



## Monday, 14 February

17:00 → 17:20

**Pre-event talk: Microwave Photonics for Removing 5G/6G RFI using SBS**

Speaker: Shyqyri Haxha (Royal Holloway, University of London)

17:30 → 17:45

**Theme name: Theme name block**

**Session 1: Welcome and keynotes**

Chair: Stephen English (ECMWF) , Willem Baan (ASTRON)

18:00 → 18:20

**Welcome to the RFI 2022 Workshop by ECMWF and URSI**

Speakers: Andy Brown (ECMWF) , Piergiorgio Uslenghi (URSI)

18:20 → 19:00

**Keynote: Communicating Impacts of RFI on NWP across the Weather Enterprise - A Case Study on 24 GHz Policy Developments in the United States**

Speaker: Renee Leduc (Narayan Strategy)

19:00 → 19:40

**Keynote: Spectrum allocations and interference in scientific services: outlook and challenges**

Speaker: John Zuzek (NASA)

**Session 2: Large satellite constellations**

Chair: Alexandra Bringer (Ohio State University) , Carol Wilson (CSIRO)

19:40 → 20:00

**Impact of large LEO satellite constellations on radio astronomy**

Speaker: Federico Di Vruno (SKAO)

20:00 → 20:20

**Break**

20:20 → 20:40

**Megaconstellations of Telecommunication Satellites and their Potential Impact on Remote Sensing**

Speaker: Paolo de Matthaëis (NASA Goddard Space Flight Center)

- 20:40 → 21:00**                      **Unintended electromagnetic radiation of large satellite constellations and its impact on radio astronomy**  
Speaker: Benjamin Winkel (Max-Planck-Institut für Radioastronomie)
- Session 3: RFI in active remote sensing systems**  
Chair: Ryo Natsuaki (The University of Tokyo) , Joel Johnson (Ohio State)
- 21:00 → 21:20**                      **On-Board RFI Detection in Synthetic Aperture Radar Systems using Digital**  
Speaker: Tobias Bollian (German Aerospace Center (DLR))
- 21:20 → 21:40**                      **Polarimetric Properties of RFI in SAR Raw Data**  
Speaker: Ryo Natsuaki (The University of Tokyo)
- 21:40 → 22:00**                      **RFI Detection in Sentinel-1 SLC Image Based on Complex Valued Semantic Cognition Network**  
Speakers: Jieshuang Li (Northwestern Polytechnical University) , Mingliang Tao (Northwestern Polytechnical University )
- Session 4: Active-passive services**  
Chair: Federico Di Vruno (SKAO) , Greg Hellbourg (Caltech)
- 22:00 → 22:20**                      **Break**
- 22:20 → 22:40**                      **The Hat Creek Radio Observatory Prototype National Radio Dynamic Zone**  
  
Speaker: David DeBoer (University of California)
- 22:40 → 23:00**                      **Earth Observation Sensors in Protected Bands and UWB Technologies - A Risk**  
Speaker: Flavio Miguel da Silva Jorge (ESA)
- 23:00 → 23:20**                      **The 6-7.5 GHz Band – Importance for EO Observations and Potential RFI Issues**  
Speaker: Yan Soldo (ESA)
- 23:20 → 23:40**                      **Impact of new 5G network components on out-of-band emissions at 23.8 GHz**  
Speaker: Elliot Eichen (Choyu)  
[Proceeding Paper](#)  
<https://doi.org/10.46620/RFI22-001>
- 23:40 → 23:59**                      **Radio Frequency Interference at the Canadian Hydrogen Intensity Mapping Experiment Fast Radio Burst Project**  
Speaker: Alice Curtin (McGill University)
- 23:59 → 00:34**                      **Icebreaker**

Tuesday, 15 February

### Session 5: RFI inventory and source detection & Impact of RFI observation

Chair: Balthasar Indermuehle (CSIRO) , Haiyan Zhang (National Astronomical Observatories of CAS)

18:00 → 18:40

**How RFI impacts single-dish radio astronomy and what we are doing about it**

Speaker: George Hobbs (CSIRO)

18:40 → 19:00

**Real time RFI monitoring for Radio Telescope Array**

Speaker: Sanjeet Kumar Rai (NCRA-TIFR)

[Proceedings Paper](#)

<https://doi.org/10.46620/RFI22-002>

19:00 → 19:20

**Predicting and Measuring the Effect of RFI on 21-cm Epoch of Reionization Power Spectrum Measurements**

Speaker: Michael Wilensky (Queen Mary University London)

19:20 → 19:40

**Measurements of expected and unexpected RFI in the VHF band at the Murchison Radi**

Speaker: Randall Wayth (Curtin University)

