



**INC2018**

12-15 November 2018  
Mercure Bristol Grand Hotel, Bristol, UK



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# Programme

*Version: 13 November 2018*



## Programme – Monday 12 November

### Pre-Conference Meetings & INC Welcome Reception

Mon 12 Nov	Duchess Suite
14:30 – 17:00	<b>Resilient PNT Forum (Open Meeting, Registration Required)</b> Chair: Martin Bransby, General Lighthouse Authorities  Speakers: <ul style="list-style-type: none"><li>• Prof David Last – Professor Emeritus at the University of Bangor</li><li>• Prof.dr. Durk van Willigen - REELEKTRONIKA b.v.</li><li>• Dr Michael Jones – Roke</li><li>• Dr Paul Williams – GLA</li></ul>
18:00 – 19:30	<b>Social: icebreaker drinks at We The Curious</b>





## Programme – Tuesday 13 November - Morning

<b>Tue 13 Nov</b>	<b>Plenary &amp; Stream A: Ballroom</b>	<b>Stream B: Duchess Suite</b>
08:30	Welcome Tea & Coffee in Ballroom (Speakers: Briefing in Colston Room)	
09:00 – 10:40	<b>PLENARY 1: Chair: John Pottle, Director of the Royal Institute of Navigation</b>	
09:00	Conference Opening: John Pottle, Director RIN	
09:10	Keynote 1.1: Prof Terry Moore, The University of Nottingham and President of the Royal Institute of Navigation: Navigation Challenges and Societal Benefits	
09:55	Keynote 1.2: Prof Ruth Dalton, Northumbria University: The social dimension of human navigation	
10:40 – 11:10	Coffee Break & Networking: Wessex Suite	
11:10 – 12:25	<b>Session A1: Cognition in Navigation I</b> : Colette Jeffrey, Birmingham City University	<b>Session B1: Innovations I</b> : Chair: Ramsey Faragher
11:10	Paper A1.1 : Navigating life : Andrew Barker, University of Reading	Paper B1.1 : Maritime Augmented Reality : Odd Svenuig Hareide, Royal Norwegian Navy
11:35	Paper A1.2 : Navigation and dementia – diagnostic and everyday implications : Gillian Coughlan	Paper B1.2 : GNSS Big Data Processing for Monitoring, Innovative Techniques and Science : Terry Moore
12:00	Paper A1.3 : Designing and developing personalised navigation services according to the needs of different geo-demographic profiles : Ana Basiri	Paper B1.3 : Galileo E5 signal acquisition using intermediate coherent integration time : Jérôme Leclère, École de Technologie Supérieure (ETS)
12:25 – 13:25	Lunch Break & Networking: Wessex Suite	



## Programme – Tuesday 13 November - Afternoon

13:25 – 14:55	<b>PLENARY 2: Chair: Prof Kate Jeffery, University College London, Vice President of the Royal Institute of Navigation</b>	
13:25	Keynote 2.1: Prof Washington Ochieng, Head of the Centre for Transport Studies, Imperial College London: Using navigation data in innovative ways to solve real-world problems	
14:10	Keynote 2.2: Dr Aidan Horner: Lecturer in psychology at the University of York: Navigating our memories: using virtual reality and brain imaging to understand the relationship between spatial navigation and long-term memory	
14:55 – 15:25	Coffee Break: Wessex Suite	
15:25 – 17:05	<b>Session A2: Resilient PNT 1 :</b> Chair: Mike Jones	<b>Session B2: Cognition in Navigation 2 :</b> Kate Jeffery, University College London and Vice-President RIN
15:25	Paper A2.1 : Attitude Based GNSS Resilience Solution for Aviation Applications: Octavian Thor Pleter, University Politehnica of Bucharest	Paper B2.1 : Enhancing Environmental Engagement with Natural language Interfaces for In-Vehicle Navigation Systems : Vicki Antrobus, University of Nottingham
15:50	Paper A2.2 : Robust Initial Satellite-Orbit Determination method using a Modified Kalman Filter: Shirish Potu, Indian Institute of Science	Paper B2.2 : Integrating Augmented Reality with AI to transform urban wayfinding and journey planning; Nigel Scard, Liv Systems
16:15	Paper A2.3 : Anti-spoofing and NLOS rejection on consumer devices using Supercorrelation : Ramsey Farragher, Focal Point Positioning	Paper B2.3 : Roots to Routes: an exploration of how our cultural backgrounds could impact on the way we find and process wayfinding information : Simon Lee, Maynard Designs
16:40	Paper A2.4 : Spoofing Detection Using Multiple Peak Search and Correlation Distortion Monitoring: Michael Turner, Airbus	Paper B2.4 : Real-world Human Navigation: Cognitive Causes for Getting Lost in Built Environments and How Design and Technology Can Help : Colette Jeffrey, Birmingham City University
17:05 – 17:15	Closing Remarks	Closing Remarks

18:00 – 19:30	<b>Social: drinks reception aboard SS Great Britain</b>
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**Focal Point**  
POSITIONING



