire Astronomique de l'Univ. de Genève (Switzerland); G. Micela, INAF - Osservatorio Astronomico di Palermo (Italy); M. P. Ordway, Harvard-Smithsonian Ctr. for Astrophysics (United States); J. Peacock, Univ. of Edinburgh, Royal Observatory (United Kingdom); D. Phillips, Harvard-Smithsonian Ctr. for Astrophysics (United States); G. Piotto, Univ. degli Studi di Padova (Italy); D. Pollacco, Queen's Univ. (United Kingdom); D. Queloz, Observatoire Astronomique de l'Univ. de Genève (Switzerland); K. Rice, Univ. of Edinburgh, Royal Observatory (United Kingdom); C. Riverol, L. Riverol, J. San Juan, INAF - Telescopio Nazionale Galileo (Spain); D. Sasselov, Harvard-Smithsonian Ctr. for Astrophysics (United States); D. Segransan, Observatoire Astronomique de l'Univ. de Genève (Switzerland); A. Sozzetti, INAF - Osservatorio Astrofisico di Torino (Italy); D. Sosnowska, Observatoire Astronomique de l'Univ. de Genève (Switzerland); B. Stobie, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); A. Szentgyorgyi, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. Vick, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); L. Weber, Observatoire Astronomique de l'Univ. de Genève (Switzerland)

8446 1W **Achieving a few cm/sec calibration repeatability for high resolution spectrographs: the laser frequency comb on HARPS** [8446-67]

G. Lo Curto, A. Manescau, G. Avila, L. Pasquini, European Southern Observatory (Germany); T. Wilken, T. Steinmetz, R. Holzwarth, Max-Planck-Institut für Quantenoptik (Germany) and Menlo Systems GmbH (Germany); R. Probst, T. Udem, T. W. Hänsch, Max-Planck-Institut für Quantenoptik (Germany); J. I. González Hernández, M. Esposito, R. Rebolo, Instituto de Astrofísica de Canarias (Spain); B. Canto Martins, J. R. de Medeiros, Univ. Federal do Rio Grande de Norte (Brazil)

8446 1X **A demonstration test of the dual-beam polarimetry differential imaging system for the high-contrast observation** [8446-68]

J. Dou, Nanjing Institute of Astronomical Optics & Technology (China); D. Ren, Nanjing Institute of Astronomical Optics & Technology (China) and California State Univ., Northridge (United States); Y. Zhu, X. Wang, X. Zhang, R. Li, Nanjing Institute of Astronomical Optics & Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China)

SESSION 14 HIGH RESOLUTION AND AO INSTRUMENTS

8446 1Z **FIRST, a fibered aperture masking instrument: on-sky results** [8446-70]

E. Huby, G. Perrin, LESIA, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France); F. Marchis, SETI Institute (United States); S. Lacour, LESIA, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France); T. Kotani, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); G. Duchêne, Univ. of California, Berkeley (United States) and Institut de Planétologie et d'Astrophysique de Grenoble (France); E. Choquet, LESIA, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France); E. Gates, Univ. of California Observatories/Lick Observatory (United States); J. Woillez, W. M. Keck Observatory (United States); O. Lai, Canada-France-Hawaii Telescope (United States)

- 8446 20 **The design of ERIS for the VLT** [8446-71]
P. Amico, E. Marchetti, European Southern Observatory (Germany); F. Pedichini, INAF - Osservatorio Astronomico di Roma (Italy); A. Baruffolo, INAF - Osservatorio Astronomico di Padova (Italy); B. Delabre, M. Duchateau, M. Ekinçi, European Southern Observatory (Germany); D. Fantinel, INAF - Osservatorio Astronomico di Padova (Italy); E. Fedrigo, G. Finger, C. Frank, European Southern Observatory (Germany); R. Hofmann, Max-Planck-Institut für extraterrestrische Physik (Germany); P. Jolley, J.-L. Lizon, M. Le Louarn, P. Madec, C. Soenke, European Southern Observatory (Germany); H. Weisz, Ing.-Bureau für den Maschinenbau (Germany)
- 8446 21 **AOLI, Adaptive Optics Lucky Imager: diffraction limited imaging in the visible on large ground-based telescopes** [8446-72]
C. Mackay, Institute of Astronomy, Univ. of Cambridge (United Kingdom); R. Rebolo-López, Instituto de Astrofísica de Canarias (Spain) and Consejo Superior de Investigaciones Científicas (Spain); B. Femenia Castellá, Univ. Politécnica de Cartagena (Spain); J. Crass, D. L. King, Institute of Astronomy, Univ. of Cambridge (United Kingdom); L. Labadie, Univ. zu Köln (Germany); P. Aisher, Institute of Astronomy, Univ. of Cambridge (United Kingdom); A. Pérez Garrido, Univ. Politécnica de Cartagena (Spain); M. Balcells, Isaac Newton Group of Telescopes (Spain); A. Díaz-Sánchez, Univ. Politécnica de Cartagena (Spain); J. Jimenez Fuensalida, R. L. Lopez, A. Oscoz, J. A. Pérez Prieto, L. F. Rodríguez-Ramos, Instituto de Astrofísica de Canarias (Spain); I. Villó, Univ. Politécnica de Cartagena (Spain)
- 8446 22 **15x optical zoom and extreme optical image stabilisation: diffraction limited integral field spectroscopy with the Oxford SWIFT spectrograph** [8446-73]
M. Tecza, N. Thatte, F. Clarke, J. Lynn, Univ. of Oxford (United Kingdom); D. Freeman, Kidger Optics Associates (United Kingdom); J. Roberts, Jet Propulsion Lab. (United States); R. Dekany, Caltech Optical Observatories (United States)
- 8446 23 **Compact high-resolution spectrographs for large and extremely large telescopes: using the diffraction limit** [8446-74]
J. G. Robertson, J. Bland-Hawthorn, Sydney Institute for Astronomy, The Univ. of Sydney (Australia)
- 8446 24 **Current status of FRIDA: diffraction limited NIR instrument for the GTC** [8446-75]
B. Sánchez, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); J. A. Acosta, Instituto de Astrofísica de Canarias (Spain); L. C. Álvarez, Univ. Nacional Autónoma de México (Mexico); V. Bringas, Ctr. de Ingeniería y Desarrollo Industrial (Mexico); N. Cardiel, Univ. Complutense de Madrid (Spain); A. Corrales, Ctr. de Ingeniería y Desarrollo Industrial (Mexico); S. Cuevas, O. Chapa, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); J. J. Díaz, Instituto de Astrofísica de Canarias (Spain); S. S. Eikenberry, Univ. of Florida (United States); C. Eliche, Univ. Complutense de Madrid (Spain); C. Espejo, R. Flores, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); F. Garzón, P. Hammersley, Instituto de Astrofísica de Canarias (Spain); C. Keiman, G. Lara, J. A. López, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); P. López, Instituto de Astrofísica de Canarias (Spain); D. Lucero, Ctr. de Ingeniería y Desarrollo Industrial (Mexico); J. M. Montoya, Ctr. de Ingeniería y Desarrollo Industrial (Mexico); H. Moreno, Instituto de Astrofísica de Canarias (Spain); S. Pascual, Univ. Complutense de Madrid (Spain); J. Patrón, A. Prieto, Instituto de Astrofísica de Canarias (Spain); N. Raines, Univ. of Florida (United States); A. Rodríguez, J. Uribe, Ctr. de Ingeniería y Desarrollo Industrial (Mexico); A. Watson, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico)

