

REPORT ON THE RADIONET3 NETWORKING ACTIVITY

TITLE: EXTREME ASTROPHYSICS IN AN EVER-CHANGING UNIVERSE. TIME DOMAIN ASTRONOMY IN THE 21ST CENTURY

DATE: 16-20 JUNE 2014 **TIME:** (WHOLE DAY)

LOCATION: IERAPETRA, GREECE

MEETING WEBPAGE <http://www3.mpifr-bonn.mpg.de/div/jhs/>

HOST INSTITUTE: Max-Planck-Institut für Radioastronomie

PARTICIPANTS NO: 63

MAIN LEADER: MPG

REPORT:

1. Programme of the meeting

Monday, 16 June 2014

Chairing: J. Antoniadis (pre-lunch break session) & P. Freire (post-lunch break session)

08:00 - 08:45: Registration

08:45 - 09:00: Welcome notes

09:00 - 09:40: Pulsar Timing Arrays I STINEBRING, Dan (on behalf of MCLAUGHLIN, Maura)

09:40 - 10:00: Detecting Gravitational Waves with Pulsars: Taming the Interstellar Medium I STINEBRING, Dan

10:00 - 10:20: Single pulse statistical analysis of magnetar AXP 1809-194 I XYLAKI, Theodora

10:20 - 10:40: Recent Highlights from the Pulsar Working Group of LOFAR I NOOTSOS, Aristeidis

10:40 - 11:10: Coffee Break

11:10 - 11:50: The Centrality of Pulsar Core Radiation I RANKIN, Joanna

11:50 - 12:10: Pulsar broadening measurements at low frequencies with LOFAR I ZAGKOURIS, Kimon

12:10 - 12:30: Search for thermal X-ray radiation from hot polar cap in pulsars I GIL, Janusz

12:30 - 12:50: The Highest Time Resolution Measurements in radio astronomy: Crab Pulsar Giant Pulses I HANKINS, Tim

12:50 - 14:30: Lunch Break

14:30 - 15:10: White Dwarfs in Binary Systems I MARSH, Thomas

15:10 - 15:30: Broad-band variability properties of cataclysmic variables and their connections to XRBs/AGN I SCARINGI, Simone

15:30 - 15:50: The MeV Properties of the Gamma-Ray Binary LS 5039 I COLLMAR, Werner

15:50 - 16:10: A catalogue of Galactic black holes in X-ray binaries I CORRAL-SANTANA, Jesus M.

16:10 - 16:40: Black Hole Magnetospheres and The orthogonal GRB model I NATHANAIL, Antonios

16:40 - 17:00: Coffee Break

17:00 - 17:40: 40 Years of Microquasars I SPENCER, Ralph

17:40 - 18:00: Systematic search for GRB precursors in Fermi, Swift and BATSE GRB catalogs I CHARISI, Maria

18:00 - 18:20: Fast variability, hysteresis and accretion states in neutron star X-ray binaries I MUÑOZ-DARIAS, Teo

18:20 - 18:40: A pulsar wind nebula associated with PSR J2032+4127 as the powering source of TeV J2032+4130 I MOLDON, Javier

19:30 - 22:00: Venue Inauguration and Concert: There will be traditional Minor Asia songs from the church choir followed by a public talk by Prof. J. H. Seiradakis on the "Antikythera Mechanism" in Greek!

Tuesday, 17 June 2014

Chairing: J. H. Seiradakis (pre-lunch break session) & T. Marsh (post-lunch break session)

09:00 - 09:40: Syzygies: Solar Eclipses, Transits of Venus and Mercury, and Occultations by Pluto I PASACHOFF, Jay

09:40 - 10:00: Data Mining the Optically Variable Sky since 1950 I MADSEN, Greg

10:00 - 10:20: Radio observations of Flare stars: past present and future I DAVIS, Richard

10:20 - 10:40: Broad Strokes Across Time Domain Astronomy I BELANGER, Guillaume

10:40 - 11:10: Coffee Break

11:10 - 11:50: Fast Radio Bursts and other transient signals I JOHNSTON, Simon

11:50 - 12:10: Choose your own adventure! - Fast radio bursts I RAVI, Vikram

12:10 - 12:30: A Galactic origin for the fast radio burst FRB010621 I MADSEN, Greg

12:30 - 12:50: Exploring Free Floating Planets with Microlensing I FRAGKOU, Vasiliki

12:50 - 14:30: Lunch Break

14:30 - 15:10: High-speed optical astrophysics I DHILLON, Vik

15:10 - 15:30: Aqueye Plus: a very fast single photon counter for astronomical photometry equipped with an Optical Vortex coronagraph I BARBIERI, Cesare

