The New Era of Multi-Messenger Astrophysics

More information about the abstracts is available here.

19:00 **Welcome reception** - Franck Smit (University Building, Spiegelzaal)
This reception is offered to you by the University of Groningen, the Municipality of Groningen and the Province of Groningen.

Tuesday 26 March

09:00 -- 09:30 Welcome to ASTERICS: Multi-messenger astrophysics and ASTERICS results
(C. Jackson and ASTERICS leaders)
Convener: TBD
09:30 -- 10:00 Gravitational waves and the birth of Multi-Messenger Astrophysics (S. Nissanke) **INVITED**
10:00 -- 10:15 Machine learning classification for gravitational-wave triggers in single-detector periods (M. Bejger)
10:15 -- 10:30 Hunting for elusive multi-messenger transients with INTEGRAL (V. Savchenko)

10:30 -- 11:00 COFFEE BREAK

11:00 -- 11:30 Short Gamma Ray Bursts: what we have learnt from GW170817 (G. Ghirlanda) **INVITED**
11:30 -- 11:45 Multi-messenger characterization of BH-NS mergers (O. Salafia)
11:45 -- 12:00 The binary neutron star merger rate via the luminosity function of gamma-ray bursts (D. Paul)
12:00 -- 12:15 Joint gravitational wave - gamma-ray burst detection rates in the aftermath of GW170817 (E. Howell)
12:15 -- 12:30 Neutron Star Merger Afterglows: Population Prospects for the Gravitational Wave Era (R. Duque)

12:30 -- 13:30 LUNCH

Convener: T. Murphy
13:30 -- 13:45 Do some millisecond pulsars emit gravitational waves? (S. Bhattacharyya)
13:45 -- 14:15 Multi-messenger Astroparticle Physics in the Gravitational-wave Era (I. Bartos) **INVITED**
14:15 -- 14:30 Searches for counterparts of Gravitational Waves with VHE gamma-ray observatories (M. Seglar-Arroyo)
14:30 -- 14:45 Identifying EM counterparts to NS-NS mergers: an Optimized Radio Follow-up Strategy (D. Carbone)
14:45 -- 15:00 LOFAR triggered observations of gravitational wave merger events and GRBs (K. Gourdij)

15:00 -- 15:30 COFFEE BREAK

Convener: Z. Paragi
15:30 -- 16:00 Fast Radio Bursts (J. Hessels) **INVITED**
16:00 -- 16:15 Observing a Fast Radio Burst from radio wavelengths to very high energy gamma-rays (B. Marcote)
16:15 -- 16:30 Rapid-response radio telescopes in the era of multi-messenger astrophysics (G. Anderson)
16:30 -- 16:45 A VOEvent Standard for Fast Radio Bursts (E. Petroff)
16:45 -- 17:00 VLITE-Fast: VLA's commensal FRB search engine (S. Bethapudi - Speaker: M. Kerr)
17:00 -- 17:30 **DISCUSSION**

18:30 -- 21:30 Conference Dinner (Het Feithhuis)

Wednesday 27 March

Convener: F. Pasian (INAF)
09:00 -- 09:30 Access, Discovery and Interoperability of multi-wavelength/multi-messenger data (F. Genova) **INVITED**
09:30 - 09:45 All-sky astrophysics enabled by innovative systems for indexing the sky (M. Allen)
09:45 -- 10:00 Exploring Time Domain Multi-Messenger Astronomy through the Virtual Observatory (A. Nebot)
10:00 -- 10:15 Coordinating observations among ground and space-based telescopes in the multi-messenger era (E. Kuulkers)
10:15 -- 10:30 Working with Gravitational-Wave sky localizations: new methods and implementations (G. Greco)