POSTER SESSION: NEW INSTRUMENTS AND UPGRADES/REPORTS ON EXISTING INSTRUMENTS

- 8446 25 **Design of a full-Stokes polarimeter for VLT/X-shooter** [8446-76]
F. Snik, G. van Harten, Leiden Observatory, Univ. Leiden (Netherlands); R. Navarro, NOVA - ASTRON (Netherlands); P. Groot, Radboud Univ. Nijmegen (Netherlands); L. Kaper, Astronomical Institute Anton Pannekoek, Univ. of Amsterdam (Netherlands); A. de Wijn, High Altitude Observatory (United States)
- 8446 26 **Concept of SPARC4: a simultaneous polarimeter and rapid camera in 4 bands** [8446-77]
C. V. Rodrigues, Instituto Nacional de Pesquisas Espaciais (Brazil); K. Taylor, Instruments4 (United States); F. J. Jablonski, Instituto Nacional de Pesquisas Espaciais (Brazil); M. Assafin, Observatório do Valongo (Brazil); A. Carciofi, Univ. de São Paulo (Brazil); D. Cieslinski, J. E. R. Costa, Instituto Nacional de Pesquisas Espaciais (Brazil); R. Dominguez, Univ. of Arizona (United States); T. P. Dominici, Lab. Nacional de Astrofísica (Brazil); G. A. P. Franco, Univ. Federal de Minas Gerais (Brazil); D. Jones, Prime Optics (Australia); A. Kanaan, Univ. Federal de Santa Catarina (Brazil); R. Laporte, Instituto Nacional de Pesquisas Espaciais (Brazil); A. M. Magalhaes, Univ. de São Paulo (Brazil); A. Milone, J. A. Neri, Instituto Nacional de Pesquisas Espaciais (Brazil); A. Pereyra, Instituto de Astrofísica de Canarias (Spain); L. Reitano, K. M. G. Silva, C. Strauss, Instituto Nacional de Pesquisas Espaciais (Brazil)
- 8446 28 **The F/5 instrumentation suite for the Clay Telescope** [8446-79]
A. Szentgyorgyi, B. McLeod, D. Fabricant, R. Fata, T. Norton, M. Ordway, J. Roll, H. Bergner, M. Conroy, Harvard-Smithsonian Ctr. for Astrophysics (United States); D. Curley, Google UK Ltd. (United Kingdom); H. Epps, UCO/Lick Observatory (United States); T. Gauron, J. Geary, M. Mueller, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. Uomoto, Carnegie Observatories (United States); S. Amato, J. Barberis, R. Eng, G. Furesz, E. Hertz, Harvard-Smithsonian Ctr. for Astrophysics (United States); C. Hull, Giant Magellan Telescope Organization (United States); K. McCracken, G. Nystrom, Harvard-Smithsonian Ctr. for Astrophysics (United States); D. Osip, P. Palunas, F. Perez, F. Sanchez, Las Campanas Observatory (Chile); V. Suc, Pontificia Univ. Católica de Chile (Chile); D. Weaver, Harvard-Smithsonian Ctr. for Astrophysics (United States); D. Woods, MIT Lincoln Lab. (United States)
- 8446 29 **The AAO's Gemini High-Resolution Optical SpecTROgraph (GHOST) concept** [8446-80]
M. J. Ireland, Australian Astronomical Observatory (Australia) and Macquarie Univ. (Australia); S. Barnes, Stuart Barnes Optical Design (New Zealand); D. Cochrane, Industrial Research Ltd. (New Zealand); M. Colless, Australian Astronomical Observatory (Australia); P. Connor, Industrial Research Ltd. (New Zealand); A. Horton, Australian Astronomical Observatory (Australia); S. Gibson, Industrial Research Ltd. (New Zealand); J. Lawrence, S. Martell, Australian Astronomical Observatory (Australia); P. McGregor, The Australian National Univ. (Australia); T. Nicolle, K. Nield, Industrial Research Ltd. (New Zealand); D. Orr, Australian Astronomical Observatory (Australia); J. G. Robertson, Australian Astronomical Observatory (Australia) and Sydney Institute for Astronomy, The Univ. of Sydney (Australia); S. Ryder, A. Sheinis, G. Smith, N. Staszak, J. Tims, P. Xavier, Australian Astronomical Observatory (Australia); P. Young, The Australian National Univ. (Australia); J. Zheng, Australian Astronomical Observatory (Australia)

- 8446 2A **GRACES, the Gemini remote access CFHT ESPaDOnS spectrograph: initial design and testing** [8446-81]
E. V. Tollestrup, Gemini Observatory (United States); J. Pazder, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); G. Barrick, E. Martoli, Canada-France-Hawaii Telescope (United States); R. P. Schiavon, Gemini Observatory (United States); A. Anthony, M. Halman, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); C. Veillet, Canada-France-Hawaii Telescope (United States)
- 8446 2B **BASIS: Bayfordbury single-object integral field spectrograph** [8446-82]
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G. R. Quast, Lab. Nacional de Astrofísica (Brazil); G. F. Porto de Mello, Univ. Federal do Rio
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- 8446 3Z **An un-obscured four spherical mirrors based collimator as a tradeoff solution for the Optical Ground Support Equipment (OGSE) of the High Resolution Camera (HRC) of Simbio-Sys** [8446-153]
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- 8446 43 **Characterizing near-infrared sky brightness in the Canadian high arctic** [8446-157]
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- 8446 45 **AMICA at Dome C: results from the first year of automatic operation tests in Antarctica** [8446-159]
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- 8446 46 **A new Nasmyth mirror mechanism increases the number of focal stations of the Mercator Telescope** [8446-161]
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- 8446 47 **LINC-NIRVANA, integration of an interferometric and cryogenic camera: first verification results** [8446-162]
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- 8446 48 **KiwiSpec - an advanced spectrograph for high resolution spectroscopy: prototype design and performance** [8446-164]
S. Gibson, Industrial Research Ltd. (New Zealand) and Univ. of Canterbury (New Zealand); S. I. Barnes, Stuart Barnes Optical Design (New Zealand); J. Hearnshaw, Univ. of Canterbury (New Zealand); K. Nield, D. Cochrane, D. Grobler, Industrial Research Ltd. (New Zealand)
- 8446 4A **A comparison of the mechanical design of fiber feeds for GRACES and GHOS** [8446-167]
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- 8446 4B **Tools for DIY site-testing** [8446-168]
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- 8446 4E **Cryogenic mechanical design: SPIROU spectrograph** [8446-171]
V. Reshetov, G. Herriot, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); S. Thibault, P. Désaulniers, Univ. Laval (Canada); L. Saddlemeyer, D. Loop, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada)
- 8446 4F **On-sky operations and performance of LMIRcam at the Large Binocular Telescope** [8446-172]
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- 8446 4G **ISAS: interferometric stratospheric astrometry for solar system** [8446-173]
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- 8446 4H **Analysis of stellar radiance contamination in observed satellite spectra** [8446-174]
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- 8446 4J **Enhanced spectral resolution via externally dispersed interferometry** [8446-177]
J. Edelstein, Space Sciences Lab., Univ. of California, Berkeley (United States); D. Erskine, Lawrence Livermore National Lab. (United States); M. Sirk, A. Vanderburg, E. H. Wishnow, Space Sciences Lab., Univ. of California, Berkeley (United States)

- 8446 4K **Khayyam: a tunable spatial heterodyne spectrometer for observing diffuse emission line targets** [8446-178]
S. Hosseini, W. Harris, J. Corliss, Univ. of California, Davis (United States)
- 8446 4L **Tips and tricks for aligning an image derotator** [8446-179]
A. Brunelli, M. Bergomi, Univ. degli Studi di Padova (Italy) and INAF - Osservatorio Astronomico di Padova (Italy); M. Dima, J. Farinato, D. Magrin, INAF - Osservatorio Astronomico di Padova (Italy); L. Maraffatto, Univ. degli Studi di Padova (Italy); R. Ragazzoni, V. Viotto, INAF - Osservatorio Astronomico di Padova (Italy); T. Bertram, P. Bizenberger, A. Conrad, T. Herbst, D. Meschke, Max-Planck-Institut für Astronomie (Germany)
- 8446 4M **A powerful ethernet interface module for digital camera control** [8446-374]
S. M. Amato, J. C. Geary, Smithsonian Astrophysical Observatory (United States)

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J. Brzeski, L. Gers, G. Smith, N. Staszak, Australian Astronomical Observatory (Australia)
- 8446 4O **Detectors and cryostat design for the SuMIRE Prime Focus Spectrograph (PFS)** [8446-180]
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- 8446 4P **A spectrograph instrument concept for the Prime Focus Spectrograph (PFS) on Subaru Telescope** [8446-181]
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- 8446 4Q **MEGARA: the future optical IFU and multi-object spectrograph for the 10.4m GTC telescope** [8446-182]
A. Gil de Paz, Univ. Complutense de Madrid (Spain); E. Carrasco, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); J. Gallego, Univ. Complutense de Madrid (Spain); F. M. Sánchez, Univ. Politécnica de Madrid (Spain); J. M. Vilchez Medina, Instituto de Astrofísica de Andalucía (Spain); M. García-Vargas, FRACTAL S.L.N.E (Spain);