15:30 - 15:50: Examining the third body hypothesis in the eclipsing binary AV CMI I KARPOUZAS, Konstantinos et al.
15:50 - 16:10: The Large Observatory for X-ray Timing (2.0) I MIGNANI, Roberto
16:10 - 16:40: Coffee Break
16:40 - 17:20: BEACON - Motivation, status and new technical developments I FREIRE, Paulo
17:20 - 17:40: SUPERB: A real-time multi-telescope pulsar and fast transient survey I BARR, Ewan
17:40 - 18:20: Real-time discovery of pulsars and fast transients I KARASTERGIOU, Aris

Wednesday, 18 June 2014

09:00 - 12:00: Excursion to Gournia Minoan Site

12:00 - 14:00: Lunch Break

Posters Session

14:00 - 14:10: Application of PCA to light curves of three optical pulsars I BARBIERI, Cesare

14:10 - 14:20: On detecting transient phenomena I BELANGER, Guillaume

14:20 - 14:30: 5.5 Years of Fermi LAT Flare Advocate Monitoring and Counting I CIPRINI Stefano

14:30 - 14:40: The Cosmic battery and astrophysical Magnetic Discs I KATSANIKAS, Mattheos

14:40 - 14:50: Natal Supernova "Kicks" are Parallel to Pulsar Rotation Axes I RANKIN, Joanna

14:50 - 15:00: Core/Double Cone Emission Beam Geometry in MSP J0337+1715 I RANKIN, Joanna

15:00 - 15:10: Faint images of pulsars from strong plasma lenses I ZAGOURIS, Kimonas

Coffee Break

15:10 - 15:20: J. H. Seiradakis' career I M. Kramer

15:20 - 16:00: The early John Seiradakis I Richard Porcas

16:00 - 16:10: John Seiradakis I Ralph Spencer

16:10 - 16:20: 2 out of a 10^6 stories I Richard Davis

16:20 - 17:00: Through the students' eyes I E. Angelakis

17:00 - 18:00: The Antikytheira Mechanism I J. H. Seiradakis

20:00 : Conference Dinner

Thursday, 19 June 2014

Chairing: E. Angelakis (pre-lunch break session) & R. Porcas (post-lunch break session)

09:00 - 09:40: Model Constraints from Multiwavelength Variability of Blazars I BOTTCHEER, Markus

09:40 - 10:00: Time dependent modelling of AGN emission from inhomogeneous jets with particle diffusion and localized acceleration I CHEN, Xuhui

10:00 - 10:20: Multi-frequency linear and circular radio polarization monitoring of jet emission elements in Fermi blazars I MYSERLIS, Ioannis

10:20 - 10:40: RoboPol: rotations of polarization plane in optical emission of blazars I BLINOV, Dmitry

10:40 - 11:10: Coffee Break

11:10 - 11:50: Selected topics in relativistic jet simulations I MIMICA, Petar

11:50 - 12:10: Jets from small-scale magnetic fields and the implications for the blazar emission I DIMITRIOS, Giannios

12:10 - 12:30: The role of time-dependent injection in blazar flares note also the SED animation I ZACHARIAS, Michael

12:30 - 12:50: NGC 1194: warped disk or a double black hole candidate? I FEDOROVA, Elena

12:50 - 14:30: Lunch Break

14:30 - 15:10: New Opportunities for Time Domain Astronomy with the Fermi Gamma-ray Space Telescope I THOMPSON, David

15:10 - 15:30: UNDERSTANDING POWERFUL JETS AT DIFFERENT SCALES IN THE FERMI ERA I GEORGANOPOULOS, Markos

15:30 - 15:50: Long-term monitoring of Bright TeV Blazars with FACT I DORNER, Daniela

15:50 - 16:10: Gamma-ray Variability of Fermi LAT Detected AGN I CIPRINI, Stefano

16:10 - 16:40: Coffee Break

16:40 - 17:20: Active Galactic Nuclei evolution I PADOVANI, Paolo

17:20 - 17:40: The Impact of Galaxy Clusters on the AGN Activity I TREMOU, Evangelia

17:40 - 18:00: Ultra-high resolution VLBI and broadband radio study of the prominent gamma-ray blazar PKS 1502+106 I KARAMANAVIS, Vassilis

19:30 - 22:00: Evening Talk by Jocelyn Bell

Friday, 20 June 2014

Chairing: M. Kramer (pre-lunch break session) & A. Karastergiou (post-lunch break session)

09:00 - 09:40: The Event Horizon Telescope: Imaging and Time Resolving Black Holes |
DOELEMEN, Shep

09:40 - 10:20: The Galactic Center Black Hole and its Environment | ECKART, Andreas

10:20 - 10:40: The interaction between Super Massive Black Holes and Globular Clusters: a possible
explanation to the lack of high mass Nuclear Star Clusters | ARCA SEDDA, Manuel

