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Space Telescopes and Instrumentation 2012: Ultraviolet to Gamma Ray

**Tadayuki Takahashi
Stephen S. Murray
Jan-Willem A. den Herder**
Editors

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8443 20 **First measurement of the ASTRO-H soft x-ray telescope performance** [8443-72]
T. Okajima, P. J. Serlemitsos, Y. Soong, D. J. Hahne, NASA Goddard Space Flight Ctr. (United States)

8443 23 **Soft x-ray imager (SXI) onboard ASTRO-H** [8443-75]
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- 8443 24 **Current status of ASTRO-H Hard X-ray Telescopes (HXTs)** [8443-76]
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- 8443 25 **The Hard X-ray Imager (HXI) for the ASTRO-H Mission** [8443-77]
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- 8443 26 **Soft gamma-ray detector for the ASTRO-H Mission** [8443-78]
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SESSION 17 ATHENA

- 8443 28 **Status of the ESA L1 mission candidate ATHENA** [8443-80]
 N. Rando, D. Martin, D. Lumb, P. Verhoeve, T. Oosterbroek, M. Bavdaz, S. Fransen, M. Linder, R. Peyrou-Lauga, ESA-ESTEC (Netherlands); T. Voirin, M. Braghin, S. Mangunsong, M. van Pelt, E. Wille, ESA-ESTEC (Netherlands)
- 8443 29 **Silicon pore optics developments and status** [8443-81]
 M. Bavdaz, E. Wille, K. Wallace, B. Shortt, ESA-ESTEC (Netherlands); M. Collon, M. Ackermann, cosine Research B.V. (Netherlands); M. Olde Riekerink, J. Haneveld, Micronit Microfluidics B.V. (Netherlands); C. van Baren, SRON Netherlands Institute for Space Research (Netherlands); M. Erhard, Kayser-Threde GmbH (Germany); F. Christensen, DTU Space (Denmark); M. Krumrey, Physikalisch-Technische Bundesanstalt (Germany); V. Burwitz, Max-Planck-Institut für extraterrestrische Physik (Germany)
- 8443 2A **Reference payload of the ESA L1 mission candidate ATHENA** [8443-82]
 D. Martin, N. Rando, D. Lumb, P. Verhoeve, T. Oosterbroek, M. Bavdaz, ESA-ESTEC (Netherlands)
- 8443 2B **The x-ray microcalorimeter spectrometer onboard Athena** [8443-83]
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SESSION 18 LOFT

8443 2D **LOFT: the Large Observatory For X-ray Timing** [8443-85]

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8443 2E **Status of the assessment phase of the ESA M3 mission candidate LOFT** [8443-86]
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8443 2F **A large area detector proposed for the Large Observatory for X-ray Timing (LOFT)** [8443-87]
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8443 2G **The LOFT wide field monitor** [8443-88]

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8443 2H **The silicon micro-strip detector plane for the LOFT/wide-field monitor** [8443-89]

A. Goldwurm, P. Ferrando, AstroParticule et Cosmologie (France) and Service d'Astrophysique/IRFU/CEA Saclay (France); D. Götz, Service d'Astrophysique/IRFU/CEA Saclay (France) and Astrophysique Instrumentation et Modélisation (AIM) in SAp/CEA Saclay (France); P. Laurent, F. Lebrun, AstroParticule et Cosmologie (France) and Service d'Astrophysique/IRFU/CEA Saclay (France); O. Limousin, Service d'Astrophysique/IRFU/CEA Saclay (France) and Astrophysique Instrumentation et Modélisation (AIM) in SAp/CEA-Saclay (France); S. Basa, Lab. d'Astrophysique de Marseille (France); W. Bertoli, AstroParticule et Cosmologie (France); E. Delagnes, SEDI/IRFU/CEA Saclay (France); Y. Dolgorouky, AstroParticule et Cosmologie (France); O. Gevin, SEDI/IRFU/CEA Saclay (France); A. Gros, C. Gouiffes, Service d'Astrophysique/IRFU/CEA Saclay (France) and Astrophysique Instrumentation et Modélisation (AIM) (France); F. Jeanneau, SEDI/IRFU/CEA Saclay (France); C. Lachaud, AstroParticule et Cosmologie (France); M. Llored, Lab. d'Astrophysique de Marseille (LAM) (France); C. Olivetto, G. Prévôt, AstroParticule et Cosmologie (France); D. Renaud, J. Rodriguez, Service d'Astrophysique/IRFU/CEA Saclay (France) and Astrophysique Instrumentation et Modélisation (AIM) (France); C. Rossin, Lab. d'Astrophysique de Marseille (France); S. Schanne, S. Soldi, Service d'Astrophysique/IRFU/CEA Saclay (France) and Astrophysique Instrumentation et Modélisation (AIM) (France); P. Varniere, AstroParticule et Cosmologie (France)

