

SYMPOSIUM

A DECADE OF AGILE:

RESULTS, CHALLENGES AND PROSPECTS OF GAMMA-RAY ASTROPHYSICS

December 11-13, 2017

Scientific Program

**December 11, 2017 - Accademia dei Lincei
Palazzina dell'Auditorium**

14:00 – 14:40

M. Brunori (Accademia dei Lincei) *Welcome of Accademia dei Lincei*
M. Tavani (INAF-IAPS) *Dedication to “Nanni” Bignami*
N. D’Amico (INAF) *Welcome of INAF*
F. Ferroni (INFN) *Welcome of INFN*
R. Battiston (ASI) *ASI Contribution to AGILE*
G. Setti (Accademia dei Lincei) *The Beginnings of AGILE*

Session 1 - Gamma-Ray Astrophysics Today

14:40 – 15:10 G. Kanbach (MPE, Germany) *Gamma-Ray Astrophysics: Roots, Growth, and Success*
15:10 – 15:25 G. Barbiellini (INFN Trieste) *AGILE Development and Silicon Detectors*
15:25 – 15:40 M. Tavani (INAF-IAPS) *AGILE Scientific Brief Overview*
15:40 – 16:10 J. McEnery (NASA, USA) *Fermi Overview*
16:10 – 16:20 P. Boitani (Univ. La Sapienza) *Cosmic Canticle*

16:20 – 16:40

Coffee Break

Session 2 - Astrophysics of Gravitational Wave Sources

16:40 – 17:00 F. Ricci (Univ. La Sapienza) *Gravitational Wave Observations in the First and Second Scientific Runs of the Advanced LIGO/Virgo Detectors*
17:00 – 17:20 A. Goldstein (NASA, USA) *Fermi-GBM and the Era of Gravitational-Wave Astronomy*
17:20 – 17:40 P. Ubertini (INAF-IAPS) *INTEGRAL Search for GW Counterpart: the GW170817 Case*
17:40 – 18:00 F. Verrecchia (ASI-SSDC) *GW Counterpart Searches with AGILE*
18:00 – 18:20 E. Cappellaro (INAF-Padova) *Discovery of a Kilonova and Prospects on Future Hunts*
18:20 – 18:40 F. Matteucci (Univ. Trieste) *Binary Neutron Stars and Production of Heavy Elements*
18:40 – 19:00 M. Colpi (Univ. Milano Bicocca) *The Gravitational Universe from Ground to Space*

**December 12, 2017 - Accademia dei Lincei
Palazzina dell'Auditorium**

Session 3 - Gamma-Ray Pulsars and their Winds

09:00 – 09:20	D.A. Smith (CENBG, France)	<i>Gamma-Ray Observations of Pulsars</i>
09:20 – 09:50	B. Cerutti (Univ. Grenoble, France)	<i>Gamma-Ray Pulsars: What Have We Learned from Ab-Initio Kinetic Simulations?</i>
09:50 – 10:10	L. Del Zanna (Univ. Firenze)	<i>Pulsar Wind Nebulae in the Light of 3D MHD Simulations</i>

Session 4 - The Mystery of Gamma-Ray Flares from the Crab Nebula

10:10 – 10:40	M.C. Weisskopf (NASA, USA)	<i>The Crab Nebula and its Mysteries</i>
10:40 – 11:00	M. Lyutikov (Purdue Univ., USA)	<i>Crab Flares - Explosive Reconnections Events in the Nebula</i>
11:00 – 11:20		<i>Coffee Break</i>
11:20 – 11:40	A. Mignone (Univ. of Turin)	<i>Crab Flares with AGILE Observations and MHD Simulations</i>
11:40 – 12:00	P. Buratti (ENEA)	<i>Magnetic Reconnection and Electron Acceleration in Tokamaks as a Model for Astrophysical Flares</i>

Session 5 - Gamma-Ray Emission from Galactic Binary Systems

12:00 – 12:30	J.M. Paredes (Universitat de Barcelona, Spain)	<i>Gamma-Ray Binaries</i>
12:30 – 12:50	G. Romero (IAR, Argentina)	<i>Gamma Rays from Colliding Winds in Massive Binaries: Status and Prospects</i>
12:50 – 13:10	G. Piano (INAF-IAPS)	<i>AGILE Binaries</i>
13:10 – 14:10		<i>Lunch</i>
14:10 – 14:30	R. Corbet (NASA, USA)	<i>LMC P3 and the Continuing Hunt for Gamma-Ray Binaries</i>
14:30 – 14:50	G. Pavlov (Pennsylvania State Univ., USA)	<i>High-Speed Ejecta from the Gamma-Ray Binary LS 2883/PSR B1259-63</i>

Session 6 - Black Holes in Blazars, Relativistic Jets and Particle Acceleration in FSRQs and BL Lacs

