

# **SECOND CIRCULAR**

## **21<sup>st</sup> International Workshop on Laser Ranging “Laser Ranging for Sustainable Millimeter Geoscience”**

Canberra, Australia, 5-9 November 2018 at the John Curtin School of Medical Research (JCSMR)

**The International Program Committee is pleased to announce the following  
keynote speakers for IWLR 2018  
Professor Thomas Herring, Massachusetts Institute of Technology, Cambridge &  
Associate Professor Moriba Jah, University of Texas at Austin**

### **Abstract Submission**

Abstract submissions for the 21<sup>st</sup> IWLR opened in February 2018. Early submission of abstracts is encouraged to allow sufficient time for visa processes and travel arrangements to be made. The closing date for abstracts is **Friday 29 June**. Successful oral and poster presenters will be notified by Friday 31 August 2018. **Please submit abstracts both oral and poster presentations via the following link** <http://iwlr2018.serc.org.au/#abstracts>

### **Oral Presentations**

Oral presentations are invited in the following Session Themes:

- SLR Contribution to Global Geodetic Observing System – a 2020 perspective
- Improvements in the SLR Product Quality & Precise Orbit Determination
- Satellite Missions & Techniques for Geodetic Applications
- Characteristics of Retroreflector Arrays
- Sources of Systematic Errors
- Network Operations & Site Upgrades
- Developments in SLR Techniques & Technologies
- Developments in Software & Automation
- Lunar Laser Ranging & Deep Space Missions
- Sensors & Satellite Tracking
- Orbit Determination & Propagation of Space Debris
- Conjunction Analysis & Collision Avoidance
- Mitigation & Remediation of Space Debris

### **Oral Presentation Duration:**

15 minute speaking time which includes 12 minutes to present and 3 minutes for questions

### **Poster Presentations**

The 21<sup>st</sup> IWLR has dedicated significant program time to poster sessions. Poster submissions are encouraged for each Session Theme (outlined above). In addition, posters which provide an update on station activities are *strongly encouraged*. Station Posters could include:

- *Current Status* – recent developments and upgrades, productivity, data statistics, quality metrics, calibration techniques & performance

- *Operations* – operating mode, staff levels, scheduling, software & other management initiatives
- *Future Status* - new technologies, developments, equipment upgrades, operational constraints
- *Related Activities* – co-located systems (GNSS, GPS, Doris, VLBI etc)
- *Other Projects* – time transfer, debris tracking, photometry
- *Pictures & Images* - site location, staff, telescope, major devices, system schematics

### Poster Dimensions:

**Size** - AO (Width 841mm x Height 1189mm)

**Orientation** - Portrait

## Young Professionals

The International Program Committee encourages young professionals (35 years or younger or within five years of PhD completion) to submit oral and/or poster presentations for IWLR2018. Special consideration will be given to abstracts submitted by young professionals and the Committee hopes to see at least one oral presentation in each session presented by a young professional.

IWLR organisations are asked to consider sponsoring a young professional to attend IWLR 2018. Sponsorship opportunities are outlined in the sponsorship prospectus available at

[http://iwlr2018.serc.org.au/assets/iwlr\\_prospectus\\_15april.pdf](http://iwlr2018.serc.org.au/assets/iwlr_prospectus_15april.pdf)

## Session Chairs

The International Organising Committee would like to thank the following session chairs for supporting IWLR 2018.