POSTER SESSION: DETECTOR TECHNOLOGY FOR FUTURE MISSIONS

- 8443 2J **Nuclear spallation by solar proton events and cosmic rays in the eROSITA and ATHENA focal plane configurations** [8443-91]
E. Perinati, C. Tenzer, A. Santangelo, Institut für Astronomie und Astrophysik, Univ. Tübingen (Germany); K. Dennerl, M. Freyberg, MPE- Max Planck Institut für Extraterrestrische Physik (Germany)
- 8443 2K **Southwest Research Institute intensified detector development capability** [8443-92]
E. Wilkinson, M. Vincent, C. Kofoed, J. Andrews, J. Brownsberger, Southwest Research Institute (United States); O. Siegmund, Sensor Sciences, LLC (United States)
- 8443 2L **Application of an EMCCD camera for calibration of hard X-ray telescopes** [8443-93]
J. K. Vogel, M. J. Pivovarov, Lawrence Livermore National Lab. (United States); V. V. Nagarkar, H. Kudrolli, Radiation Monitoring Devices, Inc. (United States); K. K. Madsen, California Institute of Technology (United States); J. E. Koglin, C. J. Hailey, Columbia Univ. Astrophysics Lab. (United States); W. W. Craig, Lawrence Livermore National Lab. (United States); F. E. Christensen, N. F. Brejnholt, DTU Space (Denmark)
- 8443 2N **A digital data processing unit for future X-ray observatories** [8443-95]
H. Wende, G. Distratis, C. Tenzer, E. Kendziorra, A. Santangelo, Institut für Astronomie und Astrophysik, Univ. Tübingen (Germany)
- 8443 2O **Low-power readout electronics for micro channel plate detectors with cross-strip anodes** [8443-97]
M. Pfeifer, J. Barnstedt, Institute for Astronomy and Astrophysics (Germany); C. Bauer, Max Planck Institute for Nuclear Physics (Germany); S. Diebold, S. Hermanutz, C. Kalkuhl, N. Kappelman, Institute for Astronomy and Astrophysics (Germany); S. Löchner, Max Planck Institute for Nuclear Physics (Germany); T. Schanz, Institute for Astronomy and Astrophysics (Germany); M. Schmelling, Max Planck Institute for Nuclear Physics (Germany); K. Werner, Institute for Astronomy and Astrophysics (Germany)
- 8443 2Q **Vacuum facility for calibration of space instrumentation in cleanroom** [8443-99]
M. G. Pelizzo, IFN-CNR Luxor Lab. (Italy) and Univ. of Padua (Italy); P. Zuppella, IFN-CNR Luxor Lab. (Italy); V. Polito, A. J. Corso, Univ. of Padua (Italy); S. Zuccon, IFN-CNR Luxor Lab. (Italy); P. Nicolosi, Univ. of Padua (Italy)

POSTER SESSION: GAMMA-RAY BURST MISSIONS

- 8443 2R **A next generation Ultra-Fast Flash Observatory (UFFO-100) for IR/optical observations of the rise phase of gamma-ray bursts** [8443-18]
B. Grossan, Univ. of California, Berkeley (United States) and Extreme Universe Lab., Moscow State Univ. (Russian Federation) and Institute for the Early Universe, Ewha Womans Univ. (Korea, Republic of); I. H. Park, Research Ctr. for MEMS Space Telescope, Ewha Womans Univ. (Korea, Republic of); S. Ahmad, Univ. of Paris-Sud 11 (France); K. B. Ahn, Yonsei Univ. (Korea, Republic of); P. Barrillon, Univ. of Paris-Sud 11 (France); S. Brandt, C. Budtz-Jørgensen, Technical Univ. of Denmark (Denmark); A. J. Castro-Tirado, Instituto de Astrofísica de Andalucía, CSIC (Spain); P. Chen, National Taiwan Univ. (Taiwan); H. S. Choi, Technical Univ. of Denmark (Denmark); Y. J. Choi, KAIST (Korea, Republic of); P. Connell, Univ. of Valencia (Spain); S. Dagoret-Campagne, C. De La Taille, Univ. of Paris-Sud 11