10:40 - 11:10: Coffee Break

11:10 - 11:50: Astrophysical Sources of Gravitational Waves | KOKKOTAS, Kostas

11:50 - 12:10: A stringent limit on the spatial and temporal variations in the fine-structure constant
from analysis of emission line multiplets in the early universe | LE, Duc Thong

12:10 - 12:30: Kerr black holes with scalar hair | HERDEIRO, Carlos

12:30 - 12:50: Anisotropic fluid from nonlocal tidal effects | CULETU, Hristu

12:50 - 14:30: Lunch Break

14:30 - 15:10: Different manifestations of neutron stars | KEANE, Evan

15:10 - 15:30: Giant component or the burst activity of pulsar PSR J0653+8051 | MALOFEEV, Valery

15:30 - 15:50: New look at the pulsar radio spectra | KIJAK, Jarek

15:50 - 16:10: Closing Remarks | Kramer, Michael

16:30 - 17:30: Closing Concert : Program | VOULGARIS, Aristeidis

19:30 - 22:00: Raki Night!

2. Scientific Summary

Our ambition was to bring together different research communities and provide a platform for an exchange of ideas, experience and methods that may prove invaluable in promoting the unification, if possible, time-domain astronomy and approach them qualitatively similarly as probes of very different scale physics in which different effects become dominant at different systems. The discussions covered not only the sources to be observed but also the instruments to be used and the physics to be derived.

As already discussed earlier, one of the main goals of the conference was to bring together scientists from different fields of modern astrophysics — contrary to the common practise of high specialisation — in order to accommodate whenever possible the interaction and the exchange of expertise. Two major concepts were underlying the conference programme:

- the time domain
- the physics scaling with the mass of the powering compact object

The specific topics and the associated invited speakers were:

- **Neutron Stars and Pulsars** - Invited Speaker: Joanna Rankin (University of Vermont, USA) - Evan Keane (Swinburne University, AU)
- **Compact Objects** (White Dwarfs, Black Holes etc.) - Invited Speakers: Tom Marsh (University of Warwick, UK) - Ralph Spencer - (University of Manchester)
- **Stellar Objects and Optical Astronomy** - Invited Speaker: Jay Pasachoff (Williams College, USA)
- **Transient Sky** - Invited Speakers: Simon Johnston (CSIRO, ATNF, AU)
- **Astronomical Instrumentation** - Invited Speakers: Vik Dhillon (University of Sheffield, UK) - Aris Karastergiou (University of Oxford, UK)
- **Active Galactic Nuclei** - Invited Speakers: Markus Böttcher (North-West University, SA) - Petar Mimica (University of Valencia)
- **Extragalactic Astronomy and Cosmology** - Invited Speakers: David Thompson (NASA, USA) - Paolo Padovani (ESO)
- **Galactic Centre** - Invited Speakers: Andreas Eckart (University of Cologne) - Shep Doleman (MIT, Haystack Observatory, USA)
- **Gravitational Waves and General Relativity** - Invited Speakers: Maura McLaughlin (West Virginia University, USA) - Kostas Kokkotas (University of Tuebingen)

For each session there was a dedicated SOC. The SOC members were: Marta Burgay, Vik Dhillon, Paulo Freire, Simon Johnston, Marcos Georganopoulos, Vicky Kalogera, Vasiliki Pavlidou, Jay Pasachoff, Dimitris Psaltis, J. Anton Zensus

