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Adaptive Optics Systems II

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Editors

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- 7736 0V **Laser guide star return flux simulations based on observed sodium density profiles** [7736-15]
R. Holzlohner, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); S. M. Rochester, Univ. of California, Berkeley (United States); T. Frommer, The Univ. of British Columbia (Canada); D. Bonaccini Calia, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); D. Budker, Univ. of California, Berkeley (United States); J. M. Higbie, Bucknell Univ. (United States); W. Hackenberg, European Organisation for Astronomical Research in the Southern Hemisphere (Germany)
- 7736 0W **Modeling update for the Thirty Meter Telescope laser guide star dual-conjugate adaptive optics system** [7736-31]
L. Gilles, L. Wang, B. Ellerbroek, Thirty Meter Telescope Project (United States)
- 7736 0X **Fractal iterative method for fast atmospheric tomography on extremely large telescopes** [7736-32]
M. Tallon, I. Tallon-Bosc, Univ. de Lyon (France), Observatoire de Lyon, Univ. de Lyon 1 (France), and Ctr. de Recherche Astrophysique de Lyon, CNRS, Ecole Normale Supérieure de Lyon (France); C. Béchet, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); F. Momey, M. Fradin, É. Thiébaud, Univ. de Lyon (France), Observatoire de Lyon, Univ. de Lyon 1 (France), and Ctr. de Recherche Astrophysique de Lyon, CNRS, Ecole Normale Supérieure de Lyon (France)
- 7736 0Y **The hunt for 100% sky coverage** [7736-33]
S. Meimon, T. Fusco, ONERA (France); Y. Clenet, LESIA, CNRS, Observatoire de Paris à Meudon, Univ. Paris Diderot (France); J.-M. Conan, ONERA (France); F. Assémat, Observatoire de Paris à Meudon, Univ. Paris Diderot (France); V. Michau, ONERA (France)

SESSION 7 WAVEFRONT SENSORS I

- 7736 0Z **Characterization of OCam and CCD220: the fastest and most sensitive camera to date for AO wavefront sensing** [7736-34]
P. Feautrier, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); J.-L. Gach, P. Balard, Lab. d'Astrophysique de Marseille (France); C. Guillaume, Observatoire de Haute Provence (France); M. Downing, N. Hubin, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); E. Stadler, Y. Magnard, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); M. Skegg, M. Robbins, S. Denney, W. Suske, P. Jorden, P. Wheeler, P. Pool, R. Bell, D. Burt, I. Davies, e2v technologies plc (United Kingdom); J. Reyes, M. Meyer, D. Baade, M. Kasper, R. Arsenault, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); T. Fusco, ONERA (France); J. J. Diaz Garcia, Instituto de Astrofísica de Canarias (Spain)

- 7736 10 **Adaptive optics wavefront sensors based on photon-counting detector arrays** [7736-35]
B. F. Aull, D. R. Schuette, R. K. Reich, MIT Lincoln Lab. (United States); R. L. Johnson, Air Force Research Lab. (United States)
- 7736 11 **A focal plane sensor for low-order sensing on laser tomographic systems: LIFT** [7736-93]
S. Meimon, T. Fusco, F. Cassaing, ONERA (France)
- 7736 12 **The Subaru Coronagraphic Extreme AO (SCEAO) system: implementation and performances of the Coronagraphic Low Order WaveFront Sensor** [7736-37]
F. Vogt, Subaru Telescope, National Astronomical Observatory of Japan (United States) and Lab. d'Astrophysique, Ecole Polytechnique Fédérale de Lausanne (Switzerland);
F. Martinache, O. Guyon, Subaru Telescope, National Astronomical Observatory of Japan (United States); T. Yoshikawa, Subaru Telescope, National Astronomical Observatory of Japan (United States) and Univ. of Tokyo (Japan); K. Yokochi, Subaru Telescope, National Astronomical Observatory of Japan (United States) and Tokyo Univ. of Agriculture and Technology (Japan); V. Garrel, T. Matsuo, Subaru Telescope, National Astronomical Observatory of Japan (United States)

SESSION 8 REAL-TIME CONTROL I

- 7736 13 **Advances in real-time control algorithms (Invited Paper)** [7736-38]
R. Conan, Univ. of Victoria (Canada); J.-P. Veran, NRC Herzberg Institute of Astrophysics (Canada)
- 7736 14 **Optimal AO control with NGS/LGS wavefront sensors: the multirate case** [7736-39]
C. Kulcsár, H.-F. Raynaud, Institut Galilée, Univ. Paris 13 (France); C. Petit, J.-M. Conan, ONERA (France)
- 7736 15 **An optimized controller for ARGOS: using multiple wavefront sensor signals for homogeneous correction over the field** [7736-40]
D. Peter, Max-Planck-Institut für Astronomie (Germany)
- 7736 16 **Wavefront control algorithms for the Keck next-generation adaptive optics system** [7736-41]
D. Gavel, M. Reinig, Univ. of California Observatories (United States)
- 7736 17 **Modeling and prediction of turbulence-induced wavefront distortions** [7736-162]
R. Fraanje, Technische Univ. Delft (Netherlands) and TNO (Netherlands); N. Doelman, TNO (Netherlands)

