



## Detailed program

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#### Invited speakers

- United Nations working to sustain geodesy  
*Nicholas Brown, Geosciences Australia*
- Radioastronomy at Yebes Observatory  
*Pablo de Vicente, Yebes Observatory, IGN/CNIG*
- The International VLBI Service for Geodesy and Astrometry—status and prospects  
*Rüdiger Haas, Chalmers University of Technology, Onsala Space Observatory*
- Space Debris - How can laser technology contribute to a sustainable solution for the further exploitation of space as a resource?  
*Tim Flohrer, ESA, ESOC*

#### Program Sessions (oral and poster presentations)

- **Session 1:** ILRS Contribution to the Terrestrial Reference Frame and Earth Orientation Parameters
- **Session 2:** Laser Ranging Applications for Precise Orbit Determination
- **Session 3:** Science Applications of Satellite Laser Ranging
- **Session 4:** Errors in SLR: Detection, Mitigation and Modelling
- **Session 5:** Missions: Current and Future
- **Session 6:** Ground Network and Operations
- **Session 7:** Space Debris
- **Session 8:** Technologies and Developments
- **Session 9:** New Applications
- **Session 10:** Lunar Laser Ranging and Deep Space Missions

## Sunday 6<sup>th</sup> November 2022

- 08:30 – 13:30 Registration desk opening
- 09:00 – 10:45 **Splinter meeting: Analysis Standing Committee**
- 10:45 – 11:15 Coffee break
- 11:15 – 13:00 **Splinter meeting: Analysis Standing Committee (cont.)**
- 13:00 – 14:30 Lunch break
- 14:30 – 16:00 **Splinter meeting: Governing Board (invited only)**
- 16:00 – 16:30 Coffee break
- 16:30 – 18:30 **Splinter meeting: Governing Board (cont., invited only)**

## Monday 7<sup>th</sup> November 2022

- 08:30 – 15:30 Registration desk opening
- 09:00 – 10:00 Welcome by Local Authorities and the Organisers  
LOC & Logistics  
ILRS Governing Board remarks  
ILRS Central Bureau remarks
- Session 1** **ILRS Contribution to the Terrestrial Reference Frame and Earth Orientation Parameters**  
*Chairs: David Sarrocco and Mathis Bloßfeld*
- 10:00 – 10:15 ITRF2020 and the ILRS contribution  
*Zuheir Altamimi*  
Université de Paris Cité, Institut de physique du globe de Paris, CNRS, IGN, France
- 10:15 – 10:30 DTRF2020: the ITRF 2020 realization of DGFI-TUM  
*Mathis Bloßfeld*  
DGFI-TUM, Germany
- 10:30 – 10:45 Enhanced ILRS analysis for ITRF2020  
*Vincenza Luceri*  
e-GEOS SpA, ASI/CGS-Matera, Italy
- 10:45 – 11:15 Coffee break
- 11:15 – 11:30 Some Aspects of BKG's SLR Contribution to ITRF2020  
*Daniel Koenig*  
BKG, Germany
- 11:30 – 11:45 A Global SLR-only Reference Frame  
*David Sarrocco*  
e-GEOS SpA, ASI/CGS-Matera, Italy
- 11:45 – 12:00 Multi-satellite SLR solutions including LARES/LARES-2 SLR data  
*Linda Geisser*  
Astronomical Institute of the University of Bern, Switzerland
- 12:00 – 12:15 Determination and analysis of Herstmonceux geodetic heights for the period between 1984 and 2022  
*Andreja Susnik*  
BGS, NSGF, United Kingdom

12:15 – 12:30 EOP Prediction with special focus on SLR  
*Sadegh Modiri*  
BKG, Germany

12:30 – 12:45 Height Determination for the most Accurate SLR Stations  
*Peter Dunn*  
Peraton Inc, USA

**Session 2** **Laser Ranging Applications for Precise Orbit Determination**  
*Chairs: Mathis Bloßfeld and David Sarrocco*

12:45 – 13:00 A comparison of different ocean tides models  
*Julian Zeitlhöfler*  
DGFI-TUM, Germany

13:00 – 14:30 Lunch break

14:30 – 14:45 Precise orbit determination of SLR and altimetry satellites using ITRS2020 realizations  
*Sergei Rudenko*  
DGFI-TUM, Germany