X. Arrillaga, M. A. Carrera, Added Value Solutions (Spain); A. Castillo-Morales, Univ. Complutense de Madrid (Spain); E. Castillo-Domínguez, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); R. Cedazo, Univ. Politécnica de Madrid (Spain); C. Eliche-Moral, Univ. Complutense de Madrid (Spain); D. Ferrusca, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); E. González-Guardia, Univ. Politécnica de Madrid (Spain); M. Maldonado, FRACTAL S.L.N.E (Spain); R. A. Marino, Univ. Complutense de Madrid (Spain); I. Martínez-Delgado, FRACTAL S.L.N.E (Spain) and Ctr. de Astrobiología, Instituto Nacional de Técnica Aeroespacial (Spain); I. Morales Durán, Instituto de Astrofísica de Andalucía (Spain); E. Mújica, FRACTAL S.L.N.E (Spain); S. Pascual, Univ. Complutense de Madrid (Spain); A. Pérez-Calpena, FRACTAL S.L.N.E (Spain); A. Sánchez-Penim, Univ. Complutense de Madrid (Spain); E. Sánchez-Blanco, FRACTAL S.L.N.E (Spain); F. Serena, Univ. Politécnica de Madrid (Spain); S. Tulloch, FRACTAL S.L.N.E (Spain); V. Villar, J. Zamorano, Univ. Complutense de Madrid (Spain); D. Barrado y Navásquez, Ctr. de Astrobiología, Instituto Nacional de Técnica Aeroespacial (Spain); E. Bertone, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); N. Cardiel, A. Cava, Univ. Complutense de Madrid (Spain); J. Cenarro, Ctr. de Estudios de Física del Cosmos de Aragón (Spain); M. Chávez, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); M. García, Instituto de Astrofísica de Canarias (Spain); J. Guichard, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); R. Gúzman, Univ. of Florida (United States); A. Herrero, Instituto de Astrofísica de Canarias (Spain); N. Huélamo, Ctr. de Astrobiología, Instituto Nacional de Técnica Aeroespacial (Spain); D. Hughes, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); J. Iglesias, Instituto de Astrofísica de Andalucía (Spain); J. Jiménez-Vicente, Univ. de Granada (Spain); A. L. Aguerri, Instituto de Astrofísica de Canarias (Spain); D. Mayya, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); J. M. Abreu, Instituto de Astrofísica de Canarias (Spain); M. Mollá, Ctr. de Investigaciones Energéticas, Medioambientales y Tecnológicas (Spain); C. Muñoz-Tuñón, Instituto de Astrofísica de Canarias (Spain); S. Peimbert, M. Peimbert, Univ. Nacional Autónoma de México (Mexico); P. G. Pérez-González, Univ. Complutense de Madrid (Spain); E. Pérez Montero, Instituto de Astrofísica de Andalucía (Spain); M. Rodríguez, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); J. Rodríguez-Espinosa, Instituto de Astrofísica de Canarias (Spain); L. Rodríguez-Merino, D. Rosa, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); J. Sánchez-Almeida, Instituto de Astrofísica de Canarias (Spain); C. Sánchez Contreras, Ctr. de Astrobiología, Instituto Nacional de Técnica Aeroespacial (Spain); P. Sánchez-Blázquez, Univ. Autónoma de Madrid (Spain); S. Sánchez, Calar Alto Astronomical Observatory (Spain); A. Sarajedini, Univ. of Florida (United States); S. Silich, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); S. Simón, Instituto de Astrofísica de Canarias (Spain); G. Tenorio-Tagle, E. Terlevich, R. Terlevich, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); I. Trujillo, Instituto de Astrofísica de Canarias (Spain); Y. Tsamis, European Southern Observatory (Germany); O. Vega, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico)

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- 8446 4S **The development of WIFIS: a wide integral field infrared spectrograph** [8446-184]
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- 8446 4T **OSIRIS tunable imager and spectrograph for the GTC: from design to commissioning** [8446-185]
B. Sánchez, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); M. Aguilar-González, R. Barreto, S. Becerril, Instituto de Astrofísica de Canarias (Spain); J. Bland-Hawthorn, Anglo-Australian Observatory (Australia); A. Bongiovanni, Instituto de Astrofísica de Canarias (Spain); J. Cepa, Instituto de Astrofísica de Canarias (Spain) and Univ. de La Laguna (Spain); S. Correa, Instituto de Astrofísica de Canarias (Spain); O. Chapa, Univ. Nacional Autónoma de México (Mexico); A. Ederoclite, Instituto de Astrofísica de Canarias (Spain); C. Espejo, A. Farah, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); A. B. Frago, P. Fernández, Instituto de Astrofísica de Canarias (Spain); R. Flores, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); J. Fuentes, F. Gago, Instituto de Astrofísica de Canarias (Spain); F. Garfías, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); J. V. Gigante, Instituto de Astrofísica de Canarias (Spain); J. González, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); V. González-Escalera, B. Hernández, E. Hernandez, A. Herrera, G. Herrera, E. Joven, Instituto de Astrofísica de Canarias (Spain); R. Langarica, G. Lara, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); J. C. López, R. López, Instituto de Astrofísica de Canarias (Spain); C. Militellon, Univ. de La Laguna (Spain); H. Moreno, L. Peraza, A. Pérez, J. Pérez, J. L. Rasilla, J. Rosich, Instituto de Astrofísica de Canarias (Spain); C. Tejada, S. Tinoco, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); T. Vaz, A. Villegas, Instituto de Astrofísica de Canarias (Spain)
- 8446 4U **BATMAN: a DMD-based MOS demonstrator on Galileo Telescope** [8446-186]
F. Zamkotsian, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France); P. Spanò, INAF - Osservatorio Astronomico di Brera (Italy); W. Bon, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France); M. Riva, INAF - Osservatorio Astronomico di Brera (Italy); P. Lanzoni, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France); L. Nicastro, INAF - IASF Bologna (Italy); E. Molinari, R. Cosentino, A. Ghedina, M. Gonzalez, INAF - Telescopio Nazionale Galileo (Italy); P. Di Marcantonio, I. Coretti, R. Cirami, M. Manetta, INAF - Osservatorio Astronomico di Trieste (Italy); F. Zerbi, D. Tresoldi, INAF - Osservatorio Astronomico di Brera (Italy); L. Valenziano, INAF - IASF Bologna (Italy)
- 8446 4V **The design of the MOONS-VLT spectrometer** [8446-187]
E. Oliva, INAF - Osservatorio Astrofisico di Arcetri (Italy); E. Diolaiti, INAF - Osservatorio Astronomico di Bologna (Italy); B. Garilli, INAF - IASF Milano (Italy); R. Gratton, INAF - Osservatorio Astronomico di Padova (Italy); D. Lorenzetti, INAF - Osservatorio Astronomico di Roma (Italy); P. Schipani, INAF - Osservatorio Astronomico di Capodimonte (Italy); S. Scuderi, INAF - Osservatorio Astrofisico di Catania (Italy); E. Vanzella, INAF - Osservatorio Astronomico di Trieste (Italy); M. Cirasuolo, UK Astronomy Technology Ctr. (Italy); J. Afonso, Observatório Astronómico de Lisboa (Portugal); R. Bender, Univ.-Sternwarte München (Germany); P. Bonifacio, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); L. Kaper, Univ. van Amsterdam (Netherlands); L. Vanz, Pontificia Univ. Católica de Chile (Chile); C. Baffa, INAF - Osservatorio Astrofisico di Arcetri (Italy); A. Bianco, INAF - Osservatorio Astronomico di Brera (Italy); C. Bonoli, F. Bortoletto, INAF - Osservatorio Astronomico di Padova (Italy); P. Bruno, INAF - Osservatorio Astrofisico di Catania (Italy);

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- 8446 4Y **M2FS: the Michigan/Magellan Fiber System** [8446-190]
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- 8446 4Z **The metrology cameras for Subaru PFS and FMOS** [8446-191]
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- 8446 50 **A series of detector systems for MUSE** [8446-192]
J.-L. Lizon, European Southern Observatory (Germany); A. Kelz, Leibniz-Institut für Astrophysik Potsdam (Germany); C. Dupuy, M. Accardo, R. Reiss, S. Deiries, European Southern Observatory (Germany); T. Fechner, M. Srivastava, O. Streicher, P. Weillbacher, Leibniz-Institut für Astrophysik Potsdam (Germany); R. Hinterschuster, European Southern Observatory (Germany)