(France); C. Eyles, Univ. of Valencia (Spain); I. Hermann, KAIST (Korea, Republic of); M.-H. A. Huang, National United Univ. (Taiwan); A. Jung, S. Jeong, J. E. Kim, M. Kim, Research Ctr. for MEMS Space Telescope, Ewha Womans Univ. (Korea, Republic of); S.-W. Kim, Yonsei Univ. (Korea, Republic of); Y. W. Kim, KAIST (Korea, Republic of); J. Lee, Research Ctr. for MEMS Space Telescope, Ewha Womans Univ. (Korea, Republic of); H. Lim, E. V. Linder, Institute for the Early Universe, Ewha Womans Univ. (Korea, Republic of); T.-C. Liu, National Taiwan Univ. (Taiwan); N. Lund, Technical Univ. of Denmark (Denmark); K. W. Min, KAIST (Korea, Republic of); G. W. Na, Research Ctr. for MEMS Space Telescope, Ewha Womans Univ. Ewha Womans Univ. (Korea, Republic of); J. W. Nam, National Taiwan Univ. (Taiwan); M. I. Panasyuk, Extreme Universe Lab., Moscow State Univ. (Russian Federation); J. Ripa, Research Ctr. for MEMS Space Telescope, Ewha Womans Univ. (Korea, Republic of); V. Reglero, J. M. Rodrigo, Univ. of Valencia (Spain); G. F. Smoot, Extreme Universe Lab., Moscow State Univ. (Russian Federation) and Institute for the Early Universe, Ewha Womans Univ. (Korea, Republic of) and Univ. of California, Berkeley (United States); J. E. Suh, Research Ctr. for MEMS Space Telescope, Ewha Womans Univ. (Korea, Republic of); S. Svertilov, N. Vedenkin, Extreme Universe Lab., Moscow State Univ. (Russian Federation); M.-Z. Wang, National Taiwan Univ. (Taiwan); I. Yashin, Moscow State Univ. (Russian Federation); M. H. Zhao, Research Ctr. for MEMS Space Telescope, Ewha Womans Univ. (Korea, Republic of)

8443 2S

The slewing mirror telescope of the Ultra Fast Flash Observatory Pathfinder [8443-100]

S. Jeong, Ewha Womans Univ. (Korea, Republic of); S. Ahmad, P. Barrillon, Univ. of Paris-Sud 11 (France); S. Brandt, C. Budtz-Jørgensen, Technical Univ. of Denmark (Denmark); A. J. Castro-Tirado, Instituto de Astrofísica de Andalucía, CSIC (Spain); P. Chen, National Taiwan Univ. (Taiwan); Y. J. Choi, KAIST (Korea, Republic of); P. Connell, Univ. of Valencia (Spain); S. Dagoret-Campagne, Univ. of Paris-Sud 11 (France); C. Eyles, Univ. of Valencia (Spain); B. Grossan, Univ. of California, Berkeley (United States); M.-h. A. Huang, National United Univ. (Taiwan); A. Jung, J. E. Kim, M. B. Kim, Ewha Womans Univ. (Korea, Republic of); S.-W. Kim, Yonsei Univ. (Korea, Republic of); Y. W. Kim, Ewha Womans Univ. (Korea, Republic of); A. S. Krasnov, Moscow State Univ. (Russian Federation); J. Lee, H. Lim, Ewha Womans Univ. (Korea, Republic of); E. V. Linder, Ewha Womans Univ. (Korea, Republic of) and Univ. of California, Berkeley (United States); T.-C. Liu, National Taiwan Univ. (Taiwan); N. Lund, Technical Univ. of Denmark (Denmark); K. W. Min, KAIST (Korea, Republic of); G. W. Na, Ewha Womans Univ. (Korea, Republic of); J. W. Nam, KAIST (Korea, Republic of); I. H. Park, Ewha Womans Univ. (Korea, Republic of); M. I. Panasyuk, Moscow State Univ. (Russian Federation); J. Ripa, Ewha Womans Univ. (Korea, Republic of); V. Reglero, J. M. Rodrigo, Univ. of Valencia (Spain); G. F. Smoot, Univ. of California, Berkeley (United States); J. E. Suh, Ewha Womans Univ. (Korea, Republic of); S. Svertilov, Moscow State Univ. (Russian Federation); N. Vedenkin, Lomonosov Moscow State Univ. (Russian Federation); M.-Z. Wang, National Taiwan Univ. (Taiwan); I. Yashin, Lomonosov Moscow State Univ. (Russian Federation); K.-B. Ahn, Yonsei Univ. (Korea, Republic of)

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The readout system and the trigger algorithm implementation for the UFFO Pathfinder [8443-101]

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Republic of); A. S. Krasnov, Moscow State University (Russian Federation); J. Lee, H. Lim, Ewha Womans Univ. (Korea, Republic of); E. V. Linder, Ewha Womans Univ. (Korea, Republic of) and Lawrence Berkeley National Lab. (United States); T.-C. Liu, National Taiwan Univ. (Taiwan); N. Lund, DTU Space (Denmark); K. W. Min, KAIST (Korea, Republic of); J. W. Nam, National Taiwan Univ. (Taiwan); I. H. Park, Ewha Womans Univ. (Korea, Republic of); M. I. Panasyuk, Lomonosov Moscow State Univ. (Russian Federation); J. Ripa, Ewha Womans Univ. (Korea, Republic of); V. Reglero, J. M. Rodrigo, Univ. of Valencia (Spain); G. F. Smoot, Ewha Womans Univ. (Korea, Republic of) and Univ. of California, Berkeley (United States); J. E. Suh, Ewha Womans Univ. (Korea, Republic of); S. Svertilov, N. Vedenkin, Moscow State Univ. (Russian Federation); M.-Z. Wang, National Taiwan Univ. (Taiwan); I. Yashin, Lomonosov Moscow State Univ. (Russian Federation)