14:45 – 15:00 COST-G gravity field models: application in SLR orbit determination  
*Ulrich Meyer*  
Astronomical Institute of the University of Bern, Switzerland

15:00 – 15:15 Thermal Thrust Perturbations, Spin evolution and the long-term behavior of LAGEOS II  
Semi-Major axis  
*David Lucchesi*  
Istituto Nazionale di Astrofisica (IAPS-INAF), Italy

15:15 – 15:30 A new system-dependent SLR measurement correction function for TOPEX/Poseidon  
*Julian Zeitlhöfler*  
DGFI-TUM, Germany

15:30 – 15:45 SLR validation of IGS Galileo orbits derived in the framework of the ITRF2020 realization  
*Krzysztof Sośnica*  
Institute of Geodesy and Geoinformatics, Wrocław University of Environmental and Life Sciences, Poland

15:45 – 16:00 The ILRS Support to the Copernicus Sentinel-3 & -6 Missions  
*Jaime Fernández*  
GMV AD., Spain

16:00 – 16:30 Coffee break

**Session 3** **Science Applications of Satellite Laser Ranging**  
*Chairs: Toshimichi Otsubo and José C. Rodríguez*

16:30 – 16:45 A once in a lifetime experiment: SLR observations of the Apophis encounter Friday, April 13, 2029  
*Jorge del Pino*  
Institute of Astronomy, University of Latvia, Latvia

16:45 – 17:00 The Galileo for Science project: Fundamental Physics and Technology development for the Constellations of Galileo satellites  
*Feliciana Sapio*  
Istituto Nazionale di Astrofisica (IAPS-INAF), Italy

17:00 – 17:15 Relativistic Positioning as a complementary technique of LASER Ranging  
*Angelo Tartaglia*  
INAF-OATo, Italy

17:15 – 17:30 Space Geodesy for the monitoring of Volcanoes and Surrounding Hills of Arequipa using the Arequipa Station as a reference  
*Pablo Yanyachi*  
IAAPP-UNSA, Peru

17:45 – 18:45 **Splinter Meeting: Data Formats & Procedures Standing Committee**

19:00 – 20:15 **Icebreaker at San José Centre**

## Tuesday 8<sup>th</sup> November 2022

08:30 – 13:30 Registration desk opening

09:00 – 09:30 **Invited talk: United Nations working to sustain geodesy**  
*Nicholas Brown*  
Geosciences Australia

**Session 4** **Errors in SLR: Detection, Mitigation and Modelling**  
*Chairs: Toshimichi Otsubo and José C. Rodríguez*

09:30 – 09:45 A tool for simulating SLR residuals - Placement of backup retroreflectors for future satellite missions  
*Michael A. Steindorfer*  
Space Research Institute, Austrian Academy of Sciences, Austria

09:45 – 10:00 Homogeneous formation of SLR Normal Point data  
*Linda Geisser*  
Astronomical Institute of the University of Bern, Switzerland

10:00 – 10:15 Novel Data Analysis Strategy at the SwissOGS Zimmerwald (7810)  
*Julian Rodriguez-Villamizar*  
Astronomical Institute University of Bern, Switzerland

10:15 – 10:30 Satellite Orientation effects on Centre of Mass Corrections  
*José C. Rodríguez*  
Yebeas Observatory, IGN/CNIG, Spain

10:30 – 10:45 Modeling NASA/SLR Multi-Photon Receive Energies  
*Van Husson*  
Peraton/NASA Greenbelt, USA

10:45 – 11:15 Coffee break

11:15 – 11:30 Modeling ILRS Barometric Accuracies using the Vienna Mapping Function (VMF)  
*Van Husson*  
Peraton/NASA Greenbelt, USA

11:30 – 11:45 Seasonal variations in the station ranging bias and tropospheric zenith delay in SLR  
*Minkang Cheng*  
Center for Space Research, University of Texas at Austin

11:45 – 12:00 Tropospheric delay modeling in SLR solutions based on numerical weather models and the estimation of tropospheric bias corrections  
*Mateusz Drożdżewski*  
Wrocław University of Environmental and Life Sciences, Poland