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- 7736 18 **Progress and prospects in AO simulation capabilities (Invited Paper)** [7736-43]
M. Le Louarn, European Organisation for Astronomical Research in the Southern Hemisphere (Germany)

- 7736 19 **Results from the laboratory demonstration of the nonlinear curvature wavefront sensor** [7736-201]
M. Mateen, College of Optical Sciences, The Univ. of Arizona (United States); V. Garrel, Subaru Telescope, National Astronomical Observatory of Japan (United States); M. Hart, Steward Observatory, The Univ. of Arizona (United States); O. Guyon, Subaru Telescope, National Astronomical Observatory of Japan (United States) and Steward Observatory, The Univ. of Arizona (United States)
- 7736 1A **Comparing centroiding methods for Shack-Hartmann wavefront sensing with laser guide stars on an ELT** [7736-45]
D. Gratadour, E. Gendron, LESIA, CNRS, Observatoire de Paris à Meudon, Univ. Paris-Diderot (France); T. Fusco, ONERA (France); G. Rousset, LESIA, CNRS, Observatoire de Paris à Meudon, Univ. Paris-Diderot (France); S. Meimon, ONERA (France)
- 7736 1B **Active control of a large deformable mirror for future E-ELT** [7736-46]
R. Gasmı, GEPI, CNRS, Observatoire de Paris à Meudon, Univ. Paris Diderot (France); D. Le Bihan, ONERA (France); J. L. Dournaux, GEPI, CNRS, Observatoire de Paris à Meudon, Univ. Paris Diderot (France); J. C. Sınquin, CILAS (France); P. Jagourel, GEPI, CNRS, Observatoire de Paris à Meudon, Univ. Paris Diderot (France)
- 7736 1C **Deformable mirror models for open-loop adaptive optics using non-parametric estimation techniques** [7736-47]
D. Guzmán, Pontificia Univ. Católica (Chile) and Durham Univ. (United Kingdom); F. J. De Cos Juez, Univ. de Oviedo (Spain); R. Myers, Durham Univ. (United Kingdom); F. Sánchez Lasheras, TecniProject S.L. (Spain); L. K. Young, Durham Univ. (United Kingdom); A. Guesalaga, Pontificia Univ. Católica (Chile)
- 7736 1D **ĪMAKA: a Lagrange invariant of ELTs** [7736-48]
O. Lai, Canada-France-Hawaii Telescope Corp. (United States); M. R. Chun, Univ. of Hawai'i at Hilo (United States); J. Pazder, J.-P. Véran, NRC Herzberg Institute of Astrophysics (Canada); L. Jolissaint, aquilAOptics (Switzerland); D. Andersen, NRC Herzberg Institute of Astrophysics (Canada); D. Salmon, J.-C. Cuillandre, Canada-France-Hawaii Telescope Corp. (United States)
- 7736 1E **Optimal method for exoplanet detection by spectral and angular differential imaging** [7736-49]
A. Cornia, ONERA (France) and LESIA, CNRS, Observatoire de Paris (France); L. M. Mugnier, ONERA (France); D. Mouillet, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); A. Vigan, Observatoire Astronomique de Marseille-Provence (France); A. Eggenberger, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); G. Rousset, A. Boccaletti, LESIA, CNRS, Observatoire de Paris (France); M. Carbillet, Univ. de Nice Sophia Antipolis (France); K. Dohlen, Observatoire Astronomique de Marseille-Provence (France); T. Fusco, ONERA (France); J. Carson, MPIA (Germany) and College of Charleston (United States); G. Montagnier, European Organisation for Astronomical Research in the Southern Hemisphere (Chile)
- 7736 1F **Adaptive optics point spread function reconstruction: lessons learned from on-sky experiment on Altair/Gemini and pathway for future systems** [7736-50]
L. Jolissaint, aquilAOptics (Switzerland); J. Christou, Gemini Observatory (United States); P. Wizinowich, W. M. Keck Observatory (United States); E. Tolstoy, Kapteyn Astronomical Institute, Univ. of Groningen (Netherlands)