- 8443 2V **Design and implementation of the UFFO burst alert and trigger telescope** [8443-103]
 J. E. Kim, Ewha Womans Univ. (Korea, Republic of); S. Ahmad, P. Barrillon, Univ. of Paris-Sud 11 (France); S. Brandt, C. Budtz-Jørgensen, Technical Univ. of Denmark (Denmark); A. J. Castro-Tirado, Instituto de Astrofísica de Andalucía-CSIC (Spain); P. Chen, National Taiwan Univ. (United States); Y. J. Choi, KAIST (Korea, Republic of); P. Connell, Univ. of Valencia (Spain); S. Dagoret-Campagne, Univ. of Paris-Sud 11 (France); C. Eyles, Univ. of Valencia (United Kingdom); B. Grossan, Univ. of California, Berkeley (United States); M.-H. A. Huang, National United Univ. (Taiwan); A. Jung, S. Jeong, M. B. Kim, Ewha Womans Univ. (Korea, Republic of); S.-W. Kim, Yonsei Univ. (Korea, Republic of); Y. W. Kim, Ewha Womans Univ. (Korea, Republic of); A. S. Krasnov, Moscow State Univ. (Russian Federation); J. Lee, H. Lim, Ewha Womans Univ. (Korea, Republic of); E. V. Linder, Ewha Womans Univ. (Korea, Republic of) and Lawrence Berkeley National Lab. (United States); T.-C. Liu, National Taiwan Univ., Taipei (Taiwan); N. Lund, Technical Univ. of Denmark (Denmark); K. W. Min, KAIST (Korea, Republic of); G. W. Na, Ewha Womans Univ. (Korea, Republic of); J. W. Nam, National Taiwan Univ. (Taiwan); M. I. Panasyuk, Moscow State Univ. (Russian Federation); I. H. Park, J. Ripa, Ewha Womans Univ. (Korea, Republic of); V. Reglero, J. M. Rodrigo, Univ. of Valencia (Spain); G. F. Smoot, Ewha Womans Univ. (Korea, Republic of) and Univ. of California, Berkeley (United States); J. E. Suh, Ewha Womans Univ. (Korea, Republic of); S. Svertilov, N. Vedenkin, Moscow State Univ. (Russian Federation); M.-Z. Wang, National Taiwan Univ. (Taiwan); I. Yashin, Moscow State Univ. (Russian Federation)

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- 8443 2W **ISSIS: the imaging and slitless spectroscopy instrument for surveys in the World Space Observatory-Ultraviolet telescope** [8443-117]
 A. I. Gomez de Castro, N. Sanchez, P. Sestito, Univ. Complutense de Madrid (Spain); P. Rodriguez, M. T. Gomez, J. Seijas, SENER Ingeniería y Sistemas S.A. (Spain); F. Lopez-Martinez, Univ. Complutense de Madrid (Spain); J. Quintana, M. Ubierna, J. Muñoz, SENER Ingeniería y Sistemas S.A. (Spain)
- 8443 2X **MCP detector development for WSO-UV** [8443-119]
 S. Diebold, J. Barnstedt, Institut für Astronomie and Astrophysik, Univ. Tübingen (Germany); H. R. Elsener, EMPA (Switzerland); P. Ganz, Karlsruhe Institute of Technology (Germany); S. Hermanutz, C. Kalkuhl, N. Kappelmann, M. Pfeifer, Institut für Astronomie and Astrophysik, Univ. Tübingen (Germany); D. Schaadt, Clausthal Univ. of Technology (Germany); T. Schanz, Institut für Astronomie and Astrophysik, Univ. Tübingen (Germany); O. Tanirah, Karlsruhe Institute of Technology (Germany); K. Werner, Institut für Astronomie and Astrophysik, Univ. Tübingen (Germany)

- 8443 2Y **EXCEED: an extreme ultraviolet spectrometer onboard SPRINT-A** [8443-120]
G. Murakami, K. Yoshioka, A. Yamazaki, K. Uemizu, Japan Aerospace Exploration Agency (Japan); H. Ishii, K. Uji, I. Yoshikawa, The Univ. of Tokyo (Japan); M. Kagitani, F. Tsuchiya, Tohoku Univ. (Japan)
- 8443 2Z **Design of UV long-slit spectrometer** [8443-121]
Y. Bazhanov, E. Demura, N. Zacharova, Precision Systems and Instruments Corp. (Russian Federation)
- 8443 30 **Environmental testing of an all-reflective spatial heterodyne spectrometer for wide input angle measurements of H Ly- α at high spectral resolving power** [8443-122]
W. Harris, J. Corliss, Univ. of California, Davis (United States); Y. Btrmieux, Max-Planck-Institut fr Astronomie (Germany); F. Roesler, Univ. of Wisconsin-Madison (United States)