- 12:00 – 12:15 Modeling of systematic effects in SLR observations to Swarm satellites for determination of global geodetic parameters  
*Dariusz Strugarek*  
Wrocław University of Environmental and Life Sciences, Poland
- 12:15 – 12:30 Systematic errors in Satellite Laser Ranging validations of microwave-based low Earth orbiter solutions  
*Daniel Arnold*  
Astronomical Institute of University of Bern, Switzerland
- Session 5**     **Mission: Current and Future**  
*Chairs: Stephen M. Merkowitz and Robert Sherwood*
- 12:30 – 12:45 Galileo mission recent results, ongoing support and future launches  
*Francisco González*  
ESA
- 12:45 – 13:00 Fundamental Physics results in testing Gravitation with Laser-Ranged satellites: the LARASE and SaToR-G experiments  
*David Lucchesi*  
Istituto Nazionale di Astrofisica (INAF), Italy
- 13:00 – 14:30 Lunch break
- 14:30 – 14:45 The LARES 2 satellite for testing general relativity successfully placed in orbit with VEGA C  
*Claudio Paris*  
School of Aerospace Engineering, Sapienza, University of Rome, Italy
- 14:45 – 15:00 A simulation study for future geodetic satellite constellations  
*Joanna Najder*  
Institute of Geodesy and Geoinformatics, Wrocław University of Environmental and Life Sciences, Poland
- 15:00 – 15:15 SLR Contribution to the new Regional Navigation Satellite System of Korea  
*Jong Uk Park*  
Korea Astronomy and Space Science Institute, South Korea
- 15:15 – 15:30 JAXA developed SLR Reflector Mt.FUJI and Technical Demonstration on HTV-X  
*Yuki Akiyama*  
Japan Aerospace Exploration Agency, Japan
- 15:30 – 15:45 Impact Analysis of Multiple LRR On-Board Future Copernicus CRISTAL Altimetry Mission  
*Jaime Fernández*  
GMV AD., Spain
- 15:45 – 16:00 METRIC: a compact mission concept for upper atmosphere mapping, fundamental physics and geodesy  
*Roberto Peron*  
INAF-INAF, Italy
- 16:00 – 16:15 Lunar Pathfinder Laser Retroreflector Array  
*Stephen M. Merkowitz*  
NASA Goddard Space Flight Center, USA
- 16:15 – 16:30 Coffee break
- 16:30 – 17:30 **Posters & Sponsors**
- 17:45 – 19:15 **Splinter Meeting: Networks and Engineering Standing Committee**

## Wednesday 9<sup>th</sup> November 2022

08:30 – 13:30 Registration desk opening

### Session 6 Ground Network and Operations

*Chairs: Claudia Carabajal and Evan Hoffman*

09:00 – 09:15 SLR-System Upgrade and Experiments at Zimmerwald

*Pierre Lauber*

Astronomical Institute of the University of Bern, Switzerland

09:15 – 09:30 Validation of the ESA's IZN-1 station and overview of current station capabilities

*Andrea Di Mira*

Serco@European Space Operation Centre – ESOC, Germany

09:30 – 09:45 Current state of the contribution of ESA's IZANA-1 station to the ILRS

*Sven Bauer*

DiGOS Potsdam GmbH, Germany

09:45 – 10:00 Development Status of JAXA's New SLR Station in Tsukuba

*Takehiro Matsumoto*

Japan Aerospace Exploration Agency, Japan

10:00 – 10:15 Yebes Laser Ranging Station (YLARA), development development status 2022

*Beatriz Vaquero*

Yebes Observatory, IGN/CNIG, Spain

10:15 – 10:30 Barometer calibration at the SLR Riga 1884, current status

*Kalvis Salmins*

Institute of Astronomy, University of Latvia, Latvia

10:30 – 11:15 Coffee break

11:15 – 11:30 Automatically and Consistently Detecting and Extracting SLR Measurements for Every Satellite Pass

*Matthew Wilkinson*

NERC Space Geodesy Facility, UK

11:30 – 11:45 Current Status and Plans for Test and Deployment of the First NASA SGSLR System

*Jan McGarry*

NASA/GSFC, Greenbelt, USA

11:45 – 12:00 Ny-Ålesund: New SLR Site in the Arctic at 79°N

*Gøril M. Breivik*

Kartverket / Norwegian Mapping Authority (NMA), Norway

12:00 – 12:30 **Invited talk: Radioastronomy at Yebes Observatory**

*Pablo de Vicente*

Yebes Observatory, IGN/CNIG, Spain

12:30 – 13:00 **Invited talk: The International VLBI Service for Geodesy and Astrometry—status and prospects**

