Scientific Programme

Sunday, September 3

18:00 - 21:00 *Welcoming reception and initial registration*

Monday, September 4

08:15 - 08:50 *Registration*

08:50 - 09:05 *Official greetings and Dedication to Malcolm Walmsley*

Session 1: Theory of masers and maser sources

Chair: M. Reid

09:05 - 09:50 **Karl M. Menten** - MPIfR - Germany **(review)**
Fifty Years of Maser Research

09:50 - 10:15 **Malcolm Gray** - JBCA, University of Manchester - UK **(invited)**
Maser Theory – Old Problems and New Insights

10:15 - 10:30 **Ruby van Rooyen** - North-West University/SKA - South Africa
MASERS: A Python package for statistical equilibrium calculations applied to masers

10:30 - 11:00 **Coffee Break**

Chair: T. Robishaw

11:00 - 11:25 **Silvia Leurini** - INAF OACagliari - Italy **(invited)**
Physical properties of Class I methanol masers

11:25 - 11:40 **Boy Lankhaar** - Chalmers University of Technology - Sweden
Quantum-chemical calculations revealing the effects of magnetic fields on methanol

11:40 - 12:05 **Gabriele Surcis** - INAF OACagliari - Italy **(invited)**
Maser Polarization

12:05 - 12:20 **Sergey Kalenskiy** - Astro Space Center, Lebedev Physical Institute - Russia
Class I methanol masers in low-mass star formation regions

12:20 - 12:35 **Bringfried Stecklum** -Thueringer Landessternwarte Tautenburg- Germany
R variability, maser activity & protostellar accretion

12:35 - 12:50 **Marian Szymczak** - Toruń Center for Astronomy - Poland
On the origin of methanol maser variability: Clues from long-term monitoring

12:50 - 14:20 **Lunch**

Chair: S. Goedhart

14:20 - 14:35 **Koichiro Sugiyama** - National Astronomical Observatory of Japan - Japan
Long-term and highly frequent monitor of 6.7 GHz methanol masers to statistically research periodic flux variations around high-mass protostars using Hitachi 32-m

14:35 - 14:50 **Mark J. Claussen** - National Radio Astronomy Observatory - USA
Isotopic SiO Maser Emission from the BAaDE Survey

14:50 - 15:05 **Taylor Tobin** - University of Illinois Urbana-Champaign - USA
Constraining Theories of SiO Maser Polarization: Analysis of a $\pi/2$ EVPA Change

Session 2: Galaxies and Supermassive Black Holes

Chair: P. Castangia

15:05 - 15:50 **Christian Henkel** - MPIfR - Germany **(review)**
Extragalactic Maser Surveys

15:50 - 16:30 **Coffee Break & Poster Session I**

16:30 - 16:55 **Sherry Suyu** - MPA - Germany **(invited)**
Progress toward an accurate Hubble Constant

16:55 - 17:20 **Jim Braatz** - NRAO - USA **(invited)**
The Megamaser Cosmology Project

17:20 - 17:35 **Jiang-Shui Zhang** - Guangzhou University - China
A systematic observational study of radio properties of H_2O megamaser hosts: Guide for H_2O megamaser survey

17:35 - 17:50 **Francesca Panessa** - INAF-IAPS Roma - Italy
Water maser emission in hard X-ray selected AGN

17:50 - 18:15 **Xi Chen** - Guangzhou University - China **(invited)**
Extragalactic class I methanol maser: A new probe for starbursts and feedbacks of active galaxies

18:15 - 18:30 **Tiege Patrick McCarthy** - University of Tasmania - Australia
Class I Methanol Maser Emission in NGC4945

Tuesday, September 5

Session 2: Galaxies and Supermassive Black Holes (*continue*)

Chair: J. Moran

09:00 - 09:45 **Till Sawala** - University of Helsinki - Finland **(review)**
The Local Group mass and its connection to outstanding cosmic puzzles

09:45 - 10:05 **Andrea Tarchi** - INAF OACagliari - Italy
SRT observations of Local Group dwarf galaxies

10:05 - 10:20 **Ylva Pihlstrom** - University of New Mexico - USA

Methanol masers in the Andromeda galaxy

10:20 - 10:35 **Simon Ellingsen** - University of Tasmania - Australia

The Maser-Starburst connection in NGC253

10:35 - 11:00 **Coffee Break**

Chair: W. Baan

11:00 - 11:15 **Megan Argo** - University of Central Lancashire - United Kingdom

Over-resolving the masers in M82?