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G. J. Hill, H. Lee, McDonald Observatory, The Univ. of Texas at Austin (United States);
J. L. Marshall, E. C. Martin, W. Meador, J.-P. Rheault, Texas A&M Univ. (United States);
S. E. Tuttle, B. L. Vattiat, McDonald Observatory, The Univ. of Texas at Austin (United States)
- 8446 52 **Integrating BigBOSS with the Mayall Telescope** [8446-194]
R. Besuner, Space Sciences Lab., Univ. of California, Berkeley (United States); C. Bebek,
Lawrence Berkeley National Lab. (United States); A. Dey, W. Goble, D. Joyce, National
Optical Astronomy Observatory (United States); M. E. Levi, Lawrence Berkeley National
Lab. (United States); K. Reil, SLAC National Accelerator Lab. (United States); D. Schlegel,
Lawrence Berkeley National Lab. (United States); M. Sholl, Space Sciences Lab., Univ. of
California, Berkeley (United States)
- 8446 53 **Hector: a high-multiplex survey instrument for spatially resolved galaxy spectroscopy**
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J. Lawrence, Australian Astronomical Observatory (Australia); J. Bland-Hawthorn, J. Bryant,
The Univ. of Sydney (Australia); J. Brzeski, M. Colless, Australian Astronomical Observatory
(Australia); S. Croom, The Univ. of Sydney (Australia); L. Gers, J. Gilbert, P. Gillingham,
M. Goodwin, J. Heijmans, A. Horton, Australian Astronomical Observatory (Australia);
M. Ireland, Australian Astronomical Observatory (Australia) and Macquarie Univ.
(Australia); S. Miziarski, W. Saunders, G. Smith, Australian Astronomical Observatory
(Australia)
- 8446 54 **A fast new cadioptric design for fiber-fed spectrographs** [8446-196]
W. Saunders, Australian Astronomical Observatory (Australia)
- 8446 55 **MEGARA spectrograph for the GTC: mechanical and opto-mechanical design** [8446-197]
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Univ. Politécnica de Madrid (Spain); J. Vilchez Medina, Instituto de Astrofísica de
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National Accelerator Lab. (United States); J. Frieman, R. G. Kron, Fermi National
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- 8446 67 **BigBOSS: a stage IV dark energy redshift survey** [8446-237]
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**POSTER SESSION: IMAGING SURVEYORS/SOLAR INSTRUMENTATION/AIRBORNE
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- 8446 6S **Commissioning and initial performance of the Dark Energy Camera liquid nitrogen cooling system** [8446-259]
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A. G. de Wijn, R. Casini, National Ctr. for Atmospheric Research (United States);
P. G. Nelson, Sierra Scientific Solutions (United States); P. Huang, Consultant (United States)
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- 8446 76 **PICARD SOL mission, a ground-based facility for long-term solar radius measurement** [8446-273]
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K. G. Puschmann, H. Balthasar, Leibniz-Institut für Astrophysik Potsdam (Germany); C. Beck, Instituto de Astrofísica de Canarias (Spain); R. E. Louis, E. Popow, Leibniz-Institut für Astrophysik Potsdam (Germany); T. Seelemann, LaVision GmbH (Germany); R. Volkmer, Albert-Ludwigs-Univ. Freiburg (Germany); M. Woche, C. Denker, Leibniz-Institut für Astrophysik Potsdam (Germany)

8446 7A **The Large-Scale Polarization Explorer (LSPE)** [8446-277]

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8446 7B **NIMBUS: the Near-infrared Multi-Band Ultraprecise Spectroimager for SOFIA** [8446-278]
 M. W. McElwain, A. Mandell, B. Woodgate, NASA Goddard Space Flight Ctr. (United States); D. S. Spiegel, Institute for Advanced Study (United States); N. Madhusudhan, Yale Univ. (United States); E. Amatuucci, NASA Goddard Space Flight Ctr. (United States); C. Blake, Princeton Univ. (United States); J. Budinoff, NASA Goddard Space Flight Ctr. (United States); A. Burgasser, Univ. of California, San Diego (United States); A. Burrows, Princeton Univ. (United States); M. Clampin, NASA Goddard Space Flight Ctr. (United States); C. Conroy, Harvard-Smithsonian Ctr. for Astrophysics (United States); L. Deming, NASA Goddard Space Flight Ctr. (United States); E. Dunham, Lowell Observatory (United States); R. Foltz, Q. Gong, NASA Goddard Space Flight Ctr. (United States); H. Knutson, California Institute of Technology (United States); T. Muench, NASA Goddard Space Flight Ctr. (United States); R. Murray-Clay, Harvard-Smithsonian Ctr. for Astrophysics (United States); H. Peabody, B. Rauscher, S. Rinehart, NASA Goddard Space Flight Ctr. (United States); G. Villanueva, Catholic Univ. of America (United States)

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 M. Bersanelli, A. Mennella, Univ. degli Studi di Milano (Italy) and INAF-IASF Bologna (Italy); G. Morgante, INAF - IASF Bologna (Italy); M. Zannoni, Univ. degli Studi di Milano Bicocca (Italy); G. Addamo, CNR-IEIT, Politecnico di Torino (Italy); A. Baschiroto, Univ. degli Studi di Milano Bicocca (Italy); P. Battaglia, Univ. degli Studi di Milano (Italy); A. Baù, Univ. degli Studi di Milano Bicocca (Italy); B. Cappellini, Univ. degli Studi di Milano (Italy) and INAF-IASF Bologna (Italy); F. Cavaliere, Univ. degli Studi di Milano (Italy); F. Cuttaia, INAF - IASF Bologna (Italy); F. Del Torto, Univ. degli Studi di Milano (Italy); S. Donzelli, INAF - IASF Milano (Italy); Z. Farooqui, CNR-IEIT, Politecnico di Torino (Italy); M. Frailis, INAF - Osservatorio Astronomico di Trieste (Italy); C. Franceschet, Univ. degli Studi di Milano (Italy); E. Franceschi, INAF - IASF Bologna (Italy); T. Gaier, Jet Propulsion Lab. (United States); S. Galeotta, INAF - Osservatorio Astronomico di Trieste (Italy); M. Gervasi, Univ. degli Studi di Milano Bicocca (Italy); A. Gregorio, Univ. degli Studi di Trieste (Italy) and INAF - Osservatorio Astronomico di Trieste (Italy); P. Kangaslahti, Jet Propulsion Lab. (United States); N. Krachmalnicoff, Univ. degli Studi di Milano (Italy); C. Lawrence, Jet Propulsion Lab. (United States); G. Maggio, INAF - Osservatorio Astronomico di Trieste (Italy); R. Mainini, Univ. degli Studi di Milano Bicocca (Italy); D. Maino, Univ. degli Studi di Milano (Italy) and INAF-IASF Bologna (Italy); N. Mandolesi, INAF - IASF Bologna (Italy); B. Paroli, Univ. degli Studi di Milano (Italy); A. Passerini, Univ. degli Studi di Milano Bicocca (Italy); O. A. Peverini, CNR-IEIT, Politecnico di Torino (Italy); S. Poli, Univ. degli Studi di Milano (Italy); S. Ricciardi, INAF - IASF Bologna (Italy); M. Rossetti, Univ. degli Studi di Milano (Italy); M. Sandri, INAF - IASF Bologna (Italy); M. Seiffert, Jet Propulsion Lab. (United States); L. Stringhetti, INAF - IASF Milano (Italy); A. Tartari, Univ. degli Studi di Milano Bicocca (Italy); R. Tascone, CNR-IEIT, Politecnico di Torino (Italy); D. Tavagnacco, INAF - Osservatorio Astronomico di Trieste (Italy); L. Terenzi, INAF - IASF Bologna (Italy); M. Tomasi, INAF - IASF Milano (Italy); E. Tommasi, Agenzia Spaziale Italiana (Italy); F. Villa, INAF - IASF Bologna (Italy); G. Virone, CNR-IEIT, Politecnico di Torino (Italy); A. Zacchei, INAF - Osservatorio Astronomico di Trieste (Italy)

Part Five

- 8446 7D **Development of a new calibration method for ground-based Paschen-alpha imaging data** [8446-283]
K. Tateuchi, K. Motohara, M. Konishi, H. Takahashi, N. Kato, Institute of Astronomy, The Univ. of Tokyo (Japan); R. Ohsawa, The Univ. of Tokyo (Japan); K. Yutaro, Y. Yoshii, M. Doi, Institute of Astronomy, The Univ. of Tokyo (Japan); T. Handa, Kagoshima Univ. (Japan); K. Kohno, K. Kawara, M. Tanaka, T. Miyata, T. Minezaki, S. Sako, T. Tanabe, T. Morokuma, Y. Tamura, Institute of Astronomy, The Univ. of Tokyo (Japan); T. Aoki, T. Soyano, K. Tarusawa, Kiso Observatory, Institute of Astronomy, The Univ. of Tokyo (Japan); S. Koshida, T. Kamizuka, T. Nakamura, K. Asano, M. Uchiyama, Institute of Astronomy, The Univ. of Tokyo (Japan)
- 8446 7E **DiffRACT: differential remapped aperture coronagraphic telescope** [8446-284]
F. Allouche, European Southern Observatory (Germany) and CNRS, Univ. de Nice Sophia-Antipolis, Observatoire de la Cote d'Azur (France); M. Hadjara, CNRS, Univ. de Nice Sophia-Antipolis, Observatoire de la Cote d'Azur (France) and CRAAG (Algeria); Y. Kok, Sydney Institute for Astronomy, The Univ. of Sydney (Australia); F. Vakili, L. Abe, P. M. Gori, CNRS, Univ. de Nice Sophia-Antipolis, Observatoire de la Cote d'Azur (France)
- 8446 7F **Modified modular imaging system designed for a sounding rocket experiment** [8446-285]
T. J. Veach, P. A. Scowen, Arizona State Univ. (United States); M. Beasley, Univ. of Colorado at Boulder (United States); S. Nikzad, Jet Propulsion Lab. (United States)