*Rüdiger Haas*

Chalmers University of Technology, Onsala Space Observatory, Sweden

- 13:00 – 14:30 Lunch break
- 14:30 – 15:00 Group photo
- 15:00 – 19:00 **Visit to Observatory of Yebes**
- 19:00 – 20:30 **Paella dinner at the Observatory**

## Thursday 10<sup>th</sup> November 2022

- 08:30 – 13:30 Registration desk opening

### Session 7

#### Space Debris

*Chairs: Michael Steindorfer and Emiliano Cordelli*

- 09:00 – 09:30 **Invited talk: Space Debris - How can laser technology contribute to a sustainable solution for the further exploitation of space as a resource?**  
*Tim Flohrer*  
ESA, ESOC, Germany
- 09:30 – 09:45 Space Debris Laser Ranging – Challenging and Rewarding – Update of the Izaña-1 station  
*Martin Ploner*  
DiGOS Potsdam GmbH, Germany
- 09:45 – 10:00 European Expert Centre for Sapec Safety providing services and support for space surveillance and traffic management  
*Thomas Schildknecht*  
Astronomical Institute of the University of Bern, Switzerland
- 10:00 – 10:15 Validation & Qualification of Space Debris Laser Systems at the Expert Centre for Space Safety  
*Julian Rodriguez-Villamizar*  
Astronomical Institute University of Bern, Switzerland
- 10:15 – 10:30 Laser ranging—Evolution towards active sensor networking for debris observation  
*Laura Aivar*  
GMV AD., Spain
- 10:30 – 10:45 Space Debris: Extraction of the Rotational State from Multistatic Light Curves  
*Manik Reichegger*  
Technical University of Munich, Germany
- 10:45 – 11:15 Coffee break

### Session 8

#### Technologies and Developments

*Chairs: Michael Steindorfer and Matthew Wilkinson*

- 11:15 – 11:30 The miniSLR®: A low-cost, high-performance laser ranging system for the ILRS  
*Daniel Hampf*  
German Aerospace Center (DLR e.V.), Institute of Technical Physics, Germany
- 11:30 – 11:45 State report of current developments for picosecond precision Time-of-Flight / Time-Tagging systems  
*Victors Kurtenoks*  
Eventech, Latvia

- 11:45 – 12:00 Day- and night-time SLR at MHz repetition rate in Graz  
*Peiyuan Wang*  
Space Research Institute, Austrian Academy of Sciences, Austria
- 12:00 – 12:15 Degoras Project: A libre software and hardware for satellite laser ranging stations  
*Ángel Vera-Herrera*  
Royal Institute and Observatory of Spanish Navy, Spain
- 12:15 – 12:30 Progress of Laser Time Transfer at Chinese Space Station  
*Zhibo Wu*  
Shanghai Astronomical Observatory of Chinese Academy of Sciences, China
- 12:30 – 12:45 Recent progress in SPAD detectors for SLR and laser time transfer  
*Ivan Prochazka*  
Czech Technical University in Prague, Czech Republic
- 12:45 – 13:00 New Pico Event Timer for space applications  
*Ivan Prochazka*  
Czech Technical University in Prague, Czech Republic
- 13:00 – 14:30 Lunch break
- 14:30 – 14:45 Two Color SLR at the WLRS – Scope & Limitations  
*Johann Eckl*  
Federal Agency for Cartography and Geodesy, Germany
- 14:45 – 15:00 Progress on the implementation of two-color high count rate laser ranging at Grasse  
*Hervé Mariey*  
Université Côte d'Azur, Observatoire de la Côte d'Azur, CNRS, IRD, Géoazur, France
- 15:00 – 15:15 Preliminary results of the new Event Timer with the IECS technologies  
*Kalvis Salmins*  
Institute of Astronomy, University of Latvia, Latvia
- 15:15 – 15:30 Development and validation of object detection algorithm for robust video based laser safety system  
*Hrithik Pandey*  
Deutsches GeoForschungsZentrum GFZ, Potsdam, Germany
- Session 9**    **New Applications**  
*Chairs: Clément Courde and Sven Bauer*
- 15:30 – 15:45 Polarimetric satellite laser ranging  
*Nils Bartels*  
German Aerospace Center (DLR), Institute of Technical Physics, Germany
- 15:45 – 16:00 Exploiting the synergy between optical two-way and microwave one-way ranging in a GNSS constellation: A simulation study  
*Anja Schlicht*  
FESG, TU Munich, Germany
- 16:00 – 16:30 Coffee break
- 16:30 – 16:45 Combination of Microwave and Optical Observations for minimizing Atmospheric induced variations in Parameter Estimation  
*Peter Vollmair*  
FESG, TU Munich, Germany