11:15 - 11:30 **Tim Robishaw** - Dominion Radio Astrophysical Observatory - Canada

Zeeman Splitting of OH Megamasers as a Probe of Magnetic Fields in Starburst Galaxies

11:30 - 11:55 **Jenny Emma Greene** - Princeton University- USA **(invited)**

Using Megamaser Disks to Probe Black Hole Accretion

11:55 - 12:20 **Dominic Pesce** - University of Virginia - USA

AGN accretion disk physics using water megamasers

12:20 - 12:35 **Paola Castangia** - INAF OACagliari - Italy

A new jet/outflow maser in the nucleus of the Compton-thick AGN IRAS15480-0344

12:35 - 14:00 **Lunch**

Session 3: The Structure of the Milky Way

Chair: Y. Xu

14:00 - 14:45 **Ortwin E. Gerhard** - MPIfEA - Germany **(review)**

Perspectives on Galactic Structure

14:45 - 15:10 **Mark Reid** - Harvard-Smithsonian CfA - USA **(invited)**

Structure and Kinematics of the Milky Way

15:10 - 15:25 **Lucas Jordan Hyland** - University of Tasmania - Australia

The Structure of the Milky Way: View from the Southern Hemisphere

15:25 - 15:40 **Maxim Voronkov** - CSIRO - Australia

Interferometry of class I methanol masers, statistics and the distance scale

15:40 - 15:55 **Jingjing Li** - Purple Mountain Observatory, CAS - China

Trigonometric Parallaxes of Star Forming Regions in the Scutum Arm

15:55 - 16:25 **Coffee Break**

Chair: S. Ellingsen

16:25 - 16:50 **François Mignard** - Observatoire de la Côte d'Azur - France **(invited)**

Gaia explores the Milky Way

16:50 - 17:15 **Mareki Honma** - NAOJ - Japan **(invited)**

Maser Astrometry and Galactic structure studies with VLBI

17:15 - 17:30 **Nobuyuki Sakai** - National Astronomical Observatory of Japan - Japan
Eight new astrometry results of 6.7 GHz CH_3OH and 22 GHz H_2O masers in the Perseus arm

17:30 - 17:45 **Jürgen Ott** - National Radio Astronomy Observatory - USA
SWAG Water Masers in the Galactic Center: Tracing and Timing Stages of Star Formation in Molecular Gas Streamers

17:45 - 18:00 **Katharina Immer** - Joint Institute for VLBI ERIC - The Netherlands
How maser observations unravel the gas motions in the Galactic Center

18:00 - 18:15 **Lorant Sjouwerman** - National Radio Astronomy Observatory - USA
Thousands of Stellar SiO masers in the Galaxy: The Bulge Asymmetries and Dynamic Evolution (BAaDE) survey

18:15 - 18:30 *Symposium Official Group Picture*

Wednesday, September 6

Session 4: Star Formation

Chair: J.-M. Torrelles

09:00 - 09:45 **Maite Beltrán** - INAF OAArcetri - Italy **(review)**
Perspectives on Star Formation: the formation of high-mass stars

09:45 - 10:10 **Luca Moscadelli** - INAF OAArcetri - Italy **(invited)**
Masers as probes of the gas properties close to forming stars

10:10 - 10:25 **Tomoya Hirota** - National Astronomical Observatory of Japan - Japan
ALMA observations of submillimeter H_2O and SiO lines in Orion Source I