POSTER SESSION: ELT INSTRUMENTS

- 8446 7G **Key science drivers for MICHI: a mid-IR instrument concept for the TMT** [8446-287]
C. Packham, Univ. of Texas San Antonio (United States) and Univ. of Florida (United States); M. Honda, Kanagawa Univ. (Japan); M. Richter, Univ. of California, Davis (United States); Y. K. Okamoto, Ibaraki Univ. (Japan); H. Kataza, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); T. Onaka, The Univ. of Tokyo (Japan); T. Fujiyoshi, Subaru Telescope, National Astronomical Observatory of Japan (United States); A. Tokunaga, M. Chun, Institute for Astronomy, Univ. of Hawai'i (United States); A. Alonso-Herrero, Instituto de Física de Cantabria (Spain); J. Carr, U.S. Naval Research Lab (United States); M. Chiba, Tohoku Univ. (Japan); K. Enya, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); H. Fujiwara, Subaru Telescope, National Astronomical Observatory of Japan (United States); P. Gandhi, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); M. Imanishi, Subaru Telescope, National Astronomical Observatory of Japan (United States); K. Ichikawa, Univ. of Kyoto (Japan); Y. Ita, Tohoku Univ. (Japan); N. Kawakatsu, Tsukuba Univ. (Japan); T. Kotani, National Astronomical Observatory of Japan (Japan); N. Levenson, Gemini Observatory (Chile); T. Matsuo, Univ. of Kyoto (Japan); M. Matsuura, Univ. College London (United Kingdom); T. Minezaki, The Univ. of Tokyo (Japan); J. Najita, National Optical Astronomy Observatory (United States); N. Oi, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); T. Ootsubo, Tohoku Univ. (Japan); I. Sakon, Institute of Astronomy, The Univ. of Tokyo (Japan); M. Takami, Institute of Astronomy and Astrophysics (Taiwan); C. Telesco, Univ. of Texas San Antonio (United States); C. M. Wright, Univ. of New South Wales (Australia); T. Yamashita, National Astronomical Observatory of Japan (Japan)

- 8446 7H **Modelling complex phenomena in optical fibres** [8446-288]
J. Allington-Smith, G. Murray, U. Lemke, Univ. of Durham (United Kingdom)
- 8446 7I **MANIFEST instrument concept and related technologies** [8446-289]
M. Goodwin, J. Brzeski, S. Case, M. Colless, T. Farrell, L. Gers, J. Gilbert, J. Heijmans, A. Hopkins, J. Lawrence, S. Miziarski, G. Monnet, R. Muller, W. Saunders, G. Smith, J. Tims, L. Waller, Australian Astronomical Observatory (Australia)
- 8446 7J **Modelling the application of integrated photonic spectrographs to astronomy** [8446-290]
R. J. Harris, J. R. Allington-Smith, Univ. of Durham (United Kingdom)
- 8446 7K **Multi-object spectroscopy with the European ELT: scientific synergies between EAGLE and EVE** [8446-291]
C. J. Evans, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); B. Barbuy, Univ. de São Paulo (Brazil); P. Bonifacio, F. Chemla, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); J.-G. Cuby, Lab. d'Astrophysique de Marseille, CNRS, Aix Marseille Univ. (France); G. B. Dalton, Astrophysics (United Kingdom) and Rutherford Appleton Lab. (United Kingdom); B. Davies, Univ. of Cambridge (United Kingdom); K. Disseau, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); K. Dohlen, Lab. d'Astrophysique de Marseille, CNRS, Aix Marseille Univ. (France); H. Flores, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); E. Gendron, LESIA, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); I. Guinouard, F. Hammer, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); P. Hastings, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); D. Horville, P. Jagourel, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); L. Kaper, Astronomical Institute Anton Pannekoek, Univ. of Amsterdam (Netherlands); P. Laporte, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); D. Lee, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); S. L. Morris, T. Morris, R. Myers, Univ. of Durham (United Kingdom); R. Navarro, NOVA - ASTRON (Netherlands); P. Parr-Burman, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); P. Petitjean, Institut d'Astrophysique de Paris (France); M. Puech, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); E. Rollinde, Institut d'Astrophysique de Paris (France); G. Rousset, LESIA, Observatoire de Paris, CNRS (France); H. Schnettler, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); N. Welikala, Institut d'Astrophysique Spatiale, CNRS, Univ. Paris Sud XI (France); M. Wells, UK Astronomy Technology Ctr., Royal Observatory (United Kingdom); Y. Yang, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France) and National Astronomical Observatories (China)
- 8446 7L **Characterizing the red optical sky background fluctuations from narrow-band imaging** [8446-292]
M. Puech, H. Flores, GEPI, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France); Y. B. Yang, GEPI, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France) and National Astronomical Observatories (China); M. Rodrigues, European Southern Observatory (Chile) and GEPI, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France) and Instituto Superior Tecnico (Portugal); T. Gonçalves, Observatorio do Valongo (Brazil); F. Hammer, K. Disseau, GEPI, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France)
- 8446 7N **Optomechanical design concept for GMACS: a wide-field multi-object moderate resolution optical spectrograph for the Giant Magellan Telescope (GMT)** [8446-294]
S. A. Smee, R. H. Barkhouser, The Johns Hopkins Univ. (United States); T. Prochaska, Texas A&M Univ. (United States); S. A. Shectman, Carnegie Observatories (United States); R. P. Hammond, The Johns Hopkins Univ. (United States); D. L. DePoy, J. L. Marshall, Texas A&M Univ. (United States)

- 8446 7O **Sorption-based vibration-free cooler for the METIS instrument on E-ELT** [8446-295]
H. J. M. ter Brake, Y. Wu, D. R. Zalewski, C. H. Vermeer, H. J. Holland, Univ. Twente (Netherlands); J. Doornink, B. Benthem, E. Boom, Dutch Space B.V. (Netherlands)
- 8446 7P **Design and development of SWIMS: a near-infrared multi-object spectrograph for the University of Tokyo Atacama Observatory** [8446-296]
M. Konishi, K. Motohara, H. Takahashi, K. Tateuchi, Y. Kitagawa, N. Kato, Institute of Astronomy, The Univ. of Tokyo (Japan); T. Aoki, Kiso Observatory, Institute of Astronomy, The Univ. of Tokyo (Japan); M. Doi, Institute of Astronomy, The Univ. of Tokyo (Japan); T. Handa, Kagoshima Univ. (Japan); T. Kamizuka, K. Kawara, K. Kohno, S. Koshida, T. Minezaki, T. Miyata, T. Morokuma, S. Sako, Institute of Astronomy, The Univ. of Tokyo (Japan); T. Soyano, Kiso Observatory, Institute of Astronomy, The Univ. of Tokyo (Japan); Y. Tamura, T. Tanabe, M. Tanaka, Institute of Astronomy, The Univ. of Tokyo (Japan); K. Tarusawa, Kiso Observatory, Institute of Astronomy, The Univ. of Tokyo (Japan); Y. Yoshii, Institute of Astronomy, The Univ. of Tokyo (Japan)
- 8446 7Q **Variation of the near-IR sky continuum background from long-slit spectroscopy** [8446-297]
Y. B. Yang, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France) and National Astronomical Observatories (China); M. Puech, H. Flores, F. Hammer, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); M. Rodrigues, European Southern Observatory (Chile) and GEPI, Observatoire de Paris, CNRS (France) and CENTRA, Instituto Superior Tecnico, Observatorio do Valongo (Brazil); K. Disseau, GEPI, Observatoire de Paris, CNRS, Univ. Paris Diderot (France)
- 8446 7T **VIENTOS: a feasibility study of innovative pupil systems for the new generation of instruments in the large telescopes** [8446-300]
M. L. García-Vargas, A. Pérez-Calpena, FRACTAL S.L.N.E (Spain); J. Gallego, A. Gil de Paz, Univ. Complutense de Madrid (Spain); E. Sánchez-Blanco, I. Martínez-Delgado, M. Maldonado Medina, FRACTAL S.L.N.E (Spain); J. Zamorano Calvo, Univ. Complutense de Madrid (Spain)

POSTER SESSION: PLANET FINDERS/HIGH RESOLUTION AO INSTRUMENTS

- 8446 7U **Conceptual design of the Coronagraphic High Angular Resolution Imaging Spectrograph (CHARIS) for the Subaru telescope** [8446-302]
M. A. Peters, T. Groff, N. J. Kasdin, Princeton Univ. (United States); M. W. McElwain, NASA Goddard Space Flight Ctr. (United States); M. Galvin, M. A. Carr, R. Lupton, J. E. Gunn, G. Knapp, Princeton Univ. (United States); Q. Gong, NASA Goddard Space Flight Ctr. (United States); A. Carlotti, T. Brandt, M. Janson, Princeton Univ. (United States); O. Guyon, F. Martinache, M. Hayashi, N. Takato, Subaru Telescope, National Astronomical Observatory of Japan (United States)
- 8446 7V **Very high-resolution spectroscopy: the ESPRESSO optical design** [8446-303]
P. Spanò, INAF - Osservatorio Astronomico di Brera (Italy) and Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada); B. Delabre, H. Dekker, European Southern Observatory (Germany); F. Pepe, Observatoire de l'Univ. de Genève (Switzerland); F. M. Zerbi, INAF - Osservatorio Astronomico di Brera (Italy); P. Di Marcantonio, European Southern Observatory (Germany); S. Cristiani, INAF - Osservatorio Astronomico di Trieste (Italy); D. Mégevand, Observatoire de l'Univ. de Genève (Switzerland)