- 16:45 – 17:00 Satellite illumination for pointing and auto-tracking at Grasse station - France Station (ID7845)  
*Duy Ha Phung*  
Université Côte d'Azur, Observatoire de la Côte d'Azur, CNRS, IRD, Géoazur, France
- 17:00 – 17:15 Downlink communication experiments with OSIRISv1 laser terminal onboard Flying Laptop satellite at Grasse SLR/LLR station  
*Julien Chabé*  
Université Côte d'Azur, Observatoire de la Côte d'Azur, CNRS, IRD, Géoazur, France
- 17:15 – 17:30 System design and concept of small-size, low-cost, multi-purpose Omni-SLR System  
*Toshimichi Otsubo*  
Hitotsubashi University, Japan
- 17:45 – 18:45 **Splinter Meeting: Missions Standing Committee**
- 20:00 to inf **Social dinner**

## Friday 11<sup>th</sup> November 2022

- 08:30 – 13:30 Registration desk opening
- 09:00 – 09:15 Laser Safety at NASA's New Laser Ranging Stations  
*Evan Hoffman*  
NASA/GSFC, Greenbelt, USA
- Session 10 Lunar Laser Ranging and Deep Space Missions**  
*Chairs: Clément Courde and Sven Bauer*
- 09:15 – 09:30 Recent Developments of the Apache Point Lunar Laser Ranging Station  
*Nicholas R. Colmenares*  
Oak Ridge Associated Universities, NASA Goddard Space Flight Center, USA
- 09:30 – 09:45 Deep-Space Synchronous Two-way Laser Ranging Experiment Using the LIDAR on board Hayabusa2  
*Takahide Mizuno*  
Japan Aerospace Exploration Agency, Japan
- 09:45 – 10:00 Benefit of improved Lunar Laser Ranging data for the determination of Earth orientation parameters  
*Liliane Biskupek*  
Institute of Geodesy (IfE), Leibniz University Hannover, Germany
- 10:00 – 10:15 Uncertainty determination of Earth Rotation Parameters from LLR by parameter variation during data analysis  
*Vishwa Vijay Singh*  
Institute of Geodesy (IfE), Leibniz University Hannover, Germany
- 10:15 – 10:30 Combination of Lunar Laser Ranging and Differential Lunar Laser Ranging  
*Mingyue Zhang*  
Institute of Geodesy (IfE), Leibniz University Hannover, Germany
- 10:30 – 10:45 Paris Observatory Lunar Analysis Center: from LLR predictions to tests of fundamental Physics  
*Adrien Bourgoin*  
SYRTE, Observatoire de Paris, PSL Research University, CNRS, Sorbonne Université, UPMC, France

10:45 – 11:15	Coffee break
11:15 – 13:00	Summaries from the Chairs of the ILRS Standing Committees ILRS Conference resolutions SLR Pioneer certificates Announcement of the next ILRS conference Closing

## Posters

S01-P01. Reconstructing local ties via co-location in space onboard GNSS and LEO satellites

*Dariusz Strugarek*

Institute of Geodesy and Geoinformatics, Wrocław University of Environmental and Life Sciences, Poland

S02-P01. Precision orbit determination of BDS satellites using combined SLR and inter-satellite link measurements

*Weijing Qu*

Shanghai Astronomical Observatory, China

S03-P01. Time-variable Earth's gravity field derived using SLR and GRACE data

*Filip Gałdyn*

Institute of Geodesy and Geoinformatics, Wrocław University of Environmental and Life Sciences, Poland

S04-P01. SLR link budget and retroreflector optical cross section evaluation

*Tristan Meyer*

German Aerospace Center, Institute of Technical Physics, Germany

S04-P02. A SLR pre-processing algorithm based on satellite signature effect

*Bowen Guan*

Changchun observatory, National Astronomical Observatories, Chinese Academy of sciences, China