10:25 - 10:40 **Anna Bartkiewicz** - Nicolaus Copernicus University - Poland
Expansion of methanol maser rings

10:40 - 10:55 **Ciriaco Goddi** - Radboud University/Leiden Observatory - The Netherlands
Measuring Magnetic Fields from Water Masers in the Synchrotron Protostellar Jet in W3(H_2O)

10:55 - 11:25 **Coffee Break**

Chair: K.-T. Kim

11:25 - 11:50 **Shari Breen** - University of Sydney - Australia **(invited)**
A Golden Age for Maser Surveys

11:50 - 12:15 **Sharmila Goedhart** - SKA SA - South Africa **(invited)**
Periodic Masers in Star Forming Regions

12:15 - 12:30 **Alberto Sanna** - Max-Planck Institut für Radioastronomie - Germany
The CepHeus-A Star formation and proper Motions (CHASM) Survey – Where is the mass reservoir of massive young stars? –

Free Afternoon

12:30 - 13:45 *Bus Trip to Gerrei area*

13:45 - 15:45 **Sardinian Lunch Buffet**

15:45 - 17:15 *Tour of an archeological site*

17:15 - 18:15 *Visit to the Sardinia Radio Telescope site*

18:15 - 19:15 *Bus trip to Cagliari*

Thursday, September 7

Session 4: Star Formation (*continue*)

Chair: Z. Abraham

09:00 - 09:25 **James Moran** - Harvard-Smithsonian CfA - USA
The Structure of the Maser Emission in MWC349

09:25 - 09:40 **Carolina B. Rodríguez-Garza** - IRYA,UNAM - Mexico
Interferometric and single-dish observations of 44, 84 and 95 GHz Class I methanol masers

09:40 - 09:55 **Jihyun Kang** - KASI - Republic of Korea
Linear Polarization of Class I Methanol Masers in Massive Star Forming Regions

09:55 - 10:10 **James Okwe Chibueze** - Square Kilometre Array - South Africa
Class II 6.7 GHz Methanol Maser Association with Young Massive Cores Revealed by ALMA

10:10 - 10:25 **Todd Hunter** - National Radio Astronomy Observatory - USA
The extraordinary outburst in the massive protostellar system NGC6334I-MM1: the rise of dust and emergence of Class II 6.7 GHz methanol maser emission

10:35 - 10:50 **Crystal Brogan** - National Radio Astronomy Observatory - USA
The extraordinary outburst in the massive protostellar system NGC6334I-MM1: dimming of the hypercompact HII region and destruction of water masers

10:50 - 11:40 **Coffee Break & Poster Session II**

Chair: C. Goddi

11:40 - 11:55 **Kee-Tae Kim** - KASI - Republic of Korea
Understanding high-mass star formation through KaVA observations of water and methanol masers

11:55 - 12:10 **Ross Alexander Burns** - Joint Institute for VLBI ERIC - The Netherlands
Water masers in bowshocks: Addressing the radiation pressure problem of massive star formation

12:10 - 12:25 **Kazuhito Motogi** - Yamaguchi University - Japan
A Face-on Accretion System in High Mass Star-Formation: Possible Dusty Infall Streams within 100 Astronomical Unit

12:25 - 12:40 **Zulema Abraham** - IAG - Universidade de São Paulo - Brazil

Maser Effects in Recombination Lines: the case of Eta Carinae

12:40 - 14:10 **Lunch**

Session 5: Evolved Stars

Chair: W.H.T. Vlemmings

14:10 - 14:55 **Guy Perrin** - CNRS-INSU - France **(review)**

Perspectives on Evolved Stars

14:55 - 15:20 **Hiroshi Imai** - Kagoshima University - Japan **(invited)**

Towards decadal continuous viewing of circumstellar maser sources

15:20 - 15:35 **Anita Richards** - JBCA, University of Manchester - United Kingdom