19:40 → 20:00

**Broadband RFI Receivers for Radio Astronomy - Lessons learnt**

Speaker: Antheun Botha (SARAO)

20:00 → 20:20

Break

20:20 → 20:40

**Near Real-Time RFI Monitoring Database**

Speaker: Brian Marshall Kirk (NRAO)

20:40 → 21:00

**A Global Overview of the Radio Frequency Interference (RFI) Sources as Detected by the MeerKAT telescope**

Speaker: Isaac Sihlangu (SARAO)

[Proceeding Paper](#)

<https://doi.org/10.46620/RFI22-003>

### Session 6: RFI observations in remote sensing

Chair: David Le Vine (NASA GSFC) , Yan Soldo (ESA)

21:00 → 21:20

**Radio Frequency Interference Study from 500 MHz to 2 GHz**

Speaker: Priscilla Mohammed (Morgan State University)

21:20 → 21:40

**Developing an IEEE Standard to Assess Interference on Remote Sensing**

Speaker: Roger Oliva (Zenthal Blue Technologies)

- 21:40 → 22:00**      **Detected RFI from Ground-Based Microwave Radiometers and its possible**  
Speaker: Bernhard Pospichal (University of Cologne)
- 22:00 → 22:20**      **Break**
- 22:20 → 22:40**      **Radio Frequency Interference Observed In 500-2000 Mhz Microwave Radiometer Measurements**  
Speaker: Mark Andrews (Ohio State University)
- 22:40 → 23:00**      **Statistics of Detection, Reporting and Shutdown of Interferent Sources In L-Band observed by SMOS**  
Speaker: Alvaro Llorente (ESA)
- Session 7: Interference detection techniques in remote sensing (EO-I)**  
Chair: Ryo Natsuaki (The University of Tokyo) , Yan Soldo (ESA)
- 23:00 → 23:20**      **Deep Learning Based RFI Detection and Mitigation for SMAP Using Convolutional Neural Networks**  
Speaker: Ahmed Manavi Alam (Mississippi State University)
- 23:20 → 23:40**      **RFI filtering using Empirical Mode Decomposition**  
Speaker: Raul Diez Garcia (Universitat Politecnica de Catalunya)
- 23:40 → 23:59**      **Impact of Radio Frequency Interferences on Ionospheric Scintillations and TEC Monitoring in Mediterranean Area**  
Speakers: Emanuele Pica (INGV) , Alex Minetto (Politecnico di Torino - Department of Electronics and Telecommunications (DET))

## Wednesday, 16 February

- 16:40 → 17:40**      **Icebreaker**
- Session 8: RFI in the design of future remote sensing systems**  
Chair: Paolo de Matthaes, Tobias Bollian (German Aerospace Center (DLR))
- 19:00 → 19:20**      **Strategies to mitigate the impact of RFI for the Copernicus Imaging Microwave Radiometer (CIMR)**  
Speaker: Craig Donlon (ESA)
- 19:20 → 19:40**      **RFI Detection and Mitigation Processor for the Copernicus Imaging Microwave Radiometer Satellite**  
Speaker: Steen Savstrup Kristensen (Technical University of Denmark)
- 19:40 → 20:00**      **Second Generation RFI Detection Options for IMT Signals and NWP Applications**  
Speaker: Edward Kim (NASA Goddard Space Flight Center)
- 20:00 → 20:20**      **Break**

### **Session 9: Impact of RFI on NWP weather forecasts**

Chair: Alain Beaulne (Environment Canada) , Niels Bormann (ECMWF)

- 20:20 → 20:40**                    **Simulations of potential impact of RFI on assimilation of AMSU-A data at the**  
Speaker: Chawn Harlow (Met Office)
- 20:40 → 21:00**                    **Potential impact of RFI on NWP - A Canadian perspective**  
Speakers: Alain Beaulne, Alec Casey (Meteorological Service of Canada)
- 21:00 → 21:20**                    **The Potential Impact of RFI on the Assimilation of Microwave Radiances at NCEP**  
Speaker: Andrew Collard (NOAA/NCEP)
- 21:20 → 21:40**                    **Use of satellite microwave observations in JMA global NWP system and some evidences of RFI in AMSR2 observation**  
Speaker: Hidehiko Murata (JMA)
- 21:40 → 22:00**                    **Some Australian region microwave forecast impact results for the Bureau of Meteorology Global NWP System**  
Speaker: Chris Tingwell (Bureau of Meteorology)
- 22:00 → 22:20**                    Break
- 22:20 → 22:40**                    **Impact of Microwave Data Assimilation in the Harmonie-Arome Forecast System**  
Speaker: Stephanie Guedj (MET Norway)
- 22:40 → 23:00**                    **NWP monitoring of RFI in microwave observations**  
Speaker: Mohamed Dahoui (ECMWF)
- Session 10: RFI impact on satellite Earth System satellite products**  
Chair: Paolo de Matthaëis, Tobias Bollian (German Aerospace Center (DLR))
- 23:00 → 23:20**                    **An ITWG view on Spectrum**  
Speaker: Stephen English (ECMWF)
- 23:20 → 23:40**                    **Potential impacts of Radio Frequency Interference on precipitation retrievals**  
Speaker: Christopher Kidd (UMD/ESSIC & NASA/GSFC)  
[Proceeding Paper](#)  
<https://doi.org/10.46620/RFI22-004>
- 23:40 → 23:59**                    **Impacts and Statistics of Ocean-Reflected RFI Observed by GMI**  
Speaker: Ian Adams (NASA Goddard Space Flight Center)