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- 7736 1G **Dissecting galaxies with adaptive optics** [7736-51]
R. Davies, H. Engel, Max-Planck-Institut für extraterrestrische Physik (Germany); E. Hicks, Univ. of Washington (United States); N. M. Förster Schreiber, R. Genzel, L. J. Tacconi, F. Eisenhauer, S. Rabien, Max-Planck-Institut für extraterrestrische Physik (Germany)
- 7736 1H **Novel multi-frame approach to photometry of exoplanets** [7736-52]
S. Gladysz, N. Yaitskova, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); J. C. Christou, Gemini Observatory (United States)
- 7736 1I **Recent results and perspectives for precision astrometry and photometry with adaptive optics (Invited Paper)** [7736-53]
J. R. Lu, California Institute of Technology (United States); A. M. Ghez, S. Yelda, T. Do, W. Clarkson, Univ. of California, Los Angeles (United States); N. McCrady, Univ. of Montana (United States); M. Morris, Univ. of California, Los Angeles (United States)
- 7736 1J **Exoplanet imaging with LOCI processing: photometry and astrometry with the new SOSIE pipeline** [7736-54]
C. Marois, NRC Herzberg Institute of Astrophysics (Canada); B. Macintosh, Lawrence Livermore National Lab. (United States); J.-P. Véran, NRC Herzberg Institute of Astrophysics (Canada)

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- 7736 1K **The Gemini NICI Planet-Finding Campaign** [7736-55]
M. C. Liu, Z. Wahhaj, B. A. Biller, Institute for Astronomy, Univ. of Hawai'i (United States); E. L. Nielsen, Steward Observatory, The Univ. of Arizona (United States); M. Chun, Institute for Astronomy, Univ. of Hawai'i (United States); L. M. Close, Steward Observatory, The Univ. of Arizona (United States); C. Ftaclas, Institute for Astronomy, Univ. of Hawai'i (United States); M. Hartung, T. L. Hayward, Gemini Observatory (Chile); F. Clarke, Univ. of Oxford (United Kingdom); I. N. Reid, Space Telescope Science Institute (United States); E. L. Shkolnik, Carnegie Institution of Washington (United States); M. Tecza, N. Thatte, Univ. of Oxford (United Kingdom); S. Alencar, Univ. Federal de Minas Gerais (Brazil); P. Artymowicz, Univ. of Toronto Scarborough (Canada); A. Boss, Space Telescope Science Institute (United States); A. Burrows, Princeton Univ. (United States); E. de Gouveia Dal Pino, J. Gregorio-Hetem, Univ. de São Paulo (Brazil); S. Ida, Tokyo Institute of Technology (Japan); M. J. Kuchner, NASA Goddard Space Flight Ctr. (United States); D. Lin, Univ. of California, Santa Cruz (United States); D. Toomey, Mauna Kea Infrared LLC (United States)
- 7736 1L **Extreme adaptive optics coronagraphy with the high-order test bench in the context of the SPHERE instrument** [7736-56]
P. Martinez, E. Aller Carpentier, M. Kasper, European Organisation for Astronomical Research in the Southern Hemisphere (Germany)
- 7736 1N **System study of EPICS: the exoplanets imager for the E-ELT** [7736-58]
C. Vérinaud, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); M. Kasper, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); J.-L. Beuzit, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); R. G. Gratton, D. Mesa, Osservatorio Astronomico di Padova (Italy); E. Aller-Carpentier, E. Fedrigo, European Organisation for Astronomical Research in the Southern Hemisphere (Germany);

L. Abe, Univ. de Nice Sophia Antipolis (France); P. Baudoz, A. Boccaletti, LESIA, CNRS, Observatoire de Paris à Meudon, Univ. Paris Diderot (France); M. Bonavita, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); K. Dohlen, Lab. d'Astrophysique de Marseille (France); N. Hubin, F. Kerber, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); V. Korkiakoski, J. Antichi, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); P. Martinez, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); P. Rabou, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); R. Roelfsema, ASTRON (Netherlands); H. M. Schmid, ETH Institute of Astronomy, ETH Zurich (Switzerland); N. Thatte, G. Salter, M. Tecza, Univ. of Oxford (United Kingdom); L. Venema, H. Hanenburg, R. Jager, ASTRON (Netherlands); N. Yaitskova, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); O. Preis, M. Orecchia, E. Stadler, Lab. d'Astrophysique de l'Observatoire de Grenoble (France)