- 8446 7W **GRAVITY Coudé Infrared Adaptive Optics (CIAO) system for the VLT Interferometer** [8446-304]
S. Kendrew, S. Hippler, W. Brandner, Max-Planck-Institut für Astronomie (Germany); Y. Clénet, LESIA, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); C. Deen, Max-Planck-Institut für Astronomie (Germany); E. Gendron, LESIA, Observatoire de Paris, CNRS, Univ. Paris Diderot (France); A. Huber, R. Klein, W. Laun, R. Lenzen, V. Naranjo, U. Neumann, J. Ramos, R.-R. Rohloff, P. Yang, Max-Planck-Institut für Astronomie (Germany); F. Eisenhauer, Max-Planck-Institut für extraterrestrische Physik (Germany); A. Amorim, Lab. de Sistemas, Instrumentao e Modelao em Cincias e Tecnologias do Ambiente e do Espao (Portugal); K. Perraut, Institut de Planétologie et d'Astrophysique de Grenoble (France); G. Perrin, LESIA, Observatoire de Paris, CNRS, Univ. Paris-Diderot (France); C. Straubmeier, Univ. of Cologne (Germany); E. Fedrigo, M. Suarez Valles, European Southern Observatory (Germany)
- 8446 7X **PlanetCam UPV/EHU: a simultaneous visible and near infrared lucky-imaging camera to study solar system objects** [8446-305]
A. Sanchez-Lavega, J. F. Rojas, R. Hueso, S. Perez-Hoyos, Univ. del País Vasco (Spain); L. de Bilbao, G. Murga, J. Ariño, IDOM (Spain)
- 8446 7Y **NESSI: an optimized Near-Infrared (NIR) Multi-Object Spectrograph (MOS) for exoplanet studies** [8446-306]
M. J. Creech-Eakman, C. A. Jurgenson, F. G. Santoro, Magdalena Ridge Observatory (United States); H. Bloemhard, New Mexico Institute of Mining and Technology (United States); P. J. Boston, Magdalena Ridge Observatory (United States); P. D. Deroo, Jet Propulsion Lab. (United States); M. Hrynevych, S. R. Jimenez, A. M. Olivares, Magdalena Ridge Observatory (United States); M. Napolitano, New Mexico Institute of Mining and Technology (United States); C. D. Salcido, Magdalena Ridge Observatory (United States); L. M. Schmidt, R. Selina, New Mexico Institute of Mining and Technology (United States); M. R. Swain, G. Vasisht, Jet Propulsion Lab. (United States)
- 8446 7Z **Conceptual study for a sub-pupil instrument having 4 high order adaptive optics path for parallel multi-wavelength high contrast imaging, and medium resolution spectrometry** [8446-308]
F. Y. J. Gontte, P. Bourget, J. Girard, P. Haguenauer, D. Mawet, European Southern Observatory (Chile)
- 8446 81 **An echelle spectrograph for precise radial velocity measurements in the near IR** [8446-311]
A. Berdja, L. Vanzi, A. Jordán, Pontificia Univ. Católica de Chile (Chile); S. Koshida, Institute of Astronomy, The Univ. of Tokyo (Japan)
- 8446 82 **Progress on multi-object exoplanet search spectral interferometer** [8446-312]
K. Zhang, Y. Zhu, L. Wang, Z. Yue, Y. Chen, J. Tang, Z. Hu, Nanjing Institute of Astronomical Optics & Technology (China)
- 8446 84 **Optical design of new generation compact, high resolution and high Doppler precision optical spectrograph** [8446-314]
B. Zhao, J. Ge, Univ. of Florida (United States)
- 8446 85 **Optical design of a versatile FIRST high-resolution near-IR spectrograph** [8446-315]
B. Zhao, J. Ge, Univ. of Florida (United States)

- 8446 86 **The SED Machine: a dedicated transient IFU spectrograph** [8446-316]
S. Ben-Ami, Weizmann Institute of Science (Israel); N. Konidaris, Cahill Ctr. for Astronomy and Astrophysics, California Institute of Technology (United States); R. Quimby, Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); J. T. C. Davis, Cahill Ctr. for Astronomy and Astrophysics, California Institute of Technology (United States); C. C. Ngeow, A. Ritter, A. Rudy, Graduate Institute of Astronomy, National Central Univ. (Taiwan)
- 8446 88 **KiwiSpec - an advanced spectrograph for high resolution spectroscopy: optical design and variations** [8446-318]
S. I. Barnes, Stuart Barnes Optical Design (New Zealand); S. Gibson, Univ. of Canterbury (New Zealand) and Industrial Research Ltd. (New Zealand); K. Nield, D. Cochrane, Industrial Research Ltd. (New Zealand)
- 8446 89 **Experimental results on wavefront correction using the self-coherent camera** [8446-319]
M. Mas, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France) and LESIA, Observatoire de Paris, CNRS, Univ. Pierre et Marie Curie Paris 6 and Univ. Denis Diderot (France); P. Baudoz, J. Mazoyer, LESIA, Observatoire de Paris, CNRS, Univ. Pierre et Marie Curie Paris 6 and Univ. Denis Diderot (France); R. Galicher, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada) and Univ. de Montréal (Canada); G. Rousset, LESIA, Observatoire de Paris, CNRS, Univ. Pierre et Marie Curie Paris 6 and Univ. Denis Diderot (France)
- 8446 8A **Buckling failure of the automated planet finder spectrometer determinate spaceframe** [8446-320]
M. V. Radovan, G. F. Cabak, Univ. of California Observatories/Lick Observatory (United States)
- 8446 8B **Coronagraphic phase diversity for exoplanet detection** [8446-321]
B. Paul, ONERA (France) and Lab. d'Astrophysique de Marseille, Univ. Aix-Marseille, CNRS (France) and Groupement d'interet scientifique PHASE (France); J.-F. Sauvage, L. M. Mugnier, ONERA (France) and Groupement d'interet scientifique PHASE (France); M. N'Diaye, K. Dohlen, M. Ferrari, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France) and Groupement d'interet scientifique PHASE (France); T. Fusco, Groupement d'interet scientifique PHASE (France)
- 8446 8C **Dark hole and planet detection: laboratory results using the self-coherent camera** [8446-322]
P. Baudoz, J. Mazoyer, M. Mas, Lab. d'Etudes Spatiales et d'Instrumentation en Astrophysique, Observatoire de Paris (France); R. Galicher, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada) and Univ. de Montreal (Canada); G. Rousset, Lab. d'Etudes Spatiales et d'Instrumentation en Astrophysique, Observatoire de Paris (France)
- 8446 8D **Laboratory test of a polarimetry imaging subtraction system for the high-contrast imaging** [8446-323]
J. Dou, Nanjing Institute of Astronomical Optics & Technology (China); D. Ren, Nanjing Institute of Astronomical Optics & Technology (China) and California State Univ., Northridge (United States); Y. Zhu, Nanjing Institute of Astronomical Optics & Technology (China); X. Zhang, R. Li, Nanjing Institute of Astronomical Optics & Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China)