**Session 11: Detection techniques**

Chair: Abraham Johannes Otto (SKAO) , Willem Baan (ASTRON)

- 18:00 → 18:20**      **Performance Tests of SK-based RFI Real-Time Detection and Flagging Strategies for Multiple-Antenna Systems with the Expanded Owens Valley Solar Array**  
Speaker: Gelu M. Nita (New Jersey Institute of Technology)
- 18:20 → 18:40**      **Simulation Tool to Analyze RFI Counteraction Algorithms in Various Satellite**  
Speaker: Juha Kainulainen (Harp Technologies)
- 18:40 → 19:00**      **PSRFINET Radio frequency interference detection in pulsar data with deep neural networks**  
Speaker: Afiq Abdul Hamid (Institute of Radio Astronomy and Space Research)  
[Proceeding Paper](#)  
<https://doi.org/10.46620/RFI22-005>
- 19:00 → 19:20**      **Efficacy of RFI Excision Using Cyclostationary Signal Processing in Real-World Astronomical Data**  
Speaker: Ryan Lynch (Green Bank Observatory)  
[Proceeding Paper](#)  
<https://doi.org/10.46620/RFI22-006>
- 19:20 → 19:40**      **A New Pipeline for Characterizing and Recording Radio Frequency Interference for the Canadian Hydrogen Intensity Mapping Experiment Fast Radio Burst Project**  
Speaker: Alice Curtin (McGill University)
- 19:40 → 20:00**      **IQRM smart, non-parametric and real-time frequency channel masking for astrophysical fast radio transient searches**  
Speaker: Vincent Morello (University of Manchester)
- 20:00 → 20:20**      **Break**
- 20:20 → 20:40**      **RFI Detection using Novelty in Autoencoders**  
Speaker: Michael Mesarcik (University of Amsterdam)
- 20:40 → 21:00**      **VHF antenna calibration for RFI monitoring using sky signal**  
Speaker: Benjamin Censier (CNRS - Station de Radioastronomie)  
[Proceeding Paper](#)  
<https://doi.org/10.46620/RFI22-007>

**Session 12: Interference detection techniques in remote sensing**

Chair: Joel Johnson (Ohio State University) , Roger Oliva (Zenthel Blue Technologies)

- 21:00 → 21:20**      **Using Machine Learning Algorithms To Detect And Classify RFI - Illustration Using Soil Moisture Active/Passive (Smop) Data**  
Speaker: Alexandra Bringer (Ohio State University)
- 21:20 → 21:40**      **Novel Approaches in Radio Frequency Interference Detection for Microwave Radiometry**  
Speaker: Fathima Imara Mohamed Nazar (University at Albany)
- 21:40 → 22:00**      **Introducing Machine Learning In The Ground RFI Detection System (GRDS)**  
  
Speaker: Raul Onrubia (Zenithal Blue Technologies)  
[Proceeding paper](#)  
<https://doi.org/10.46620/RFI22-008>
- 22:00 → 22:20**      **L-band RFI in NWP**  
Speaker: Peter Weston (ECMWF)

## Friday, 18 February

### Session 13: Filtering techniques

Chair: Gelu M. Nita (New Jersey Institute of Technology) , Greg Hellbourg

- 18:00 → 18:20**      **Real-time RFI Filtering for uGMRT Observations - Shared-risk Release and Optimal System Configuration**  
Speaker: Kaushal Buch (NCRA-TIFR)
- 18:20 → 18:40**      **A Novel RFI mitigation technique to reject out of band RFI signals before LNA using metamaterial design**  
Speaker: Ankur (GMRT -NCRA -TIFR)
- 18:40 → 19:00**      **Radio Frequency Shielding of a Multi-Storied Building at GMRT Observatory**  
  