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- 7736 1O **Performance of MEMS-based visible-light adaptive optics at Lick Observatory: closed- and open-loop control** [7736-59]
 K. Morzinski, L. C. Johnson, D. T. Gavel, Univ. of California, Santa Cruz (United States); B. Grigsby, Univ. of California Observatories (United States); D. Dillon, M. Reinig, Univ. of California, Santa Cruz (United States); B. A. Macintosh, Univ. of California, Santa Cruz (United States) and Lawrence Livermore National Lab. (United States)
- 7736 1P **GRAAL: a seeing enhancer for the NIR wide-field imager Hawk-I** [7736-60]
 J. Paufigue, A. Bruto, A. Glindemann, A. Jost, J. Kolb, L. Jochum, M. Le Louarn, M. Kiekebusch, N. Hubin, P.-Y. Madec, R. Conzelmann, R. Siebenmorgen, R. Donaldson, R. Arsenault, S. Tordo, European Organisation for Astronomical Research in the Southern Hemisphere (Germany)
- 7736 1Q **Status of the PALM-3000 high-order adaptive optics system** [7736-61]
 A. H. Bouchez, R. G. Dekany, Caltech Optical Observatories (United States); J. E. Roberts, J. R. Angione, Jet Propulsion Lab. (United States); C. Baranec, K. Bui, Caltech Optical Observatories (United States); R. S. Burruss, Jet Propulsion Lab. (United States); E. E. Croner, Caltech Optical Observatories (United States); S. R. Guiwits, Jet Propulsion Lab. (United States); D. D. S. Hale, Caltech Optical Observatories (United States); J. R. Henning, Palomar Observatory, California Institute of Technology (United States); D. Palmer, J. C. Shelton, M. Troy, T. N. Truong, J. K. Wallace, Jet Propulsion Lab. (United States); J. Zolkower, Palomar Observatory, California Institute of Technology (United States)
- 7736 1R **ALTAIR performance and updates at Gemini North** [7736-62]
 J. C. Christou, Gemini Observatory (United States); B. Neichel, F. Rigaut, Gemini Observatory (Chile); M. Sheehan, R. M. McDermid, Gemini Observatory (United States); G. Tranco, Gemini Observatory (Chile); C. Trujillo, B. Walls, Gemini Observatory (United States)

- 7736 1S **The MCAO systems within LINC-NIRVANA: control aspects in addition to wavefront correction** [7736-63]
T. Bertram, Max-Planck-Institut für Astronomie (Germany); C. Arcidiacono, INAF-Osservatorio Astrofisico di Firenze (Italy); J. Berwein, P. Bizenberger, F. Briegel, Max-Planck-Institut für Astronomie (Germany); E. Diolaiti, INAF-Osservatorio Astronomico di Bologna (Italy); J. Farinato, INAF-Osservatorio Astronomico di Padova (Italy); W. Gässler, T. M. Herbst, R. Hofferbert, F. Kittmann, M. Kürster, Max-Planck-Institut für Astronomie (Germany); R. Ragazzoni, INAF-Osservatorio Astronomico di Padova (Italy); L. Schreiber, Univ. degli studi di Bologna (Italy); J. Trowitzsch, Max-Planck-Institut für Astronomie (Germany); V. Viotto, INAF-Osservatorio Astronomico di Padova (Italy)

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- 7736 1U **PM fiber lasers at 589nm: a 20W transportable laser system for LGS return flux studies** [7736-65]
D. Bonaccini Calia, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); A. Friedenauer, TOPTICA Photonics AG (Germany); V. Protopopov, MPB Communications Inc. (Canada); I. Guidolin, L. R. Taylor, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); V. I. Karpov, MPB Communications Inc. (Canada); M. Hager, TOPTICA Photonics AG (Germany); W. R. L. Clements, MPB Communications Inc. (Canada); B. Ernstberger, TOPTICA Photonics AG (Germany); S. Lewis, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); W. G. Kaenders, TOPTICA Photonics AG (Germany)
- 7736 1V **Keck I laser guide star AO system integration** [7736-66]
J. C. Y. Chin, T. Stalcup, P. Wizinowich, S. Panteleev, C. Neyman, K. Tsubota, D. Summers, P. Stomski, D. Medeiros, C. Nance, K. Grace, A. Cooper, E. Wetherell, S. Doyle, W. M. Keck Observatory (United States)

Part Two

- 7736 1W **Setting up ELP-OA: the polychromatic laser guide star demonstrator** [7736-90]
N. Meilard, Univ. de Lyon (France), Observatoire de Lyon, Univ. de Lyon 1 (France), and Ctr. de Recherche Astrophysique de Lyon, CNRS, Ecole Normale Supérieure de Lyon (France); R. Foy, Univ. de Lyon (France), Observatoire de Lyon, Univ. de Lyon 1 (France), Ctr. de Recherche Astrophysique de Lyon, CNRS, Ecole Normale Supérieure de Lyon (France), and Observatoire de Haute-Provence (France); M. Langlois, M. Tallon, E. Thiébaud, Univ. de Lyon (France), Observatoire de Lyon, Univ. de Lyon 1 (France), and Ctr. de Recherche Astrophysique de Lyon, CNRS, Ecole Normale Supérieure de Lyon (France); A. Petit, Commissariat à l'Énergie Atomique (France); A. Blazit, Observatoire de la Côte d'Azur (France); P.-E. Blanc, J. Chombar, O. Fouche, A. Laloge, A. Le Van Suu, X. Regal, J. Schmitt, M. Boër, Observatoire de Haute-Provence, CNRS (France)
- 7736 1X **A bright pulsed guide star laser for very large telescopes** [7736-68]
J. Munch, M. Hamilton, D. Hosken, N. Simakov, P. Veitch, The Univ. of Adelaide (Australia)