### International Workshop on Laser Ranging – Mon 5 to Thurs 8 November

IWLR Session	Co-chairs
<b>Welcome and introduce Keynote Speaker:</b> Professor Thomas Herring, MIT	David Ball, Space Environment Research Centre
<b>SLR Contribution to Global Geodetic Observing System – A 2020 Perspective</b>	<ul style="list-style-type: none"> <li>➤ Michael Pearlman, Harvard Smithsonian Center for Astrophysics</li> <li>➤ Mathis Bloßfeld, Technical University of Munich</li> <li>➤ Richard Gross, Jet Propulsion Laboratory, NASA</li> </ul>
<b>Improvements in the SLR Product Quality &amp; Precise Orbit Determination</b>	<ul style="list-style-type: none"> <li>➤ Erricos Pavlis, Joint Center for Earth Systems Technology, UMBC</li> <li>➤ Vincenza Luceri, e-GEOS S.p.A.</li> <li>➤ Krzysztof Sosnica, Wroclaw University</li> </ul>
<b>Satellite Missions &amp; Techniques for Geodetic Applications</b>	<ul style="list-style-type: none"> <li>➤ John Degnan, Sigma Space Corporation</li> <li>➤ Ulrich Schreiber, Technical University of Munich</li> <li>➤ Andrey Sokolov, SRI for Precision Instrument Engineering</li> </ul>
<b>Characteristics of Retroreflector Arrays</b>	<ul style="list-style-type: none"> <li>➤ Jose Rodriguez, NERC Space Geodesy Facility</li> <li>➤ Simone Dell’Agnello, Istituto Nazionale di Fisica Nucleare</li> <li>➤ Andrew Menas, Naval Research Laboratory</li> </ul>
<b>Sources of Systematic Errors</b>	<ul style="list-style-type: none"> <li>➤ Daniela Thaller, Federal Agency for Cartography &amp; Geodesy</li> <li>➤ Matthew Wilkinson, NERC Space Geodesy Facility</li> <li>➤ Toshimichi Otsubo, Hitotsubashi University</li> </ul>
<b>Network Operations &amp; Site Upgrades</b>	<ul style="list-style-type: none"> <li>➤ Hyung-Chul Lim, Korea Astronomy and Space Science Institute</li> <li>➤ Randall Ricklefs, University of Texas at Austin</li> <li>➤ Zhang Zhongping, Shanghai Astronomical Observatory</li> </ul>
<b>Developments in SLR Techniques &amp; Technologies</b>	<ul style="list-style-type: none"> <li>➤ Georg Kirchner, Austrian Academy of Sciences</li> <li>➤ Manuel Catalán, Royal Observatory of the Spanish Navy</li> <li>➤ Daniel Hampf, German Aerospace Centre</li> </ul>
<b>Developments in Software &amp; Automation</b>	<ul style="list-style-type: none"> <li>➤ Chris Moore, EOS Space Systems</li> <li>➤ Evan Hoffman, NASA Goddard Space Flight Centre</li> <li>➤ Pierre Lauber, Astronomical Institute, University of Bern</li> </ul>
<b>Lunar Laser Ranging &amp; Deep Space Missions</b>	<ul style="list-style-type: none"> <li>➤ Tom Murphy, Center for Astrophysics and Space Sciences, UCSD</li> <li>➤ Sven Bauer, Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences</li> <li>➤ Jean-Marie Torre, Observatoire de la Cote d’Azur</li> </ul>
<b>Wrap up and Close IWLR proceedings</b>	<ul style="list-style-type: none"> <li>➤ Michael Pearlman, Harvard Smithsonian Center for Astrophysics</li> <li>➤ Erricos Pavlis, Joint Center for Earth Systems Technology, UMBC</li> <li>➤ Giuseppe Bianco, Italian Space Agency</li> </ul>

## Space Debris Workshop – Friday 9 November

Workshop Session	Co-chairs
<b>Welcome and introduce Keynote speaker:</b> Associate Professor Moriba Jah, University of Texas at Austin	David Ball, Space Environment Research Centre
<b>Sensors &amp; Satellite Tracking</b>	<ul style="list-style-type: none"> <li>➤ Craig Smith, EOS Space Systems</li> <li>➤ Yue Gao, EOS Space Systems</li> <li>➤ Pawel Lejba, Space Research Centre of the Polish Academy of Sciences</li> </ul>
<b>Orbit Determination &amp; Propagation</b>	<ul style="list-style-type: none"> <li>➤ Moriba Jah, University of Texas at Austin</li> <li>➤ Michael Steindorfer, Space Research Institute, Austrian Academy of Sciences</li> <li>➤ Igor Zayer, European Space Agency</li> </ul>
<b>Conjunction Analysis &amp; Collision Avoidance</b>	<ul style="list-style-type: none"> <li>➤ James Bennett, Space Environment Research Centre</li> <li>➤ Daniel Kucharski, Space Environment Research Centre</li> <li>➤ Quirin Funke, Space Debris Office, European Space Agency</li> </ul>
<b>Mitigation &amp; Remediation</b>	<ul style="list-style-type: none"> <li>➤ Ben Greene, Electro Optic Systems</li> <li>➤ Matthew Bold, Lockheed Martin</li> <li>➤ Jung Hyun, Space Science Division, Korea Astronomy and Space Science Institute</li> </ul>
<b>Wrap up and Close Space Debris Workshop</b>	Ben Greene, Electro Optic Systems

## EOS Space Research Centre Tour & BBQ - Friday 9 November

A tour of the EOS Space Research Centre (telescope) and BBQ at Mount Stromlo will follow the Space Debris Workshop on Friday 9 November. The Space Debris Workshop, tour and BBQ are included in the registration price (student and full registrations). Additional tickets can be purchased via the workshop website <http://iwlr2018.serc.org.au/#register>

## 3<sup>rd</sup> Meeting of the Asian Oceanian VLBI Group (AOV)

The third meeting of the AOV will be hosted by Geoscience Australia in Canberra from 9-10 November. The meeting is scheduled between the 21<sup>st</sup> IWLR (5-9 Nov) and the 7<sup>th</sup> International VLBI Technology Workshop (IVTW) in Krabi, Thailand (12-15 Nov).