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- 8443 31 **Expected performance of a Laue lens based on bent crystals** [8443-104]
V. Valsan, Univ. degli Studi di Ferrara (Italy) and Univ. de Sophia Antipolis (France); F. Frontera, E. Virgili, Univ. degli Studi di Ferrara (Italy); V. Liccardo, Univ. degli Studi di Ferrara (Italy) and Univ. de Sophia Antipolis (France)
- 8443 32 **Characterization of bent crystals for Laue lenses** [8443-105]
V. Liccardo, Univ. degli Studi di Ferrara (Italy) and Univ. de Sophia Antipolis (France); E. Virgili, F. Frontera, Univ. degli Studi di Ferrara (Italy); V. Valsan, Univ. degli Studi di Ferrara (Italy) and Univ. de Sophia Antipolis (France)
- 8443 33 **Bent crystals as high-reflectivity components for a Laue lens: basic concepts and experimental techniques** [8443-106]
V. Guidi, R. Camattari, I. Neri, Univ. degli Studi di Ferrara (Italy) and SENSOR Lab., CNR, IDASC (Italy); L. Lanzoni, Univ. degli Studi di San Marino (Italy)
- 8443 34 **Stack of curved crystals as optical component for hard x- and gamma-ray focusing through a Laue lens** [8443-107]
I. Neri, R. Camattari, V. Bellucci, V. Guidi, Univ. degli Studi di Ferrara (Italy) and SENSOR Lab., CNR - IDASC (Italy); P. Bastie, Institut Laue Langevin (France) and Univ. Joseph Fourier (France)
- 8443 35 **Quasi-mosaicity as a tool for focusing hard x-rays** [8443-108]
R. Camattari, V. Guidi, I. Neri, Univ. degli Studi di Ferrara (Italy) and SENSOR Lab., CNR, IDASC (Italy)
- 8443 36 **Development and performance of a gamma-ray imaging detector** [8443-109]
J. L. Glvez, M. Hernnz, J. M. lvarez, M. La Torre, L. lvarez, D. Kareln, Institut de Cincies de l'Espace, CSIC-IEEC, Univ. Autnoma de Barcelona (Spain); M. Lozano, G. Pellegrini, M. Ulln, E. Cabruja, R. Martnez, Centro Nacional de Microelectrnica IMB-CNM CSIC, Univ. Autnoma de Barcelona (Spain); M. Chmeissani, C. Puigdemngols, Institut de Fsica d'Altes Energies, Univ. Autnoma de Barcelona (Spain)

- 8443 37 **Development of a quasi-monoenergetic 6 MeV gamma facility** [8443-110]
S. F. Nowicki, NASA Goddard Space Flight Ctr. (United States) and Univ. of Michigan (United States); S. D. Hunter, J. G. Bodnarik, M. P. Dion, A. M. Parsons, NASA Goddard Space Flight Ctr. (United States); J. Schweitzer, Univ. of Connecticut (United States); S. Son, NASA Goddard Space Flight Ctr. (United States)
- 8443 38 **VAMOS** [8443-111]
A. Iriarte, Univ. Nacional Autónoma de México (Mexico); L. A. Martínez, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico); R. Alfaro, Univ. Nacional Autónoma de México (Mexico)
- 8443 39 **A water quality monitoring system for HAWC** [8443-112]
F. Garfias, A. Bernal, S. Tinoco, A. Iriarte, Instituto de Astronomía, Univ. Nacional Autónoma de México (Mexico)
- 8443 3A **Simulations for a proposed gamma-ray space telescope using MEGALib** [8443-114]
S. Foley, Univ. College Dublin (Ireland) and Max-Planck-Institut für extraterrestrische Physik (Germany); A. Zoglauer, Space Sciences Lab., Univ. of California, Berkeley (United States); J. Greiner, G. Kanbach, Max-Planck-Institut für extraterrestrische Physik (Germany)
- 8443 3B **Background estimation in a wide-field background-limited instrument such as Fermi GBM** [8443-115]
G. Fitzpatrick, S. McBreen, Univ. College Dublin (Ireland); V. Connaughton, M. Briggs, The Univ. of Alabama in Huntsville (United States)