- 7736 1Y **System overview of 30 W and 55 W sodium guide star laser systems** [7736-69]
N. Sawruk, I. Lee, M. Jalali, Z. Prezkuta, K. Groff, J. Roush, N. Rogers, B. Tiemann, S. Hannon, J. Alford, Lockheed Martin Coherent Technologies (United States); C. d'Orgeville, V. Fesquet, Gemini South Observatory (Chile); R. Oram, Gemini North Observatory (United States); S. M. Adkins, K. Grace, W. M. Keck Observatory (United States)

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- 7736 1Z **Open questions in site characterization and turbulence parameter measurements (Invited Paper)** [7736-70]
M. Schöck, Thirty Meter Telescope Project (United States) and NRC Herzberg Institute of Astrophysics (Canada); S. Els, European Space Astronomy Ctr. (Spain) and Cerro Tololo Inter-American Observatory (Chile); A. Otárola, Thirty Meter Telescope Project (United States); R. Riddle, Caltech Optical Observatories (United States); W. Skidmore, T. Travouillon, Thirty Meter Telescope Project (United States)
- 7736 20 **High-resolution mesospheric sodium observations for extremely large telescopes** [7736-71]
T. Frommer, P. Hickson, The Univ. of British Columbia (Canada)
- 7736 21 **Diode-seeded fiber-based sodium laser guide stars ready for deployment** [7736-232]
W. G. Kaenders, A. Friedenauer, TOPTICA Photonics AG (Germany); V. Karpov, V. Protopopov, W. R. L. Clements, MPB Communications Inc. (Canada); L. R. Taylor, Y. Feng, D. Bonaccini Calia, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); B. Ernstberger, TOPTICA Photonics AG (Germany)

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- 7736 22 **Recent progress and perspectives for GLAO and MOAO (Invited Paper)** [7736-72]
R. M. Myers, Durham Univ. (United Kingdom)
- 7736 23 **Adaptive optics with solely natural guide stars for an extremely large telescope** [7736-73]
R. Ragazzoni, INAF-Osservatorio Astronomico di Padova (Italy); C. Arcidiacono, INAF-Osservatorio Astronomico di Arcetri (Italy); M. Dima, J. Farinato, D. Magrin, INAF-Osservatorio Astronomico di Padova (Italy); V. Viotto, INAF-Osservatorio Astronomico di Padova (Italy) and Univ. of Padova (Italy)
- 7736 24 **The Subaru coronagraphic extreme AO (SCEAO) system: wavefront control and detection of exoplanets with coherent light modulation in the focal plane** [7736-74]
O. Guyon, F. Martinache, V. Garrel, F. Vogt, K. Yokochi, T. Yoshikawa, Subaru Telescope, National Astronomical Observatory of Japan (United States)
- 7736 25 **Optimal LGS pointing with faint tip-tilt NGS** [7736-75]
R. Dekany, Caltech Optical Observatories (United States)
- 7736 26 **Experimental demonstration of laser tomographic adaptive optics on a 30-meter telescope at 800 nm** [7736-76]
S. M. Ammons, Steward Observatory, The Univ. of Arizona (United States); L. Johnson, R. Kupke, D. T. Gavel, C. E. Max, Univ. of California, Santa Cruz (United States)

SESSION 16 WAVEFRONT SENSORS II

- 7736 27 **Compared performance of different centroiding algorithms for high-pass filtered laser guide star Shack-Hartmann wavefront sensors** [7736-77]
O. Lardi re, R. Conan, Univ. of Victoria (Canada); R. Clare, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); C. Bradley, Univ. of Victoria (Canada); N. Hubin, European Organisation for Astronomical Research in the Southern Hemisphere (Germany)
- 7736 28 **Wavefront sensing with laser guide stars on the ELTs** [7736-78]
N. Muller, V. Michau, T. Fusco, C. Robert, ONERA (France) and Groupement d'Int r t Scientifique PHASE (France); S. J. Thomas, Univ. of California Observatories (United States); G. Rousset, LESIA, CNRS, Observatoire de Paris   Meudon, Univ. Paris Diderot (France) and Groupement d'Int r t Scientifique PHASE (France)
- 7736 29 **A simple and efficient model for polychromatic focal plane wave-front sensor** [7736-79]
S. Dandy, J.-F. Sauvage, T. Fusco, L. Mugnier, ONERA (France)
- 7736 2A **Advanced static speckle calibration for exoplanet imaging** [7736-80]
L. Pueyo, K. Wallace, M. Troy, R. Burruss, Jet Propulsion Lab. (United States); B. Macintosh, Lawrence Livermore National Lab. (United States); R. Soummer, Space Telescope Science Institute (United States)