- 8446 8E **A passive cost-effective solution for the high accuracy wavelength calibration of radial velocity spectrographs** [8446-324]
F. Wildi, B. Chazelas, F. Pepe, Observatoire de l'Univ. de Genève (Switzerland)
- 8446 8G **Near-infrared calibration systems for precise radial-velocity measurements** [8446-326]
S. L. Redman, National Institute of Standards and Technology (United States); F. Kerber, European Southern Observatory (Germany); G. Nave, National Institute of Standards and Technology (United States); S. Mahadevan, The Pennsylvania State Univ. (United States) and Ctr. for Exoplanets and Habitable Worlds (United States); L. W. Ramsey, The Pennsylvania State Univ. (United States); J. Smoker, European Southern Observatory (Chile); H. Käufl, European Southern Observatory (Germany); P. R. L. Figueira, Ctr. de Astrofísica da Univ. do Porto (Portugal)
- 8446 8H **Development of the Savart-plate lateral-shearing interferometric nuller for exoplanet (SPLINE)** [8446-327]
N. Murakami, M. Kida, N. Baba, Hokkaido Univ. (Japan); T. Matsuo, Kyoto Univ. (Japan) and National Astronomical Observatory of Japan (Japan); T. Kotani, National Astronomical Observatory of Japan (Japan) and Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); H. Kawahara, Tokyo Metropolitan Univ. (Japan); Y. Fujii, The Univ. of Tokyo (Japan); M. Tamura, National Astronomical Observatory of Japan (Japan)
- 8446 8I **A slitless spectrograph for observing transient events with small telescopes** [8446-328]
B. E. Zhilyaev, Main Astronomical Observatory (Ukraine) and ICAMER Observatory (Ukraine); O. Sergeev, M. Andreev, V. G. Godunova, ICAMER Observatory (Ukraine); V. Reshetnyk, Main Astronomical Observatory (Ukraine) and National Taras Shevchenko Univ. (Ukraine); V. K. Tarady, ICAMER Observatory (Ukraine)
- 8446 8J **Optical fiber modal noise in the 0.8 to 1.5 micron region and implications for near infrared precision radial velocity measurements** [8446-329]
K. S. McCoy, L. Ramsey, S. Mahadevan, S. Halverson, The Pennsylvania State Univ. (United States); S. L. Redman, National Institute of Standards and Technology (United States)
- 8446 8K **A diamond AGPM coronagraph for VISIR** [8446-330]
C. Delacroix, O. Absil, Univ. de Liège (Belgium); D. Mawet, European Southern Observatory (Chile); C. Hanot, Univ. de Liège (Belgium); M. Karlsson, P. Forsberg, Uppsala Univ. (Sweden); E. Pantin, CEA Saclay (France); J. Surdej, S. Habraken, Univ. de Liège (Belgium)
- 8446 8N **The IFS of SPHERE: integration and laboratory performances** [8446-333]
R. Claudi, U. Anselmi, INAF - Osservatorio Astronomico di Padova (Italy); P. Bruno, INAF - Osservatorio Astrofisico di Catania (Italy); E. Cascone, INAF - Osservatorio Astronomico di Capodimonte (Italy); A. Costille, Institute de Planetologie et d'Astrophysique de Grenoble, CNRS, Univ. Joseph Fourier (France); V. De Caprio, INAF - Osservatorio Astronomico di Capodimonte (Italy); S. Desidera, E. Giro, R. Gratton, L. Lessio, D. Mesa, INAF - Osservatorio Astronomico di Padova (Italy); S. Scuderi, INAF - Osservatorio Astrofisico di Catania (Italy); M. Turatto, INAF - Osservatorio Astronomico di Padova (Italy); F. Wildi, Observatoire de l'Univ. de Genève (Switzerland); A. Baruffolo, INAF - Osservatorio Astronomico di Padova (Italy); R. Dorn, European Southern Observatory (Germany); D. Fantinel, INAF - Osservatorio Astronomico di Padova (Italy); G. Finger, J. L. Lizon, European Southern Observatory (Germany); E. Sant'Ambrogio, Institute de Planetologie et d'Astrophysique de Grenoble, CNRS, Univ. Joseph Fourier (France); B. Salasnich, INAF - Osservatorio Astronomico di Padova (Italy); J. Beuzit, Institute de Planetologie et d'Astrophysique de Grenoble, CNRS,

Univ. Joseph Fourier (France); K. Dohlen, European Southern Observatory (Germany);
P. Puget, Institute de Planetologie et d'Astrophysique de Grenoble, CNRS, Univ. Joseph
Fourier (France); M. Kasper, N. Hubin, European Southern Observatory (Germany)

- 8446 8O **Calibration of an echelle spectrograph with an astro-comb: a laser frequency comb with very high repetition rate** [8446-335]
D. F. Phillips, A. Glenday, C.-H. Li, G. Furesz, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. J. Benedick, G. N. Chang, L.-J. Chen, Massachusetts Institute of Technology (United States); S. Korzennik, D. Sasselov, Harvard-Smithsonian Ctr. for Astrophysics (United States); F. X. Kaertner, Hamburg Univ. and DESY (Germany); A. Szentgyorgyi, Harvard-Smithsonian Ctr. for Astrophysics (United States); R. L. Walsworth, Harvard-Smithsonian Ctr. for Astrophysics (United States) and Harvard Univ. (United States)
- 8446 8R **Design and performance of a new generation, compact, low cost, very high Doppler precision and resolution optical spectrograph** [8446-338]
J. Ge, B. Zhao, S. Powell, J. Wang, A. Fletcher, Univ. of Florida (United States); L. Chang, Univ. of Florida (United States) and Yunnan Astronomical Observatory (China); J. Groot, X. Wan, H. Jakeman, D. Myers, E. Grafer, J. Liu, F. Varosi, S. Schofield, A. Moore, M. I. van Olphen, J. Katz, Univ. of Florida (United States); R. Barnes, Univ. of Washington (United States)
- 8446 8T **Extreme Doppler precision with octagonal fiber scramblers** [8446-340]
J. F. P. Spronck, Z. A. Kaplan, D. A. Fischer, C. Schwab, A. E. Szymkowiak, Yale Univ. (United States)
- 8446 8U **Stop-less Lyot coronagraph for exoplanet characterization** [8446-341]
A. Vigan, Univ. of Exeter (United Kingdom) and LAM, CNRS, Univ. de Provence (France); M. N'Diaye, K. Dohlen, Lab. d'Astrophysique de Marseille, CNRS, Univ. de Provence (France)
- 8446 8W **Performance of the integral field spectrograph for the Gemini Planet Imager** [8446-343]
J. K. Chilcote, J. E. Larkin, Univ. of California, Los Angeles (United States); J. Maire, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); M. D. Perrin, Space Telescope Science Institute (United States); M. P. Fitzgerald, Univ. of California, Los Angeles (United States); R. Doyon, Univ. de Montréal (Canada); S. Thibault, Univ. Laval (Canada); B. Bauman, B. A. Macintosh, Lawrence Livermore National Lab. (United States); J. R. Graham, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); L. Saddlemyer, Hertzberg Institute of Astrophysics, National Research Council of Canada (Canada)
- 8446 8X **Green astro-comb for HARPS-N** [8446-344]
C. Li, A. G. Glenday, D. F. Phillips, G. Furesz, Harvard-Smithsonian Ctr. for Astrophysics (United States); N. Langellier, Harvard Univ. (United States); M. Webber, Northeastern Univ. (United States); A. Zibrov, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. J. Benedick, G. Chang, L. J. Chen, Massachusetts Institute of Technology (United States); D. Sasselov, Harvard-Smithsonian Ctr. for Astrophysics (United States); F. Kärtner, Massachusetts Institute of Technology (United States); A. Szentgyorgyi, Harvard-Smithsonian Ctr. for Astrophysics (United States); R. L. Walsworth, Harvard-Smithsonian Ctr. for Astrophysics (United States) and Harvard Univ. (United States)

- 8446 8Y **Tests of the demodulating CCDs for the SPHERE / ZIMPOL imaging polarimeter** [8446-345]
H.-M. Schmid, ETH Zürich (Switzerland); M. Downing, European Southern Observatory (Germany); R. Roelfsema, NOVA - ASTRON (Netherlands); A. Bazzon, D. Gisler, ETH Zürich (Switzerland); J. Pragt, NOVA - ASTRON (Netherlands); C. Cumani, European Southern Observatory (Germany); B. Salasnich, INAF - Osservatorio Astronomico di Padova (Italy); A. Pavlov, Max-Planck-Institut für Astronomie (Germany); A. Baruffolo, INAF - Osservatorio Astronomico di Padova (Italy); J.-L. Beuzit, A. Costille, Institut de Planetologie et d'Astrophysique de Grenoble, Univ. Joseph Fourier (France); S. Deiries, European Southern Observatory (Germany); K. Dohlen, Lab. d'Astrophysique de Marseille, Observatoire Astronomique de Marseille-Provence (France); C. Dominik, Astronomical Institute Anton Pannekoek, Univ. of Amsterdam (Netherlands); E. Elswijk, NOVA - ASTRON (Netherlands); M. Feldt, Max-Planck-Institut für Astronomie (Germany); M. Kasper, European Southern Observatory (Germany); D. Mouillet, Institut de Planetologie et d'Astrophysique de Grenoble, Univ. Joseph Fourier (France); C. Thalmann, Astronomical Institute Anton Pannekoek, Univ. of Amsterdam (Netherlands); F. Wildi, Observatoire de l'Univ. de Genève (Switzerland)
- 8446 8Z **Fiber scrambling for precise radial velocities at Lick and Keck Observatories** [8446-346]
J. F. P. Spronck, D. A. Fischer, Z. A. Kaplan, C. Schwab, Yale Univ. (United States)
- 8446 91 **Polarimetric performance of the Gemini Planet Imager** [8446-348]
S. J. Wiktorowicz, Univ. of California, Santa Cruz (United States); M. Millar-Blanchaer, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); M. D. Perrin, Space Telescope Science Institute (United States); J. R. Graham, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); S. J. Thomas, Gemini Observatory (United States); D. Dillon, UCO/Lick Observatory (United States); M. P. Fitzgerald, Univ. of California, Los Angeles (United States); J. Maire, Dunlap Institute for Astronomy & Astrophysics, Univ. of Toronto (Canada); B. A. Macintosh, Lawrence Livermore National Lab. (United States); S. J. Goodsell, Gemini Observatory (United States)
- 8446 92 **A testbed for simultaneous measurement of fiber near and far-field for the evaluation of fiber scrambling properties** [8446-349]
T. Feger, Univ.-Sternwarte München (Germany); A. Brucalassi, Max-Planck-institut für extraterrestrische Physik (Germany); F. U. Grupp, Max-Planck-institut für extraterrestrische Physik (Germany) and Univ.-Sternwarte München (Germany); F. Lang-Bardl, Univ. Observatory Munich (Germany); R. Holzwarth, Max-Planck-Institut für Quantenoptik (Germany); U. Hopp, Univ.-Sternwarte München (Germany); R. Bender, Max-Planck-institut für extraterrestrische Physik (Germany) and Univ.-Sternwarte München (Germany)
- 8446 93 **SPHERE / ZIMPOL: characterization of the FLC polarization modulator** [8446-350]
A. Bazzon, D. Gisler, ETH Zürich (Switzerland); R. Roelfsema, NOVA - ASTRON (Netherlands); H. Schmid, ETH Zürich (Switzerland); J. Pragt, E. Elswijk, M. de Haan, NOVA - ASTRON (Netherlands); M. Downing, European Southern Observatory (Germany); B. Salasnich, INAF - Osservatorio Astronomico di Padova (Italy); A. Pavlov, Max-Planck-Institut für Astronomie (Germany); J. Beuzit, Institut de Planetologie et d'Astrophysique de Grenoble, Univ. Joseph Fourier (France); K. Dohlen, Lab. d'Astrophysique de Marseille, Observatoire Astronomique de Marseille-Provence (France); D. Mouillet, Institut de Planetologie et d'Astrophysique de Grenoble, Univ. Joseph Fourier (France); F. Wildi, Observatoire de l'Univ. de Genève (Switzerland)