POSTER SESSION: SOLAR MISSIONS AND TECHNOLOGIES

- 8443 3C **In-band and out-of-band reflectance calibrations of the EUV multilayer mirrors of the atmospheric imaging assembly instrument aboard the Solar Dynamics Observatory** [8443-118]
R. Soufli, E. Spiller, Lawrence Livermore National Lab. (United States); D. L. Windt, Reflective X-Ray Optics LLC (United States); J. C. Robinson, Lawrence Livermore National Lab. (United States); E. M. Gullikson, Lawrence Berkeley National Lab. (United States); L. Rodriguez-de Marcos, Consejo Superior de Investigaciones Científicas (Spain); M. Fernandez-Perea, S. L. Baker, Lawrence Livermore National Lab. (United States); A. L. Aquila, F. J. Dollar, Lawrence Berkeley National Lab. (United States); J. Méndez, J. I. Larruquert, Consejo Superior de Investigaciones Científicas (Spain); L. Golub, Harvard-Smithsonian Ctr. for Astrophysics (United States); P. Boerner, Lockheed Martin Space Systems Co. (United States)
- 8443 3D **Design, performance prediction, and measurements of the interface region imaging spectrograph (IRIS) telescope** [8443-123]
W. A. Podgorski, P. N. Cheimets, L. Golub, Harvard-Smithsonian Ctr. for Astrophysics (United States); J. R. Lemen, A. M. Title, Lockheed Martin Space Systems Co. (United States)
- 8443 3E **Thermal design of interface region imaging spectrograph (IRIS) ULE primary mirror** [8443-124]
S. C. Park, Smithsonian Astrophysical Observatory, Harvard-Smithsonian Ctr. for Astrophysics (United States); C. H. Yanari, Lockheed Martin Solar and Astrophysics Lab. (United States); P. N. Cheimets, W. A. Podgorski, Smithsonian Astrophysical Observatory, Harvard-

Smithsonian Ctr. for Astrophysics (United States); J.-P. Wuelser, Lockheed Martin Space Systems Co. (United States)

- 8443 3F **Design, analysis, and performance verification of the interface region imaging spectrograph (IRIS) telescope primary mirror assembly** [8443-125]
E. N. Hertz, P. N. Cheimets, W. A. Podgorski, T. Perry, S. C. Park, H. W. Bergner Jr., R. Gates, V. Marquez, M. F. Honsa, Harvard-Smithsonian Ctr. for Astrophysics (United States)
- 8443 3G **Analysis of optical efficiency of METIS coronagraph telescope on board of the Solar Orbiter mission** [8443-126]
V. Polito, A. J. Corso, P. Zuppella, P. Nicolosi, Institute for Photonics and Nanotechnologies, CNR (Italy) and Univ. of Padova (Italy); S. Fineschi, E. Antonucci, INAF, Osservatorio Astronomico di Torino (Italy); D. L. Windt, Reflective X-Ray Optics LLC (United States); M. G. Pelizzo, Lab. for Ultraviolet and X-ray Optical Research, CNR, Institute for Photonics and Nanotechnologies (Italy) and Univ. of Padova (Italy)
- 8443 3H **METIS: a novel coronagraph design for the Solar Orbiter mission** [8443-127]
S. Fineschi, E. Antonucci, INAF, Osservatorio Astronomico di Torino (Italy); G. Naletto, Univ. degli Studi di Padova (Italy); M. Romoli, Univ. degli Studi di Firenze (Italy); D. Spadaro, INAF, Osservatorio Astrofisico di Catania (Italy); G. Nicolini, L. Abbo, INAF, Osservatorio Astronomico di Torino (Italy); V. Andretta, INAF, Osservatorio Astronomico di Capodimonte (Italy); A. Bemporad, INAF, Osservatorio Astronomico di Torino (Italy); A. Berlicki, Astronomical Institute of the ASCR, v.v.i. (Czech Republic); G. Capobianco, G. Crescenzo, INAF, Osservatorio Astronomico di Torino (Italy); V. Da Deppo, Consiglio Nazionale delle Ricerche (Italy); M. Focardi, F. Landini, Univ. degli Studi di Firenze (Italy); G. Massone, INAF, Osservatorio Astronomico di Torino (Italy); M. A. Malvezzi, Univ. degli Studi di Padova (Italy); J. D. Moses, U.S. Naval Research Lab. (United States); P. Nicolosi, Univ. degli Studi di Padova (Italy); M. Pancrazzi, Univ. degli Studi di Firenze (Italy); M.-G. Pelizzo, L. Poletto, Consiglio Nazionale delle Ricerche (Italy); U. H. Schühle, S. K. Solanki, Max-Planck-Institut für Sonnensystemforschung (Germany); D. Telloni, INAF, Osservatorio Astronomico di Torino (Italy); L. Teriaca, Max-Planck-Institut für Sonnensystemforschung (Germany); M. Uslenghi, INAF/IASF Milano (Italy)
- 8443 3I **A prototype of the UV detector for METIS on Solar Orbiter** [8443-128]
M. Uslenghi, S. Incorvaia, M. Fiorini, INAF/IASF Milano (Italy); U. H. Schühle, L. Teriaca, Max-Planck-Institut für Sonnensystemforschung (Germany); E. Wilkinson, Southwest Research Institute (United States); O. H. Siegmund, Sensor Sciences, LLC (United States) and Space Science Lab., Univ. of California, Berkeley (United States); E. Antonucci, S. Fineschi, INAF, Osservatorio Astronomico di Torino (Italy); G. Naletto, Univ. of Padova (Italy); G. Nicolini, INAF, Astrophysical Observatory of Torino (Italy); G. Nicolosi, Univ. degli Studi di Padova (Italy); M. Romoli, M. Focardi, Univ. degli Studi di Firenze (Italy)
- 8443 3J **Imaging polarimetry with the METIS coronagraph of the Solar Orbiter mission** [8443-129]
G. Crescenzo, S. Fineschi, G. Capobianco, G. Nicolini, G. Massone, INAF, Osservatorio Astronomico di Torino (Italy); M. A. Malvezzi, Univ. degli Studi di Pavia (Italy); F. Landini, M. Romoli, Univ. degli Studi di Firenze (Italy); E. Antonucci, INAF, Osservatorio Astronomico di Torino (Italy)