3. Attendance list

Dr. ANGELAKIS, Emmanouil	MPIfR	GERMANY
Dr. ANTONIADIS, John	MPIfR	GERMANY
Dr. ARCA SEDDA, Manuel	"Sapienza" University of Rome	ITALY
Prof. BARBIERI, Cesare	University of Padova, Dept. of Physics and Astronomy	ITALY
Mr. BARR, Ewan	Swinburne University of Technology	AUSTRALIA
Dr. BELANGER, Guillaume	European Space Agency	SPAIN
Prof. BELL BURNELL	University of Oxford	UK
Dr. BLINOV, Dmitry	University of Crete, FORTH	GREECE
Prof. BOETTCHER, Markus	North-West University	SOUTH AFRICA
Ms. Charisi Maria	Colombia University	USA
Dr. CHEN, Xuhui	University of Potsdam	GERMANY
Dr. CIPRINI, Stefano	ASI Science Data Center	ITALY
Dr. COLLMAR, Werner	Max-Planck-Institut für extraterrestrische Physik	GERMANY
Dr. CORRAL-SANTANA, Jesus M.	Pontifical Universidad Catolica de Chile (PUC)	CHILE
Prof. DAVIS, Richard	Jodrell Bank Centre for Astrophysics	UNITED KINGDOM
Prof. DHILLON, Vik	University of Sheffield	UNITED KINGDOM
Dr. DOELEMAN, Sheperd	MIT Haystack Observatory	UNITED STATES OF AMERICA
Dr. DORNER, Daniela	University of Wurzburg	GERMANY
Prof. ECKART, Andreas	University of Cologne	Germany
Ms. FRAGKOU, Vasiliki	University of Thessaloniki	GREECE
Dr. FREIRE, Paulo	Max Planck Institute for Radio Astronomy	GERMANY
Dr. GEORGANOPOULOS, Markos	UMBC (University of Maryland Baltimore County)	UNITED STATES OF AMERICA
Prof. GIANNIOS, Dimitrios	Department of Physics and Astronomy	UNITED STATES OF AMERICA
Prof. GIL, Janusz	Kepler Institute of Astronomy	POLAND
Prof. HANKINS, Tim	New Mexico Institute of Mining and Technology	UNITED STATES OF AMERICA
Dr. JOHNSTON, Simon	CASS	AUSTRALIA
Mr. KARAMANAVIS, Vassilis	MPIfR	GERMANY
Dr. KARASTERGIOU, Aris	University of Oxford	UNITED KINGDOM
Mr. KARPOUZAS, Konstantinos	Aristotle University of Thessaloniki	GREECE
Dr. KATSANIKAS, Matthaïos	RCAAM, Academy of Athens	GREECE
Dr. KEANE, Evan	Swinburne University	AUSTRALIA
Mr. KENTRIANAKIS, Michael	CBS News Kepler Institute of Astronomy, University of Zielona Gora	UNITED STATES OF AMERICA
Dr. KIJAK, Jaroslaw		POLAND
Prof. KOKKOTAS, Kostas	University of Tuebingen	GERMANY
Dr. KOSTIC, Uros	University of Ljubljana, Faculty of Mathematics and Physics	SLOVENIA
Dr. KOUSKOYRA, Vaso	CERN	Switzerland
Dr. KRAMER, Busaba	MPI für Radioastronomie	GERMANY
Prof. KRAMER, Michael	MPI für Radioastronomie	GERMANY
Dr. MADSEN, Greg	Institute of Astronomy, University of Cambridge Pushchino Radio Astronomy Observatory Lebedev Physical Institute	UNITED KINGDOM
Prof. MALOFEEV, Valery		RUSSIA
Prof. MARSH, Thomas	University of Warwick Dep. of Astronomy and Astrophysics, University of Valencia	UNITED KINGDOM
Dr. MIMICA, Petar		SPAIN
Dr. MOLDON, Javier	ASTRON Netherlands Institute for Radio Astronomy	NETHERLANDS
Dr. MUÑOZ-DARIAS, Teo	University of Oxford	UNITED KINGDOM
Mr. MYSERLIS, Ioannis	Max Planck Institute for Radio Astronomy	GERMANY
Mr. NATHANAIL, Antonios	Academy of Athens	GREECE
Dr. NOUTSOS, Aristeidis	MPIfR	GERMANY
Dr. PADOVANI, Paolo	ESO	GERMANY
Prof. PASACHOFF, Jay	Williams College	UNITED STATES OF AMERICA
Dr. PORCAS, Richard	MPIfR	GERMANY

Prof. RANKIN, Joanna M.	University of Vermont	UNITED STATES OF AMERICA
Mr. RAVI, Vikram	University of Melbourne	AUSTRALIA
Mr. RUEDA, Jesus	University of Valencia	SPAIN
Dr. SCARINGI, Simone	K.U. Leuven	BELGIUM
Prof. SEIRADAKIS, John-Hugh	Aristotle University of Thessaloniki	GREECE
Prof. SPENCER, Ralph	University of Manchester	UNITED KINGDOM
Prof. STINEBRING, Daniel	Oberlin College	UNITED STATES OF AMERICA
Dr. THOMPSON, David	NASA Goddard Space Flight Center	UNITED STATES OF AMERICA
Dr. TREMOU, Evangelia	Yonsei University	REPUBLIC OF KOREA
Dr. TZIOUMIS, Anastasios	CSIRO Astronomy and Space Science	AUSTRALIA
Ms. XYLAKI, Theodora	Aristotle University of Thessaloniki	GREECE
Dr. ZACHARIAS, Michael	LSW Heidelberg	GERMANY
Mr. ZAGKOURIS, Kimon	University of Oxford	UNITED KINGDOM

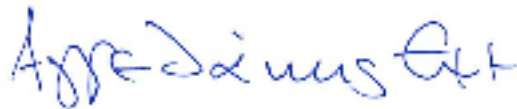
4. Financial Report / RadioNet3 contribution

In order to attract junior researchers, 7 participants were supported by RadioNet3 with a total of 3000 €.

5. Conference Proceedings and Web page

All talks are available online at: <http://www3.mpifr-bonn.mpg.de/div/jhs/Program.html>

Yours truly,
Emmanouil Angelakis

A handwritten signature in blue ink, appearing to read "Emmanouil Angelakis".