SESSION 17 WAVEFRONT CORRECTORS

- 7736 2B **Contactless thin adaptive mirror technology: past, present, and future** [7736-81]
R. Biasi, Microgate S.r.l. (Italy); D. Gallieni, A.D.S. International S.r.l. (Italy); P. Salinari, A. Riccardi, Osservatorio Astrofisico di Arcetri (Italy); P. Mantegazza, Politecnico di Milano (Italy)
- 7736 2C **The adaptive secondary mirror for the Large Binocular Telescope: optical acceptance test and preliminary on-sky commissioning results** [7736-82]
A. Riccardi, M. Xompero, R. Briguglio, F. Quir s-Pacheco, L. Busoni, L. Fini, A. Puglisi, S. Esposito, C. Arcidiacono, E. Pinna, P. Ranfagni, P. Salinari, INAF-Osservatorio Astrofisico di Arcetri (Italy); G. Brusa, R. Demers, Large Binocular Telescope Observatory, The Univ. of Arizona (United States); R. Biasi, Microgate s.r.l. (Italy); D. Gallieni, A.D.S. International s.r.l. (Italy)
- 7736 2D **MEMS deformable mirrors for astronomical adaptive optics** [7736-83]
S. A. Cornelissen, A. L. Hartzell, J. B. Stewart, Boston Micromachines Corp. (United States); T. G. Bifano, Boston Micromachines Corp. (United States) and Boston Univ. (United States); P. A. Bierden, Boston Micromachines Corp. (United States)
- 7736 2E **Optical characterization of the PALM-3000 3388-actuator deformable mirror** [7736-84]
J. Roberts, Jet Propulsion Lab. (United States); A. H. Bouchez, Caltech Optical Observatories (United States); R. S. Burruss, Jet Propulsion Lab. (United States); R. G. Dekany, Caltech Optical Observatories (United States); S. R. Guiwits, M. Troy, Jet Propulsion Lab. (United States)

- 7736 2F **Last progress concerning the design of the piezo-stack M4 adaptive unit of the E-ELT** [7736-85]
B. Crepy, CILAS (France); S. Chaillot, BOOSTEC S.A. (France); J. M. Conan, ONERA (France); R. Cousty, CILAS (France); C. Delrez, AMOS Ltd. (Belgium); M. Dimmler, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); J. L. Dournaux, Observatoire de Paris à Meudon, Univ. Paris Diderot (France); S. De Zotti, EADS Astrium (France); E. Gabriel, AMOS Ltd. (Belgium); R. Gasmi, Observatoire de Paris à Meudon, Univ. Paris Diderot (France); R. Grasser, CILAS (France); N. Hubin, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); P. Jagourel, Observatoire de Paris à Meudon (France); L. Jochum, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); F. Locre, CILAS (France); P.-Y. Madec, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); P. Morin, CILAS (France); M. Mueller, European Organisation for Astronomical Research in the Southern Hemisphere (Germany); G. Petit, ONERA (France); D. Petitgas, CILAS (France); M. Pierard, AMOS Ltd. (Belgium); J. J. Roland, J. C. Siquin, CILAS (France); E. Vernet, European Organisation for Astronomical Research in the Southern Hemisphere (Germany)

SESSION 18 REAL-TIME CONTROL II

- 7736 2H **MYST: a comprehensive high-level AO control tool for GeMS** [7736-87]
F. Rigaut, B. Neichel, M. Bec, Gemini Observatory (Chile); A. Garcia-Rissman, Steward Observatory, The Univ. of Arizona (United States)
- 7736 2I **SPARTA for the VLT: status and plans** [7736-88]
E. Fedrigo, R. Bourtembourg, R. Donaldson, C. Soenke, M. Suarez Valles, S. Zampieri, European Organisation for Astronomical Research in the Southern Hemisphere (Germany)
- 7736 2J **Wavefront sensing and wavefront reconstruction for the 4m European Solar Telescope EST** [7736-89]
T. Berkefeld, D. Soltau, Kiepenheuer-Institut für Sonnenphysik (Germany); D. del Moro, Univ. degli Studi di Roma Tor Vergata (Italy); M. Löfdahl, Institute for Solar Physics (Sweden)