## Programme – Wednesday 14 November - Morning

<b>Wednesday 14 November</b>	<b>Plenary &amp; Stream A: Ballroom      Stream B: Duchess Suite</b>	
08:30	Welcome Tea & Coffee in Ballroom (Speakers: Briefing in Colston Room)	
09:00 - 10:40	<b>PLENARY 3 : Chair: Mark Holbrow, Director of R&amp;D Engineering, Spirent Communications plc</b>	
09:00	Welcome & Introductions : Mark Holbrow, Director of R&D Engineering, Spirent Communications plc	
09:10	Keynote 3.1: Ed Parsons, Geospatial Technologist, Google: The Future of Navigation, Better Navigation for All	
09:55	Keynote 3.2: Prof Dr Sc Kristijan Lenac, Associate Professor Faculty of Engineering, University of Rijeka: Blockchain Uses in Navigation Systems	
10:40 - 11:10	Coffee Break: Wessex Suite	
11:10 - 12:25	<b>Session A3: Resilient PNT 2</b> (Chair: Guy Buesnel)	<b>Session B3: Autonomy</b> (Chair: Martin Bransby)
11:10	Paper A3.1 : Resilient Design of LEO-Satellite Positioning in Denied GNSS environment: Hamza Benzerrouk, LASSENA	Paper B3.1 : An update on the latest in mass-market positioning technology: Philip Mattos, u-blox
11:35	Paper A3.2 : 9 Layer Model for PNT GNSS Protection: Omer Sharar, infiniDome	Paper B3.2 : PNT Legal issues of autonomous systems: Gerhard Deiters, BHO Legal
12:00	Paper A3.3 : CLONETS: A European optical fiber-based time and frequency network: Elizabeth Laier English, NPL	Paper B3.3 : Human Factors and Maritime Autonomous Surface Ships: the Case for Automation Transparency: Thomas Porathe, NTNU
12:25 - 13:25	Lunch & Networking Break: Wessex Suite	



## Programme – Wednesday 14 November - Afternoon

13:25 - 14:55	<b>PLENARY 4 : Chair: Bob Cockshott, Chair of RIN Technical Committee , Knowledge Transfer Network</b>	
13:25	Panel Discussion: The Next Generation of PNT Technologies. Chair: Ramsey Faragher	
14:10	Keynote 4.2: Prof Rafal Zbikowski, Cranfield University and Spirent Communications: Position and Time in Decentralised Real-time Systems for Autonomy	
14:55 - 15:25	Coffee Break: Wessex Suite	
15:25 - 16:40	<b>Session A4 : Innovations 2 :</b> Chair: John Pottle	<b>Session B4 : Quantum PNT :</b> Chair: Bob Cockshott
15:25	Paper A4.1 : Evaluation of smartphones, low cost hand held units and watches with GNSS raw data capability: Gérard Lachapelle, University of Calgary	Paper B4.1 : MEMS accelerometers for measuring inertial and gravitational accelerations: Prof Giles Hammond, University of Glasgow
15:50	Paper A4.2 : Operational millimetre-level land and structural monitoring using SFMC GNSS: Nicholas Boreham, Nottingham Scientific Ltd.	Paper B4.2 : Progress Toward a Portable Optical Clock: Matthew Aldous, University of Birmingham
16:15	Paper A4.3 : Advances in 3D Mapping Aided GNSS: Mounir Adjrad, University College London	Paper B4.3 : Quantum Enhanced Single Photon Detection Approaches to Rangefinding and lidar: Dr Ross Millar, University of Glasgow
16:40 - 16:50	Break	
16:50 – 17:10	International Association of The Institutes of Navigation (IAIN) Awards Ceremony	
17:10 - 17:40	Q&A with keynote speakers	
18:00 - 19:30	<b>Social: drinks reception in the exhibition hall of the Grand Hotel</b>	





## Programme – Thursday 15 November - Morning

Thu 15 Nov	Plenary & Stream A: Ballroom	Stream B: Duchess Suite
08:30	Welcome Tea & Coffee in Ballroom (Speakers: Briefing in Colston Room)	
09:00 - 10:40	<b>PLENARY 5: Chair: Mike Jones, INC2018 Programme Chair and Roke Manor Research</b>	
09:00	Welcome & Introductions : Mike Jones, INC2018 Programme Chair and Roke Manor Research	
09:10	Keynote 5.1: Prof Jason Ralph, Electrical Engineering and Electronics, University of Liverpool: Integrating Quantum and Other Sensors	
09:55	Keynote 5.2: Jeremy Morley, Chief Geospatial Scientist of the OS	
10:40 - 11:10	Coffee Break: Wessex Suite	
11:10 - 12:25	<b>Session A5: Innovations 3 :</b> Chair: Terry Moore	<b>Session B5: Resilient PNT 3 :</b> Chair: Andy Proctor
11:10	Paper A5.1 : Comparative data quality and positioning performances of today's Smartphones capable of producing SFMC and MFMC raw GNSS measurements: Marco Fortunato, NSL	Paper B5.1 : Resilient PNT with Radar Absolute Positioning: Paul Williams, GLA
11:35	Paper A5.2 : Deep Learning with Synthetic Aperture Radar data: Michael Hudgell, UKHO	Paper B5.2 R-mode using the VHF Data Exchange System (VDES): Jan Safar, GLA
12:00	Paper A5.3 : Quality control in multi-view image dense matching for mapping and navigation: Jingyuan Diao, University of New South Wales	Paper B5.3 : The NAVISP programme: an opportunity for competitiveness and innovation in the PNT domain: Dr Pierluigi Mancini, ESA
12:25 - 13:25	Lunch & Networking Break: Wessex Suite	



## Programme – Thursday 15 November - Afternoon

13:25 - 14:50	<b>PLENARY 6: Chair: John Pottle, Director Royal Institute of Navigation</b>
13:25	Keynote 6.1: Dr Frank van Diggelen, Android Location, Google : Developments in GNSS chips in the mass market: Dual Frequency, multiple constellation and developer access to RTK type measurements
14:10	Keynote 6.2: Gonzalo Seco Granados, Universitat Autònoma de Barcelona : 5G Localization: Unlocking new Dimensions in Radio-based Positioning
14:50 - 15:30	Day 3 Panel Discussion: Navigational Challenges and Societal Benefits (Chair Prof Terry Moore, President, Royal Institute of Navigation)
15:30 - 15:40	Conference Summary and Close: Prof Terry Moore, President Royal Institute of Navigation