10:30 -- 11:00 COFFEE BREAK

11:00 -- 11:15 ESFRIs & VO: networking and discussing (M. Molinaro)
11:15 -- 11:30 GWOSC: Gravitational Wave Open Science Center (A. Trovato)
11:30 -- 11:45 Archiving data from a software telescope (C. Boisson)
11:45 -- 12:00 The benefits of public engagement (J. Jarvis)
12:00 -- 12:30 Public engagement as a scientific tool to implement multi-messenger strategies with the Cosmic-Ray Extremely Distributed Observatory (P. Homola) **INVITED**

12:30 – 13:30 LUNCH

Convener: D. Mourard (CNRS) and S. Matheussen (NWO)
13:30 -- 13:45 About policies for multi-wavelengths/multi-messengers astrophysics (D. Mourard)
13:45 -- 14:00 SKA science and multi-messenger synergies (A. Bonaldi)
14:00 -- 14:15 Science with the CTA (U. Barres de Almeida)
14:15 -- 14:30 ELT science and its potential for multi-messenger astrophysics (M. Sterzik)
14:30 -- 14:45 KM3NeT science and multi-messenger synergies (D. Darnic)
14:45 -- 15:00 Multi-messenger science in the European Astroparticle Physics Strategy 2017-2026 (J. de Kleuver)

15:00 -- 15:30 COFFEE BREAK

15:30 -- 16:00 Future NASA Missions for Multi-Messenger Astrophysics (J. Racusin) **INVITED**
16:00 -- 16:15 A Platform for Multi-Messenger Observing (J. Lightfoot)
16:15 -- 16:30 Multi-messenger science with VIRGO (S. Antier)
16:30 -- 16:45 ENGRAVE: Gravitational Wave Follow-up at the European Southern Observatory (A. Levan)
16:45 -- 17:00 The Athena X-ray mission and its synergy with the next generation of multi-messenger facilities (J. Vink)
17:00 -- 17:15 J-GEM collaboration: an optical-infrared follow-up observation network (M. Yoshida)
17:15 -- 17:30 **DISCUSSION**

20:00 -- 21:00 Public Lecture

Thursday 28 March

Convener: A. Franckowiak
09:00 -- 09:30 Astrophysical Neutrinos (E. Bernardini)
09:30 -- 09:45 On the sources of high energy neutrinos (A. Palladino)
09:45 -- 10:00 Neutrinos on ice - Blazars as counterparts to neutrinos above 100 TeV (F. Krauss)
10:00 -- 10:15 Neutrinos from TXS 0506+056 (S. Britzen)
10:15 -- 10:30 Constraints on neutrino emission in the local universe using 2MASS redshift survey with IceCube (S. Sclafani)

10:30 – 11:00 COFFEE BREAK

11:00 -- 11:15 Multi-messenger real-time analysis framework of the KM3NeT neutrino telescope (D. Dornic)
11:15 -- 11:30 Searching for Optical Counterparts to High-Energy Neutrino Sources with ZTF (L. Rauch)
11:30 -- 11:45 Search for High-Energy Neutrinos from Populations of Optical Transients (R. Stein)
11:45 -- 12:00 Multimessenger searches with the ANTARES and KM3NeT neutrino telescopes (M. Colomer Molla)
12:00 -- 12: 15 Supernova detection and real-time alerts with the KM3NeT neutrino telescopes (M. Lincetto)
12:15 -- 12:30 **DISCUSSION**

12:30 – 13:30 LUNCH

Convener: R. van der Meer
13:30 -- 13:45 Searches for ultra-high-energy photons at the Pierre Auger Observatory (P. Ruehl)
13:45 -- 14:00 Follow-up observations of multi-messenger alerts with H.E.S.S. (H. Prokoph)
14:00 -- 14:15 The H.E.S.S. transients alert system (C. Hoischen)
14:15 -- 14:30 Glowbug, a Gamma-Ray Telescope for Bursts and Other Transients (M. Kerr)
14:30 -- 14:45 Gemini Operations for Multi-Messenger Astronomy (B. Miller)
14:45 -- 15:00 Discovering electromagnetic counterparts with ZTF, DECam, and GROWTH facilities (I. Andreoni)