Speaker: Pravin Ashok Raybole (NCRA-TIFR)  
[Proceeding Paper](#)  
<https://doi.org/10.46620/RFI22-009>
- 19:00 → 19:20**      **Spectrum sharing via collaborative RFI cancellation for radio astronomy**  
Speaker: Shuvam Chakaraborty (State University of New York, Albany)
- 19:20 → 19:40**      **Radio Frequency Interference mitigation for astronomy with phased array feeds**  
Speaker: Liroy Lourenco (CSIRO)
- 19:40 → 20:00**      **Mitigating radio frequency interference in frequency-channelized intensity data**  
Speaker: Masoud Rafiei-Ravandi (McGill University)
- 20:00 → 20:20**      **Break**

- 20:20 → 20:40**                    **Aeronautical Radio Frequency Interference and the Square Kilometre Array**  
Speaker: Abraham Johannes Otto (SKAO)
- 20:40 → 21:00**                    **Simulating Spectral Kurtosis Mitigation Against Realistic RFI Signals**  
Speaker: Evan Smith (West Virginia University)  
[Proceeding Paper](#)  
<https://doi.org/10.46620/RFI22-010>
- 21:00 → 21:20**                    **Developing the First Deep Learning Search for Technosignatures with the Green Bank Telescope**  
Speaker: Xiangyuan Ma (University of Toronto)
- 21:20 → 21:40**                    **Adaptive Compensation for Interleaving Artefacts in Multi-Converter ADCs for Radio Astronomy**  
Speaker: Samantha Gordon (The University of Sydney)
- Session 14: Spectrum management for science**  
Chair: Carol Wilson (CSIRO) , Federico Di Vruno (SKAO)
- 21:40 → 22:00**                    **Update on the Activities of the US National Academies' Committee on Radio Frequencies (CORF)**  
Speaker: Nathaniel Livesey (JPL - NASA)
- 22:00 → 22:20**                    **Break**
- 22:20 → 22:40**                    **ITU activity for space science services**  
Speaker: Vadim Nozdrin (ITU)
- 22:40 → 23:00**                    **Protection of the radio quiet sky in China**  
Speaker: Haiyan Zhang (National Astronomical Observatories of CAS)
- 23:00 → 23:20**                    **Spectrum Monitoring and Enforcement of Science Services from the Perspective of the Regulator**  
Speaker: Flavio Miguel da Silva Jorge (ESA)
- 23:20 → 23:40**                    **Uncovering your nightmare - software-supported compatibility studies**  
Speaker: Gyula István Géza Józsa (MPIfR)
- 23:40 → 23:59**                    **Closing remarks**  
Speaker: Willem Baan (ASTRON)



**Radio Frequency Interference in the SMAP Radiometer**

Speaker : Alexandra Bringer (Ohio State University)

**DDC Pool: Efficient down-conversion of signals for RFI monitoring**

Speaker : Nicholas Bruce (University of Victoria)

[Proceeding Paper](#)

<https://doi.org/10.46620/RFI22-011>

**Real Time Aircraft Monitoring Above the GMRT Array**

Speaker : Pravin Ashok Raybole (NCRA-TIFR)

**Characterization of the RFI Environment at DRAO : The Classical Approach**

Speaker : T.K. Gunaratne (NRC Canada)

[Proceeding Paper](#)

<https://doi.org/10.46620/RFI22-012>

**RFI Simulation and Mitigation for the DSA-2000**

Speaker : Gregory Hellbourg (California Institute of Technology)

**RFI Mitigation via Auto-Encoder Framework in SAR Data**

Speaker : Yan Huang (State Key Lab of Millimeter Waves)

[Proceeding Paper](#)

<https://doi.org/10.46620/RFI22-013>

**Polarization Sensitive Array Reconfiguration Method Based on Antenna Selection for GNSS Interference Suppression**

Speaker : Yandong Sun (Northwestern Polytechnical University)

[Proceeding paper](#)

<https://doi.org/10.46620/RFI22-014>

**Development of wideband feed with sharp cut-off frequency OMT for RFI**

Speaker : Hideki Ujihara (RISH of Kyoto University)

[Proceeding Paper](#)

<https://doi.org/10.46620/RFI22-015>

**Fast RFI Database**

Speaker : Yu Wang (National Astronomical Observatories Chinese Academy of Sciences)

**On the THERMOPLAIE Hellenic radio telescope radio silent Site**

Speaker : Nectaria Gizani (Hellenic Open University, Greece)

[Proceeding Paper](#)

<https://doi.org/10.46620/RFI22-016>