- 8443 3L **The spectrometer telescope for imaging x-rays on board the Solar Orbiter mission** [8443-131]
 A. O. Benz, Univ. of Applied Sciences and Arts Northwestern (Switzerland); S. Krucker, G. J. Hurford, Univ. of Applied Sciences and Arts Northwestern Switzerland (Switzerland) and Space Science Lab., Univ. of California, Berkeley (United States); N. G. Arnold, Univ. of Applied Sciences and Arts Northwestern Switzerland (Switzerland); P. Orleański, Univ. of Applied Sciences and Arts Northwestern Switzerland (Switzerland) and Space Research Ctr. (Poland); H.-P. Gröbelbauer, S. Klobner, L. Iseli, H. J. Wiehl, A. Csillaghy, L. Etesi, N. Hochmuth, M. Battaglia, Univ. of Applied Sciences and Arts Northwestern (Switzerland); M. Bednarzik, R. Resanovič, Lab. for Micro- and Nanotechnology, Paul Scherrer Institute (Switzerland); O. Grimm, G. Viertel, V. Commichau, ETH Zürich (Switzerland); A. Meuris, O. Limousin, S. Brun, CEA Saclay (France); N. Vilmer, LESIA (France); K. R. Skup, R. Graczyk, M. Stolarski, M. Michalska, W. Nowosielski, A. Cichocki, M. Mosdorf, K. Seweryn, A. Przepiórka, J. Sylwester, M. Kowalinski, Space Research Ctr. (Poland); T. Mrozek, Space Research Ctr. (Poland) and iLeibniz-Institut (Germany); P. Podgorski, Space Research Ctr. (Poland); G. Mann, H. Aurass, E. Popow, H. Önel, F. Dionies, S. Bauer, J. Rendtel, A. Warmuth, M. Woche, D. Plüschke, W. Bittner, J. Paschke, D. Wolker, Leibniz-Institut für Astrophysik Potsdam (Germany); H. F. Van Beek, HF Van Beek ConsultANCY (Netherlands); F. Farnik, J. Kasparova, Astronomical Institute of the ASCR, v.v.i. (Czech Republic); A. M. Veronig, I. W. Kienreich, Univ. of Graz (Austria); P. T. Gallagher, D. S. Bloomfield, Trinity College Dublin (Ireland); M. Piana, Univ. degli Studi di Genova (Italy); A. M. Massone, SPIN Genova, CNR (Italy); B. R. Dennis, NASA Goddard Space Flight Ctr. (United States); R. A. Schwarz, NASA Goddard Space Flight Ctr. (United States) and Catholic Univ. of American (United States); R. P. Lin, Space Sciences Lab., Univ. of California, Berkeley (United States) and Kyung Hee Univ. (Korea, Republic of)

POSTER SESSION: X-RAY OPTICS

- 8443 3N **Progress report on using magneto-strictive sputtered thin films to modify the shape of a x-ray telescope mirror** [8443-133]
 M. P. Ulmer, X. Wang, J. Cao, J. Savoie, B. Bellavia, M. E. Graham, S. Vaynman, Northwestern Univ. (United States)
- 8443 3O **Uniform coating of high aspect ratio surfaces through atomic layer deposition** [8443-134]
 M. Nolan, I. Povey, S. Elliot, N. Cordero, M. Pemble, Tyndall National Institute (Ireland); B. Shortt, M. Bavdaz, ESA/ESTEC (Netherlands)
- 8443 3P **Coatings with high 102.6-to-121.6 nm reflectance ratio** [8443-135]
 L. Rodríguez-de Marcos, J. I. Larruquert, J. A. Méndez, J. A. Aznárez, M. Vidal-Dasilva, S. García-Cortés, Instituto de Óptica-Consejo Superior de Investigaciones Científicas (Spain)
- 8443 3Q **Progress in new ultraviolet reflective coating techniques** [8443-136]
 M. Beasley, Univ. of Colorado at Boulder (United States); F. Greer, S. Nikzad, Jet Propulsion Lab. (United States)