Hot and cold running water: understanding evolved star winds

15:35 - 15:50 **Gábor Orosz** - Kagoshima University - Japan

Water Fountains and the Formation of Planetary Nebulae

15:50 - 16:05 **Andrés Felipe Pérez-Sánchez** - European Southern Observatory - Chile

Deep into the Water fountains: A detailed study toward IRAS 15445-5449

16:05 - 16:35 **Coffee Break**

Chair: A. Richards

16:35 - 17:00 **Se-Hyung Cho** - KASI - Republic of Korea **(invited)**

A Study of Evolved Stars by Simultaneous Observations of H_2O and SiO Masers Using KVN

17:00 - 17:15 **Akiharu Nakagawa** - Kagoshima University - Japan

Astrometric VLBI observation of the Galactic LPVs; Miras and OH/IR stars

17:15 - 17:30 **Liz Humphreys** - European Southern Observatory - Germany

SiO Masers With ALMA Long Baselines

17:30 - 17:45 **Daniel Tafoya** - Chalmers University of Technology - Sweden

Sub-millimeter maser emission from warm water-fountain nebulae

Conference Dinner

18:45 *Buses leave*

19:00 - 20:00 *Aperitif*

20:00 - 22:30 **Conference Dinner**

23:30 *Buses leave*

Friday, September 8

Session 5: Evolved Stars (*continue*)

Chair: L. Humphreys

09:15 - 09:30 **Dong-Hwan Yoon** - KASI/SNU - Republic of Korea
Simultaneous VLBI observations of H_2O and SiO masers toward VX-Sgr

09:30 - 09:45 **Richard Dodson** - ICRAR/UWA - Australia
KVN astrometric observations of H_2O and SiO masers in Calabash Nebula

09:45 - 10:00 **Jose-Francisco Gómez** - Instituto de Astrofísica de Andalucía - Spain
Water masers as signposts of extremely young PNe

10:00 - 10:25 **Sandra Etoka** - University of Hamburg/JBCA - Germany/United Kingdom
Distances of Stars by mean of the Phase-lag Method

Session 6: New facilities

Chair: H.-J. van Langevelde

10:25 - 10:50 **Alison Peck** - Gemini Observatory - USA **(invited)**
Masers and ALMA

10:50 - 11:15 **Francisco Colomer** - JIVE/OAN-IGN - The Netherlands/Spain **(invited)**
Masers! What can VLBI do for you?

11:15 - 11:45 **Coffee Break**

11:45 - 12:00 **Andrej M. Sobolev** - Ural Federal University - Russia **(invited)**
RadioAstron space-VLBI project: studies of masers in star forming regions of our Galaxy and megamasers in external galaxies

12:00 - 12:15 **Willem Baan** - ASTRON - The Netherlands
H_2O MegaMasers at High Resolution

12:15 - 12:40 **Eric Murphy** - NRAO - USA **(invited)**
The Next Generation Very Large Array (ngVLA)

12:40 - 14:10 **Lunch**

Chair: S. Breen

14:10 - 14:35 **Anna Bonaldi** - SKA Organization Jodrell Bank - United Kingdom **(invited)**
The SKA

14:35 - 14:50 **Maria Rioja** - ICRAR-UWA, CSIRO/OAN-IGN - Australia/Spain
"MultiView" Calibration for Precise Astrometry at Low Frequencies

Summary

15:00 - 16:00 **Phil Diamond** - SKA Organisation - United Kingdom

16:00 - 16:30 **Coffee & End of Sessions**

Outreach and Educational Programme*

17:00 - 18:00 *Astrokids Hands-on activities for children*

18:30 - 19:30 *Public Conference*

Prof. Dr. Piero Benvenuti - IAU General Secretary

Origine ad evoluzione dell'Universo. Quello che la scienza può e non può dire.

19:30 - 20:30 *Wine & Cheese*

**These Educational and Outreach activities will be held close to the Venue, in the "Sala Officine" of the Ex-Manifattura Tabacchi, Viale Regina Margherita 33.*

End of Symposium