

# The New Era of Multi-Messenger Astrophysics

Monday 25 March 19:00: Welcome reception (University Building)  
This reception is offered to you by the University of Groningen, the Municipality of Groningen and the Province of Groningen.

	Tuesday 26 March	Wednesday 27 March	Thursday 28 March	Friday 29 March
9:00 AM	Welcome to ASTERICS: Multi-messenger astrophysics and ASTERICS results (C. Jackson and ASTERICS leaders)	<b>D. Mourard</b> (CNRS) About policies for multi-wavelengths/multi-messengers astrophysics	<b>E. Bernardini</b> (DESY) <i>Astrophysical Neutrinos</i> (tentative title)	Joint Observation planning and Follow-ups (G. Anderson)
9:15 AM		A. Bonaldi (SKAO) SKA science and multi-messenger synergies		H. Ayala (Pennsylvania State University) AMON: Multimessenger alerts from high-energy gamma rays and neutrinos
9:30 AM	<b>S. Niesanke</b> (UvA) <i>Gravitational waves and the birth of Multi-Messenger Astrophysics</i> (tentative title)	U. Barres de Almeida (Brazilian Center for Research in Physics) Science with the CTA	A. Palladino (DESY) On the sources of high energy neutrinos	<b>DISCUSSION</b>
9:45 AM		Michael Sterzik (ESO) ELT science and its potential for multi-messenger astrophysics	F. Krauss (UvA) Neutrinos on ice - Blazars as counterparts to neutrinos above 100 TeV	
10:00 AM	M. Bejger (Laboratory AstroParticle and Cosmology) Machine learning classification for gravitational-wave triggers in single-detector periods	D. Darnic (CNRS) KM3NeT	S. Britzen (MPIPR) Neutrinos from TXS 0506+056	<i>How to implement more flexible operating models for joint observations or ToDs?</i>
10:45 AM	V. Savchenko (University of Geneva) Hunting for elusive multi-messenger transients with INTEGRAL	J. Lightfoot (Royal Observatory, Edinburgh) A Platform for Multi-Messenger Observing	S. Scalfani (IceCube, Drexel University) Constraints on neutrino emission in the local universe using ZMASS redshift survey with IceCube	
10:30 AM				
10:45 AM				
11:05 AM	<b>G. Ghirlanda</b> (Brera Observatory) <i>Gamma-Ray Bursts and Gravitational waves</i> (tentative title)	<b>J. Racusin</b> (NASA) Future NASA Missions for Multi-Messenger Astrophysics	D. Dornic (CNRS) Multi-messenger real-time analysis framework of the KM3NeT neutrino telescope	Standardizing of VOEvent and archives (E. Petroff)
11:15 AM			L. Rauch (DESY) Searching for Optical Counterparts to High-Energy Neutrino Sources with ZTF	D. Morris (University of Edinburgh) VOEvents and standards
11:30 AM	A. Nathanael (Goethe University of Frankfurt) Magnetized jets and explosions from the merger of a Neutron star binary	Sarah Antier (LAL) <i>Multi-messenger science with VIRGO</i> (tentative title)	R. Stein (DESY) Search for High-Energy Neutrinos from Populations of Optical Transients	<b>DISCUSSION</b>
11:45 AM	D. Pauli (Tata Institute of Fundamental Research) The binary neutron star merger rate via the luminosity function of gamma-ray bursts	A. Levan University of Warwick ENGRAVE: Gravitational Wave Follow-up at the European Southern Observatory	M. Colomer Molla (Laboratory AstroParticle and Cosmology) Multimessenger searches with the ANTARES and KM3NeT neutrino telescopes	
12:00 PM	E. Howell (University of Western Australia) Joint gravitational wave - gamma-ray burst detection rates in the aftermath of GW170817	J. Vink (UvA) The Athena X-ray mission and its synergy with the next generation of multi-messenger facilities	M. Lincetto (Aix Marseille Univ) Supernova detection and real-time alerts with the KM3NeT neutrino telescopes	<i>VOEvents contain information that is useful for later analysis; how do we store that information in a way that can be easily extracted and interpreted later?</i>
12:15 PM	R. Duque (Institut d'Astrophysique de Paris) Neutron Star Merger Afterglows: Population Prospects for the Gravitational Wave Era	M. Yoshida (Subaru Telescope, NAOJ) J-GEM collaboration: an optical-infrared follow-up observation network	<b>DISCUSSION</b>	
12:30 PM				
12:45 PM				
1:00 AM				
1:15 AM				