POSTER SESSION

- 7736 2K **Maintenance and operation of the adaptive optics module for NICI, the high-contrast coronagraphic imager of GEMINI observatory** [7736-91]
M. Hartung, T. L. Hayward, Gemini Observatory (Chile); M. Chun, A. Kellerer, Institute for Astronomy, Univ. of Hawai'i (United States)
- 7736 2L **MOAO activities in Tohoku University** [7736-92]
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- 7736 2M **A compact design of a WFS for a natural guide star-based ELT adaptive optics system** [7736-94]
 J. Farinato, INAF-Osservatorio Astronomico di Padova (Italy); V. Viotto, INAF-Osservatorio Astronomico di Padova (Italy) and Univ. degli Studi di Padova (Italy); R. Ragazzoni, INAF-Osservatorio Astronomico di Padova (Italy); C. Arcidiacono, INAF-Osservatorio Astrofisico di Arcetri (Italy); A. Baruffolo, M. Dima, G. Gentile, D. Magrin, INAF-Osservatorio Astronomico di Padova (Italy); P. Rossetini, Tomelleri s.r.l. (Italy)
- 7736 2N **Status and new operation modes of the versatile VLT/NaCo** [7736-95]
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- 7736 2O **Fast autonomous holographic adaptive optics** [7736-96]
 G. Andersen, Air Force Academy (United States)
- 7736 2Q **Residual tip-tilt motion of LGS in monostatic scheme** [7736-98]
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- 7736 2R **Online wind estimation and prediction for a two-layer frozen flow atmosphere** [7736-100]
 L. C. Johnson, D. T. Gavel, D. M. Wiberg, Univ. of California, Santa Cruz (United States)
- 7736 2S **Laboratory demonstration of an anti-halo reconstructor for closed-loop adaptive halo suppression** [7736-101]
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- 7736 2T **Reducing PSF halo with adaptive pupil masking** [7736-102]
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- 7736 2U **Ferrofluid deformable mirrors: recent advances and results** [7736-103]
 D. Brousseau, E. F. Borra, Univ. Laval (Canada)
- 7736 2V **The Magellan Adaptive Secondary VisAO Camera: diffraction-limited broadband visible imaging and 20mas fiber array IFU** [7736-105]
 D. Kopon, L. M. Close, J. Males, V. Gasho, K. Follette, Steward Observatory, The Univ. of Arizona (United States)

- 7736 2W **Diffraction limited operation with ARGOS: a hybrid AO system** [7736-106]
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- 7736 2Y **New method of fabricating phase screens for simulated atmospheric turbulence** [7736-108]
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- 7736 2Z **System overview of the Multi conjugated Adaptive Optics Relay for the E-ELT** [7736-109]
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- 7736 30 **Calibration strategy and optics for ARGOS at the LBT** [7736-110]
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- 7736 31 **Solar multiconjugate adaptive optics at the Dunn Solar Telescope** [7736-111]
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- 7736 32 **The optical tests for the E-ELT adaptive mirror demonstration prototype** [7736-112]
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- 7736 33 **Adaptive optics systems for HARMONI: a visible and near-infrared integral field spectrograph for the E-ELT** [7736-113]
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- 7736 34 **Diffraction-limited upgrade to ARGOS: the LBT's ground-layer adaptive optics system** [7736-114]
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- 7736 35 **Is ESO's adaptive optics facility suited for MCAO?** [7736-115]
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- 7736 36 **Implementation and on-sky results of an optimal wavefront controller for the MMT NGS adaptive optics system** [7736-116]
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- 7736 37 **Closed-loop tomographic control on HOMER wide-field AO bench: experimental results and identification issues** [7736-117]
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- 7736 38 **Development and performance of the EAGLE active optics LGS WFS refocusing system** [7736-119]
F. Madec, D. Le Mignant, E. Chardin, E. Hugot, S. Mazzanti, J.-L. Gimenez, M. Ferrari, G. Moreaux, S. Vives, J.-G. Cuby, Lab. d'Astrophysique de Marseille, CNRS/INSU, Univ. de Provence Aix-Marseille I (France)
- 7736 39 **FFREE: a Fresnel-FRee Experiment for EPICS, the EELT planets imager** [7736-120]
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- 7736 3A **Vrala: designing and prototyping a novel high-efficiency actuator for large adaptive mirrors** [7736-121]
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- 7736 3B **Simulations for diffraction limited near-infrared adaptive optics systems for the AOF** [7736-122]
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- 7736 3C **Optical designs with wide field-of-view adaptive optics for IMAKA of CFHT** [7736-123]
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- 7736 3D **An update of the on-sky performance of the layer-oriented wave-front sensor for MAD** [7736-124]
C. Arcidiacono, INAF-Osservatorio Astrofisico di Arcetri (Italy) and INAF-Osservatorio Astronomico di Padova (Italy); M. Lombini, Osservatorio Astronomico di Bologna (Italy); A. Moretti, R. Ragazzoni, J. Farinato, R. Falomo, M. Gullieuszik, INAF-Osservatorio Astronomico di Padova (Italy); G. Piotto, Univ. degli Studi di Padova (Italy)