Part 3

- 8443 3R **Corrosion-resistant high-reflectance Mg/SiC multilayer coatings for solar physics in the 25-80 nm wavelength region** [8443-137]
R. Soufli, M. Fernández-Perea, J. C. Robinson, S. L. Baker, J. Alameda, Lawrence Livermore National Lab. (United States); E. M. Gullikson, Lawrence Berkeley National Lab. (United States)
- 8443 3S **Reflective coating for lightweight x-ray optics** [8443-138]
K.-W. Chan, Ctr. for Research and Exploration in Space Science and Technology (United States) and Univ. of Maryland (United States); W. W. Zhang, NASA Goddard Space Flight Ctr. (United States); D. Windt, Reflective X-Ray Optics LLC (United States); M.-L. Hong, Stinger Ghaffarian Technologies, Inc. (United States); T. Saha, NASA Goddard Space Flight Ctr. (United States); R. McClelland, M. Sharpe, Stinger Ghaffarian Technologies, Inc. (United States); V. H. Dwivedi, NASA Goddard Space Flight Ctr. (United States)
- 8443 3V **Grazing-incidence imaging spectrograph for solar observations in the XUV domain** [8443-141]
F. Frassetto, S. Coraggia, P. Miotti, L. Poletto, NCR, Institute of Photonics and Nanotechnologies (Italy)
- 8443 3W **Mirror-concentrator for space telescope with wide field of view and "high" angular resolution for observation of ultrahigh energy cosmic rays and other atmospheric flashes** [8443-142]
S. A. Sharakin, B. A. Khrenov, P. A. Klimov, M. I. Panasyuk, Lomonosov State Univ., Skobeltsyn Institute of Nuclear Physics (Russian Federation); S. A. Potanin, Lomonosov State Univ., Sternberg Astronomical Institute (Russian Federation); I. V. Yashin, Lomonosov State Univ., Skobeltsyn Institute of Nuclear Physics (Russian Federation)
- 8443 3X **Development of the super-high angular resolution principle for x-ray imaging: experimental demonstrations** [8443-143]
C. Zhang, Z. Ling, National Astronomical Observatories (China); S.-N. Zhang, National Astronomical Observatories (China) and Institute of High Energy Physics (China)
- 8443 3Y **Design and analysis of modules for segmented X-ray optics** [8443-144]
R. S. McClelland, M. P. Biskach, SGT, Inc. (United States); K.-W. Chan, Ctr. for Research and Exploration in Space Science and Technology, Univ. of Maryland (United States); T. T. Saha, W. W. Zhang, NASA Goddard Space Flight Ctr. (United States)
- 8443 3Z **Precise alignment and permanent mounting of thin and lightweight X-ray segments** [8443-145]
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A. Trois, INAF, Osservatorio Astronomico di Cagliari (Italy); P. Valente, E. Vallazza, INFN Lab. Frascati (Italy); S. Vercellone, INAF/IASF Palermo (Italy); G. Barbiellini, Univ. degli Studi di Trieste, INFN (Italy); P. Caraveo, INAF/IASF Milano (Italy); E. Costa, G. De Paris, E. Del Monte, INAF/IASF Roma (Italy); G. Di Cocco, INAF/IASF Bologna (Italy); I. Donnarumma, Y. Evangelista, INAF/IASF Roma (Italy); A. Ferrari, Univ. degli Studi di Torino (Italy); M. Feroci, INAF/IASF Roma (Italy); M. Fiorini, INAF/IASF Milano (Italy); M. Giusti, INAF/IASF Roma (Italy); C. Labanti, INAF/IASF Bologna (Italy); I. Lapshov, F. Lazzarotto, INAF/IASF Roma (Italy); P. Lipari, INFN-Roma La Sapienza (Italy); F. Lucarelli, ASI Science Data Ctr. (Italy); S. Mereghetti, INAF/IASF Milano (Italy); E. Morelli, INAF/IASF Bologna (Italy); E. Moretti, Univ. Trieste and INFN Trieste (Italy); A. Morselli, INFN Roma Tor Vergata (Italy); L. Pacciani, INAF/IASF Roma (Italy); F. Perotti, INAF/IASF Milano (Italy); G. Piano, INAF/IASF Roma (Italy) and Univ. degli Studi di Roma Tor Vergata (Italy) and INFN (Italy); P. Picozza, Univ. degli Studi di Roma Tor Vergata (Italy) and INFN (Italy); M. Pilia, Univ. degli Studi dell'Insubria (Italy) and INAF, Osservatorio Astronomico di Cagliari (Italy); M. Rapisarda, ENEA Frascati (Italy); A. Rubini, S. Sabatini, P. Soffitta, E. Striani, INAF/IASF Roma (Italy); V. Vittorini, INAF/IASF Roma (Italy) and Univ. degli Studi di Roma Tor Vergata (Italy); D. Zanello, Univ. degli Studi di Roma La Sapienza (Italy); S. Colafrancesco, INAF, Osservatorio Astronomico di Roma (Italy) and Univ. of the Witwatersrand (South Africa); P. Giommi, C. Pittori, P. Santolamazza, F. Verrecchia, ASI Science Data Ctr. (Italy); L. Salotti, Agenzia Spaziale Italiana (Italy)

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- 8443 57 **A ground calibration of the engineering model of the SXT onboard ASTRO-H using the ISAS 30m pencil beam facility** [8443-192]
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