- 8446 94 **Two Fabry-Perot interferometers for high precision wavelength calibration in the near-infrared** [8446-351]
S. Schäfer, A. Reiners, Georg-August-Univ. Göttingen (Germany)
- 8446 95 **Investigating spectrograph design parameters with the Yale Doppler diagnostic facility** [8446-353]
C. Schwab, Yale Univ. (United States); T. Gutcke, Landessternwarte, Zentrum für Astronomie der Univ. Heidelberg (Germany); J. P. F. Spronck, D. A. Fischer, A. Szymkowiak, Yale Univ. (United States)
- 8446 96 **High-resolution Fourier transform spectrograph for characterization of echelle spectrograph wavelength calibrators** [8446-354]
A. G. Glenday, D. F. Phillips, Harvard-Smithsonian Ctr. for Astrophysics (United States); M. Webber, Northeastern Univ. (United States); C.-H. Li, G. Furesz, Harvard-Smithsonian Ctr. for Astrophysics (United States); G. Chang, L.-J. Chen, Massachusetts Institute of Technology (United States); F. X. Kärtnner, Massachusetts Institute of Technology (United States) and DESY (Germany); D. D. Sasselov, A. H. Szentgyorgyi, R. L. Walsworth, Harvard-Smithsonian Ctr. for Astrophysics (United States)
- 8446 97 **Alignment of the SPHERE-ZIMPOL imaging polarimeter** [8446-355]
J. Pragt, R. Roelfsema, NOVA - ASTRON (Netherlands); D. Gisler, ETH Zürich (Switzerland); F. Wildi, Observatoire de l'Univ. de Genève (Switzerland); H. M. Schmid, ETH Zürich (Switzerland); F. Rigal, E. Elswijk, M. de Haan, NOVA - ASTRON (Netherlands); A. Bazzon, ETH Zürich (Switzerland); K. Dohlen, Lab. d'Astrophysique de Marseille, Observatoire Astronomique de Marseille-Provence (France); A. Costille, Institut de Planétologie et d'Astrophysique de Grenoble (France); C. Dominik, Astronomical Institute Anton Pannekoek, Univ. of Amsterdam (Netherlands)
- 8446 98 **SPHERE-IRDIS assembly, integration and testing: from bits and metal to a planet-hunting machine** [8446-356]
F. Madec, K. Dohlen, P. Blanchard, M. Carle, A. Origné, M. Jaquet, D. Le Mignant, R. Barette, G. Moreaux, G. Arthaud, D. Ferrand, J.-C. Blanc, P. Vors, F. Ducret, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France); L. Gluck, Institut de Planétologie et d'Astrophysique de Grenoble (France); M. Saisse, C. Fabron, P. Laurent, J.-A. Benedetti, W. Bon, M. Llored, C. Moutou, C. Gry, J.-C. Meunier, A. Vigan, L. Hill, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France); M. P. Langlois, Ctr. de Recherche Astronomique de Lyon, CNRS, Univ. Lyon (France); J.-L. Lizon, European Southern Observatory (Germany); V. Naranjo, Max-Planck-Institut für Astronomie (Germany); R. Brast, European Southern Observatory (Germany); M. Feldt, Max-Planck-Institut für Astronomie (Germany); D. Popovic, European Southern Observatory (Germany)
- 8446 99 **First laboratory results of SPHERE/IRDIS dual-band imaging and long slit spectroscopy modes** [8446-357]
A. Vigan, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France); M. Langlois, Ctr. de Recherche Astronomique de Lyon, CNRS, Univ. Lyon (France); P. Martinez, Institut de Planétologie et d'Astrophysique de Grenoble, CNRS, Univ. Joseph Fourier (France); D. Le Mignant, K. Dohlen, C. Moutou, C. Gry, F. Madec, Lab. d'Astrophysique de Marseille, CNRS, Aix-Marseille Univ. (France)

- 8446 9C **Scientific design of a high contrast integral field spectrograph for the Subaru Telescope** [8446-360]
M. W. McElwain, NASA Goddard Space Flight Ctr. (United States); T. D. Brandt, M. Janson, G. R. Knapp, M. A. Peters, A. S. Burrows, A. Carlotti, M. A. Carr, T. Groff, J. E. Gunn, Princeton Univ. (United States); O. Guyon, Subaru Telescope, National Astronomical Observatory of Japan (United States); M. Hayashi, National Astronomical Observatory of Japan (Japan); N. J. Kasdin, Princeton Univ. (United States); M. Kuzuhara, The Univ. of Tokyo (Japan); R. H. Lupton, Princeton Univ. (United States); F. Martinache, Subaru Telescope, National Astronomical Observatory of Japan (United States); D. Spiegel, Institute for Advanced Study (United States); N. Takato, Subaru Telescope, National Astronomical Observatory of Japan (United States); M. Tamura, National Astronomical Observatory of Japan (Japan); E. L. Turner, R. J. Vanderbei, Princeton Univ. (United States)
- 8446 9E **ESPRESSO front end opto-mechanical configuration** [8446-362]
M. Riva, M. Landoni, F. M. Zerbi, INAF - Osservatorio Astronomico di Brera (Italy); D. Mégevand, Observatoire de l'Univ. de Genève (Switzerland); A. Cabral, Univ. de Lisboa (Portugal); S. Cristiani, INAF - Osservatorio Astronomico di Trieste (Italy); B. Delabre, European Southern Observatory (Germany)
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Introduction

Astronomical instrumentation continues to show impressive advances. We live in an era of unprecedented productivity and creativity. The well-established ground-based 8-10m class observatories are being equipped with second and third generation instruments, of substantial size and complexity. Designs are underway for new instruments that will deliver the scientific results from the planned extremely large telescopes (apertures of 20m and more). There is no doubt that it is challenging to produce these new instruments. They must perform at the highest level and yet be reliable and affordable.

Innovative optical/IR instrumentation for many kinds of smaller telescopes, solar telescopes, and airborne platforms has provided new opportunities in recent years. Adaptive optics, wide-field multi-object surveys, and 3D spectroscopy are all becoming "standard" facilities as detector sizes continue to grow. Increasingly, new instrumentation is designed with adaptive optics incorporated in the overall system.

This conference, the fourth in the series, was established with the following aims: (1) to provide an overview of the performance and lessons learned from those instruments already in operation; (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 technical information on achievements and problems amongst instrument builders in both the academic and industrial worlds. Without doubt, these goals were achieved.

At this meeting, 327 papers were presented, either as oral or poster contributions, a record for this conference series. Eight invited reviews were requested on major existing facilities or planned new ones. Topics covered the entire range of UV, optical and infrared instrumentation for both ground-based and airborne astronomy. Specific areas of interest included:

- performance of recently developed instrumentation
- design reports of new instruments - imagers, spectrographs, polarimeters
- new techniques and technologies, especially for planet hunting
- instruments for airborne astronomy
- instruments for ground-based solar telescopes
- instrumentation for future Extremely Large Telescopes (ELTs)

The conference was subdivided into 14 sessions spread over five days, including two sessions (Session 12 and 13) on Planet Finders. On behalf of the program committee, it is a pleasure to acknowledge all participants.

Ian S. McLean
Suzanne K. Ramsay
Hideki Takami