The meeting will discuss current and future topics of the AOV and foster collaborations. The two-day meeting will consist of discussions on VLBI topics and a presentation style workshop on Saturday. IWLR participants with interest in VLBI and SLR activities in the Asia-Oceania region are encouraged to attend. For more information, please visit <http://auscope.phys.utas.edu.au/aov/>

## The Space Environment Research Centre would like to thank the following 21<sup>st</sup> IWLR Sponsors:

**Gold  
Sponsors**



**Welcome  
Reception**



**Workshop  
Supporter**



**Supporting  
Organisation**



For further information, please visit the 21<sup>st</sup> IWLR website <http://iwlr2018.serc.org.au/> or email:

IWLR Secretariat: [michellefulton@serc.org.au](mailto:michellefulton@serc.org.au)

IWLR Conference Manager: [claire@conlog.com.au](mailto:claire@conlog.com.au)

# WORKSHOP PROGRAM\*

DATE	SUNDAY 4 NOVEMBER	MONDAY 5 NOVEMBER	TUESDAY 6 NOVEMBER	WEDNESDAY 7 NOVEMBER	THURSDAY 8 NOVEMBER	SPACE DEBRIS WORKSHOP FRIDAY 9 NOVEMBER	
LOCATION	Mt Stromlo Observatory	JCSMR	JCSMR	JCSMR	JCSMR	TIME	JCSMR
8:00 - 8:30			SPACE DEBRIS STUDY GROUP				
8:30 - 9:30	ASC	Opening Session Keynote <b>Thomas Herring</b> Professor of Geophysics, MIT	Session 3 Satellite Missions & Techniques for Geodetic Applications	Session 6 Network Operations & Site Upgrades	Session 8 Developments in Software & Automation	8:30 - 9:00	Opening Session Keynote <b>Moriba Jah</b> Assoc. Professor UTexas at Austin
9:30 - 10:00		Session 1 SLR Contribution to Global Geodetic Observing System – A 2020 Perspective				9:00 - 10:00	Session 10 Sensors & Satellite Tracking
10:00 - 10:30	MORNING TEA	MORNING TEA	MORNING TEA	MORNING TEA	MORNING TEA	10:00 - 10:30	MORNING TEA
10:30 - 12:00	ASC	Session 1 Continued SLR Contribution to Global Geodetic Observing System – A 2020 Perspective	Session 3 Continued Satellite Missions & Techniques for Geodetic Applications	Session 7 Developments in SLR Techniques & Technologies	Session 8 Continued Developments in Software & Automation	10:30 - 12:00	Session 11 Orbit Determination & Propagation
12:00 - 12:45	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	12:00 - 12:45	LUNCH
12:45 - 13:30	ASC	POSTER SESSION A		POSTER SESSION B		12:45 - 13:30	POSTER SESSION C
13:30 - 15:00		Session 2 Improvements in the SLR Product Quality & Precise Orbit Determination	Session 4 Characteristics of Retroreflector Arrays	Clinic Sessions	Session 9 Lunar Laser Ranging & Deep Space Missions	13:30 - 15:00	Session 12 Conjunction Analysis & Collision Avoidance
15:00 - 15:30	AFTERNOON TEA	AFTERNOON TEA	AFTERNOON TEA	AFTERNOON TEA	AFTERNOON TEA	15:00 - 15:30	AFTERNOON TEA
15:30 - 17:00	ASC	Session 2 Continued Improvements in the SLR Product Quality & Precise Orbit Determination	Session 5 Sources of Systematic Errors	Clinic Sessions	Wrap-up & Close	15:30 - 17:00	Session 13 Mitigation & Remediation
17:00 - 18:00	ILRS GB	WELCOME RECEPTION JCSMR Foyer Sponsored by the ACT Government	MSC	DFPSC	ILRS GB	17:30 - 21:30	EOS Space Research Centre Telescope Tour Includes BBQ at Mt Stromlo Observatory
18:00 - 19:00			NESC	TSC			
19:00 - 23:00	<b>KEY</b> ASC: Analysis Standing Committee DFPSC: Data Formats and Procedures Standing Committee MSC: Missions Standing Committee NESC: Networks and Engineering Standing Committee TSC: Transponders Standing Committee GB: Governing Board (invitation only) JCSMR: John Curtin School of Medical Research			<b>BANQUET</b> National Arboretum			

\*Program is subject to change