- 7736 3E **Analysis of adaptive optics control for the Advanced Technology Solar Telescope** [7736-125]
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- 7736 3G **The METIS AO system: bringing extreme adaptive optics to the mid-IR** [7736-127]
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- 7736 3H **First light AO (FLAO) system for LBT: performance analysis and optimization** [7736-128]
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- 7736 3I **Demonstration of a robust curved carbon fiber reinforced polymer deformable mirror with low surface error** [7736-129]
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- 7736 3J **Real-time control for Keck Observatory next-generation adaptive optics** [7736-130]
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- 7736 3K **Adaptive optics system for the IRSOL solar observatory** [7736-131]
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- 7736 3L **SAM sees the light** [7736-132]
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- 7736 3M **Testing the VLT AO facility with ASSIST** [7736-133]
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- 7736 3N **Performance of Subaru adaptive optics system AO188** [7736-134]
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- 7736 3O **GMT adaptive secondary design** [7736-135]
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- 7736 3P **A portable solar adaptive optics system: software and laboratory developments** [7736-136]
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- 7736 3Q **SAMI: the SCAO module for the E-ELT adaptive optics imaging camera MICADO** [7736-137]
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- 7736 3T **IACATS AIV: AIV process for a versatile turbulence simulator** [7736-140]
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- 7736 3U **Tip/tilt offload of Subaru AO188 by telescope secondary mirror** [7736-141]
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- 7736 3V **Design and expected performances of the SCAO-WFS module of SIMPLE, the high-resolution near-infrared spectrometer for E-ELT** [7736-142]
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- 7736 3W **Experimental validation of a numerical model for non-contact massively actuated, deformable adaptive mirrors** [7736-144]
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Part Three

- 7736 3X **Lucky imaging and adaptive optics on 10-m class telescopes: a real promise for diffraction limited imaging in the visible?** [7736-145]
B. Femenía Castellá, L. Labadie, Instituto de Astrofísica de Canarias (Spain) and Univ. de La Laguna (Spain); R. Rebolo López, Instituto de Astrofísica de Canarias (Spain) and Consejo Superior de Investigaciones Científicas (Spain); J. A. Pérez Prieto, Instituto de Astrofísica de Canarias (Spain) and Univ. de La Laguna (Spain); A. Pérez Garrido, A. Díaz Sánchez, I. Villo Pérez, Univ. Politécnica de Cartagena (Spain)
- 7736 3Y **Adaptive optics simulation with mechanically motivated basis functions** [7736-146]
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- 7736 3Z **Multilayered temporally evolving phase screens based on statistical interpolation** [7736-147]
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- 7736 40 **Optimizing the modal index of Zernike polynomials for regulated phase screen simulation** [7736-148]
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- 7736 41 **Multiconjugate adaptive optics with plenoptic cameras and the Fourier transform reconstructor** [7736-149]
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- 7736 42 **Modeling the adaptive optics systems on the Giant Magellan Telescope** [7736-150]
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- 7736 43 **Simulations of the extreme adaptive optics system for EPICS** [7736-151]
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- 7736 44 **The CAOS problem-solving environment: recent developments** [7736-152]
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- 7736 45 **Modeling adaptive optics for the segmented aperture of the GMT** [7736-153]
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- 7736 46 **An atmospheric turbulence generator for dynamic tests with LINC-NIRVANA's adaptive optics system** [7736-154]
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- 7736 47 **Simulation of low-order AO performance on LAMOST** [7736-155]
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- 7736 48 **Performance evaluation of a SCAO system for a 42-m telescope using the pyramid wavefront sensor** [7736-156]
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- 7736 49 **Modeling the spatial PSF at the VLT focal plane for MUSE WFM data analysis purpose** [7736-157]
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- 7736 4A **Dimensioning the Gravity adaptive optics wavefront sensor** [7736-158]
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- 7736 4B **Atmosphere and telescope simulator for new adaptive optics methods development** [7736-159]
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- 7736 4C **Adaptive optics for satellite-to-ground laser communication at the 1m Telescope of the ESA Optical Ground Station, Tenerife, Spain** [7736-160]
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- 7736 4D **ARGOS: a laser star constellation for the LBT** [7736-161]
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- 7736 4E **Noise reduction in the centroiding of laser guide star spot pattern using thresholded Zernike reconstructor** [7736-163]
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- 7736 4F **Classical adaptive optics: disturbance rejection control** [7736-164]
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