1:30 PM	S. Bhattacharyya (Tata Institute of Fundamental Research) Do some millisecond pulsars emit gravitational waves?	<b>F. Genova</b> (CNRS) Access, Discovery and Interoperability of multi-wavelength/multi-messenger data	P. Ruetz (University of Siegen) Searches for ultra-high-energy photons at the Pierre Auger Observatory	Facilitating Data sharing (D. Mourard & S. Matheuson)
1:45 AM	<b>I. Bartos</b> (University of Florida) Multi-messenger Astroparticle Physics in the Gravitational-wave Era	M. Allen (CDS) All-sky astrophysics enabled by innovative systems for indexing the sky	H. Prokoph (DESY) Follow-up observations of multi-messenger alerts with H.E.S.S.	D. Berge (DESY) Towards a framework for multi-messenger data sharing
2:00 PM			C. Hoeschen (Potsdam University) The H.E.S.S. transients alert system	<b>DISCUSSION</b>
2:15 AM	M. Seglar-Arroyo (CEA Saclay-Irfu) Searches for counterparts of Gravitational Waves with VHE gamma-ray observatories	A. Nebot (Observatoire Astronomique de Strasbourg) Exploring Time Domain Multi-Messenger Astronomy through the Virtual Observatory	M. Kerr (Naval Research Laboratory) Glowbug, a Gamma-Ray Telescope for Bursts and Other Transients	
2:30 PM	D. Carbone (Texas Tech University) Identifying EM counterparts to NS-NS mergers: an Optimized Radio Follow-up Strategy	E. Kuulkers (ESA) Coordinating observations among ground and space-based telescopes in the multi-messenger era	B. Miller (Gemini Observatory) Gemini Operations for Multi-Messenger Astronomy	
2:45 AM	K. Gourdij (UvA) LOFAR triggered observations of gravitational wave merger events and GRBs	G. Greco (University Urbino) Working with Gravitational-Wave sky localizations: new methods and implementations	F. Andreoni (Caltech) Discovering electromagnetic counterparts with ZTF, DECam, and GROWTH facilities	
3:00 PM				
3:15 AM				
3:30 PM	<b>J. Hessels</b> (ASTRON/UvA) <i>Multi-messenger view on Fast Radio Bursts</i> (tentative title)	M. Molinaro (INAF) ESFRIs & VO: networking and discussing	<b>T. Vulliamme</b> (CNRS) Observatory e-environments linked by common challenges	Facilitating Joint Analysis (C. Boisson)
3:45 AM		A. Trovati (CNRS) GWOSC: Gravitational Wave Open Science Center	D. Morcuende (Complutense University of Madrid) Simulation of fluorescence radiation for Cherenkov observatories	J. Nordin (Humboldt-Universität zu Berlin) AMPEL: a streaming data analysis framework
4:00 PM	B. Marcote (JIVE) Observing a Fast Radio Burst from radio wavelengths to very high energy gamma-rays	C. Boisson (Observatoire de Paris) Archiving data from a software telescope	C. Bozza (INFN) pLISA: a parallel Library for Identification and Study of Astroparticles and its application to KM3NeT	<b>DISCUSSION</b>
4:15 AM	G. Anderson (ICRAR - Curtin University) Rapid-response radio telescopes in the era of multi-messenger astrophysics	G. Iafate (INAF) Open data in the classroom: problems and requirements	A. Keimpema (JIVE) Efficient remote interactive pipelines using CASA and Jupyter	
4:30 PM	E. Petroff (UvA) A VOEvent Standard for Fast Radio Bursts	J. Jarvis (OU) The benefits of public engagement	C. van Tour (OPNT BV) White rabbit time and frequency transfer in SURFnet8 network for VLBI purposes	
4:45 AM	S. Bethupadi (University of Texas) VLITE-Fast: VLA's commensal FRB search engine	<b>P. Homola</b> (Institute of Nuclear Physics PAN) Public engagement as a scientific tool to implement multi-messenger strategies with the Cosmic-Ray Extremely Distributed Observatory	P. Boven (JIVE) Dwingeloo telescope VLBI with a remote maser	
5:00 PM	<b>DISCUSSION</b>		L. Jouvin (IFAE) Open data and tools for gamma-ray astronomy	<b>Conclusions and Final remarks</b>
5:15 AM		<b>DISCUSSION</b>	H. Verkouter (JIVE) Are you up for faster dissemination of your data?	
5:30 PM				

### Color labels:

- Multi-Messenger observations of GW and search for counterparts
- FRBs
- Data Access / Open science
- Multi-Messenger observations of Neutrinos and search for counterparts
- Software and technology for multi-messenger observations and data analysis
- International Coordination
- Alert Mechanisms and multi-messenger coordination platforms