S04-P03. Systematic range residuals 2021–2022

*Toshimichi Otsubo*

Hitotsubashi University, Japan

S05-P01. Preliminary design of a laser retroreflector payload for the MARTINLARA mission

*Adolfo García-Marín*

Yebes Observatory (IGN/CNIG), Spain

S06-P01. San Fernando Laser station: news and improvements

*Manuel Catalán*

Royal Institute and Observatory of Spanish Navy, Spain

S06-P02. New opportunities of SLR service of main metrological Center of State Service of Time, Frequency and EOP evaluation

*Igor Ignatenko*

VNIIFTRI, Mendeleevo, Russian Federation

S06-P03. SLR station Riga 1884, status report

*J. Kaulins*

Institute of Astronomy, University of Latvia, Latvia

S06-P04. The impact of cyclone Seroja at Yarragadee

*Randall Carman*

Geoscience Australia, Australia

S06-P05. Determination of the reference point of Metsähovi SLR telescope

*Arttu Raja-Halli*

Finnish Geospatial Research Institute, National Land Survey, Finland

S06-P06. EUROLAS Data Center (EDC) — status report 2018–2022

*Christian Schwatke*

DGFI-TUM, Germany

S06-P07. LARES-2 —initial results from NSGF Space Geodesy Facility

*Andreja Susnik*

BGS, NSGF, United Kingdom

S06-P08. CDDIS services to the ILRS

*Justine Woo*

Science Systems and Applications, INC./NASA Goddard Space Flight Center, USA

S06-P09. ILRS data centers—overview, current status, and future work

*Justine Woo*

Science Systems and Applications, INC./NASA Goddard Space Flight Center, USA

S06-P10. Detecting Satellite Laser Ranging Station Data and Operational Anomalies with Machine Learning Isolation Forests at NASA's CDDIS

*Justine Woo*

Science Systems and Applications, INC./NASA Goddard Space Flight Center, USA

S06-P11. The further development of the DiGOS allsky camera

*Erik Guenther*

DiGOS Potsdam GmbH, Germany

S06-P12. Determination of the natural frequencies of vibration of geodetic pillars with a COST seismometer

*José C. Rodríguez*

Yebes Observatory, IGN/CNIG, Spain

S06-P13. Astrometric calibration of all-sky camera for aircraft spotting and meteor observations

*José C. Rodríguez*

Yebes Observatory, IGN/CNIG, Spain

S06-P14. The local tie at RAEGE stations

*Elena Martínez*

Yebes Observatory, IGN/CNIG, Spain

S06-P15. Laser safety in Ny-Ålesund: aircraft avoidance system (AAS)

*Ole J. Klingan*

Norwegian Mapping Authority (Kartverket), Norway

S07-P01. Laser tracking to space debris with low power of ps laser/1 KHz based on the 1.2-meter telescope at mid-west China

*Haifeng Zhang*

Shanghai Astronomical Observatory of Chinese Academy of Sciences, China

S07-P02. Orbit determination by merging optical, radar and laser measurements

*Manuel S. Piedra*

Royal Institute and Observatory of Spanish Navy, Spain

S07-P03. Research on laser in-sky safety early warning method for high power debris laser ranging system

*Hongyu Long*

Changchun Observatory of National Astronomical Observatories, Chinese Academy of Sciences, China

S08-P01. Development of Omni-SLR system (1): optical subsystem

*Hiroshi Araki*

National Astronomical Observatory, Japan

S08-P02. Development of Omni-SLR system (2): tracking subsystem

*Toshimichi Otsubo*

Hitotsubashi University, Japan

S08-P03. Development of Omni-SLR system (3): timing/software subsystem

*Yusuke Yokota*

Institute of Industrial Science, University of Tokyo, Japan

S08-P04. A compact, mobile, robotic, high precision tracking platform for SLR, astrometry, photometry, and laser ranging

*Thomas Varghese*

Cybioms Corporation, USA

S08-P05. An automated, intelligent, LHRS (AI-LHRS) for supporting the safety of lasers in airspace

*Thomas Varghese*

Cybioms Corporation, USA

S08-P06. SGSLR receiver detector testing and the pulse width calibration technique

*Christopher Clarke*

KBRwyle Technology Solutions LLC, USA

S08-P07. Modular setup of SLR laser and detection packages

*Nadine Trummer*

Space Research Institute, Austrian Academy of Sciences, Austria



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