15:00 – 15:30 COFFEE BREAK

15:30 -- 16:00 Observatory e-environments linked by common challenges (T. Vuillaume)
16:00 -- 16:15 Simulation of fluorescence radiation for Cherenkov observatories (D. Morcuende)
16:15 -- 16:30 pLISA: a parallel Library for Identification and Study of Astroparticles and its application to KM3NeT (C. Bozza)
16:30 -- 16:40 Telescope and space mission scheduling towards a multi-observatory framework (P. Colomé)
16:40 -- 16:50 Efficient remote interactive pipelines using CASA and Jupyter (A. Keimpema)
16:50 -- 17:00 White rabbit time and frequency transfer in SURFnet8 network for VLBI purposes (C. van Tour)
17:00 -- 17:10 Dwingeloo telescope VLBI with a remote maser (P. Boven)
17:10 -- 17:20 Open data and tools for gamma-ray astronomy (L. Jouvin)
17:20 -- 17:30 Are you up for faster dissemination of your data? (H. Verkouter)

Friday 29 March

Convener: G. Anderson
09:00 -- 09:15 **Joint Observation planning and Follow-ups** (G. Anderson)
09:15 -- 09:30 AMON: Multimessenger alerts from high-energy gamma rays and neutrinos (H. Ayala)
09:30 -- 10:30 **DISCUSSION**
How to implement more flexible operating models for joint observations or ToOs?

10:30 – 11:00 COFFEE BREAK

Convener: E. Petroff
11:00 -- 11:15 **Stardardizing of VOEvent and archives** (E. Petroff)
11:15 -- 11:30 VOEvents and standards (D. Morris)
11:30 -- 12:30 **DISCUSSION**
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?

12:30 -- 13:30 LUNCH

Convener: S. Matheussen
13:30 -- 13:45 **Facilitating Data sharing** (S. Matheussen)
13:45 -- 14:00 Towards a framework for multi-messenger data sharing (TBD)
14:00 -- 14:30 **DISCUSSION**
How to reconcile the data practices of facilities with the needs of information sharing policies of the multi-messenger landscape?

15:00 – 15:30 COFFEE BREAK

15:30 -- 15:45 Facilitating Joint Analysis (C. Boisson)
15:45 -- 16:00 AMPEL: a streaming data analysis framework (L. Rauch)
16:00 -- 17:00 **DISCUSSION**
How can we best facilitate joint analysis of MM alerts/events?

17:00 -- 17:15 **Conclusions and Final remarks (ASTERICS, SOC, LOC)**

POSTERS

1. Operational Concepts of the CTA Observatory in the Time Domain Astronomy (M. Fuessling)
2. Data and Software Preservation through Containerisation in KM3NeT (T. Gal)
3. The Rate of Short Duration Gamma-Ray Bursts in the Local Universe (S. Mandhai)
4. Prospects for kilonova signals in the gravitational wave era (R. Mochkovitch)
5. The detection of high energy spectral cutoff of bright GRBs detected via Fermi telescope (E. Moneer)
6. MAGIC follow-up of gravitational wave events in the third LIGO/Virgo observation run (M. Ribó)
7. MAGIC as a Neutrino Follow-Up Instrument (M. Ribó)
8. The limited contribution of gamma-ray bursts to ultra-high energy cosmic rays (F. Samuelsson)
9. Hunting for elusive multi-messenger transients with INTEGRAL (V. Savchenko)
10. The ASTERICS VO schools. Getting closer to the astronomical community / The SVO Discovery Tool (E. Solano)
11. ROAst (ROot extension for Astronomy) (B. Spisso)
12. CORELib: COsmic Ray Event Library (S. Stellaci)
13. RISCAPE: European Research Infrastructures in the International Landscape (R. van der Meer)
14. LOFAR's fast response capabilities (S. ter Veen)
15. Continuous gravitational waves from axion clouds (S. Zhu)