14:50 – 15:10	P. Giommi (ASI)	<i>Blazars and the Opening of the Multi-Messenger Era</i>
15:10 – 15:30	S. Vercellone (INAF-Brera)	<i>AGILE and Blazars: the Unexpected, the Unprecedented, and the Uncut</i>
15:30 – 15:50	S. Buson (NASA GSFC, USA)	<i>Short-Timescale Variability of Gamma-Ray Blazars Detected by Fermi</i>
15:50 – 16:10	G. Ghisellini (INAF-Brera)	<i>Jets, Disks and Black Hole in Blazars</i>
16:10 – 16:30	A. Ferrari (Univ. of Turin)	<i>Relativistic Particle Acceleration in Jets</i>
16:30 – 16:50		Coffee Break
16:50 – 17:10	P. Munar-Adrover (UAB, Spain)	<i>A Binary Model for the BL Lac PG 1553+113</i>
17:10 – 17:30	A. Treves (Univ. Insubria)	<i>Gamma-Ray and Optical Quasiperiodicities of BL Lac Objects: Constraints for a Supermassive Binary Black Holes (SBBH) Scenario</i>
17:30 – 17:50	F. D'Ammando (INAF-IRA)	<i>Imaging Relativistic Jets from the Event Horizon out to the Megaparsec Scales</i>
17:50 – 18:10	F. Lucarelli (ASI-SSDC)	<i>Gamma-Ray Neutrino Connection in Blazars</i>

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Session 7 - Diffuse Gamma-Ray Emission and Cosmic Rays

09:30 – 09:50	A. Bykov (Ioffe Inst., Russia)	<i>Cosmic Ray Production in Supernovae</i>
09:50 – 10:10	R. Yang (MPIK, Germany)	<i>Diffuse Gamma-Ray Background, Giant Molecular Clouds and the Sources of Galactic Cosmic Rays</i>
10:10 – 10:30	I. Grenier (CEA, France)	<i>The Gamma-Ray View on Galactic Gas and Dust</i>
10:30 – 10:50	A. Giuliani (INAF-Milano)	<i>Interacting SNRs in gamma rays</i>
10:50 – 11:10	P. Picozza (INFN)	<i>Cosmic Rays from Space</i>
11:10 – 11:30		Coffee Break

Session 8 - Gamma-Ray Bursts

11:30 – 11:50	F. Frontera (Univ. Ferrara)	<i>A Short History of GRBs and Prospects</i>
11:50 – 12:10	G. Tagliaferri (INAF-Brera)	<i>Swift and the Multiwavelength View of GRB Afterglows: a Panchromatic View of GRBs</i>

12:10 – 12:30	F. Longo (Univ. Trieste)	<i>GRB at High Energy. What Has Changed in these 10 Years? The View from AGILE</i>
12:30 – 12:50	E. Bissaldi (INFN Bari)	<i>GRBs Detected by Fermi</i>
12:50 – 13:10	R. Ruffini (ICRANet)	<i>The Binary Driven Supernova Model for Long GRBs</i>
13:10 – 14:10		Lunch

Session 9 - Terrestrial Gamma-Ray Flashes, Lightning and Meteorology

14:10 – 14:30	S. Dietrich (ISAC-CNR)	<i>Terrestrial Gamma-Ray Flashes and Thunderstorms</i>
14:30 – 14:50	F. Fuschino (INAF-Bologna)	<i>Terrestrial Gamma-Ray Flashes Detected by AGILE</i>
14:50 – 15:10	A. Chilingarian (Yerevan, Armenia)	<i>High Energy Physics in Atmosphere and Lightning Initiation</i>

Session 10 - Future Missions/Experiments/Telescopes and their Interplay

15:10 – 15:40	A. Argan (INAF), A. Bulgarelli (INAF-Bologna), C. Pittori (ASI-SSDC), I. Donnarumma (ASI)	<i>The Legacy of AGILE</i>
15:40 – 16:00	I. Grenier (CEA, France)	<i>e-ASTROGAM</i>
16:00 – 16:20	J. McEnery (NASA, USA)	<i>AMEGO</i>
16:20 – 16:40		Coffee Break
16:40 – 17:00	W. J. Weber (Univ. of Trento)	<i>LISA Pathfinder, LISA and the Gravitational Astronomy from the Dawn of the Universe</i>
17:00 – 17:20	G. Pareschi (INAF-Brera)	<i>From the Etna Volcano to the Chilean Andes: ASTRI End-to-End Telescopes for the Cherenkov Telescope Array</i>
17:20 – 17:40	P. Caraveo (INAF-Milano)	<i>The Cherenkov Telescope Array and the Future of Gamma-Ray Astronomy</i>
17:40 – 18:00	R. Santonico (Univ. Tor Vergata)	<i>Ideas for a Southern Large FoV TeV Experiment</i>
18:00 – 18:20	P. Soffitta (INAF)	<i>Future Experiments of X-Ray Polarimetry</i>
18:20 – 18:30	M. Tavani (INAF)	<i>Concluding Remarks</i>

Poster Session

- M. Cardillo (INAF-IAPS), *Gamma-Ray Astronomy as a Milestone in the Cosmic Ray Origin Issue*
- A. Leonov (Lebedev Phys. Inst., Russia), *GAMMA-400: Extension to Study Low-Energy Gamma Rays (20-100 MeV)*
- M. Pilia & A. Trois (INAF-OA Cagliari), *A Multi-Wavelength Pipeline for Pulsar Searches*
- C. Pittori (ASI-SSDC), *Easy On-Line Gamma-Ray Analysis: Legacy Archive and the Prototypal AGILE-LV3 Web Tool*
- G. Principe (ECAP, Germany), *The First Catalog of Fermi-LAT sources below 100 MeV*
- S. Suchkov (Lebedev Phys. Inst., Russia), *GAMMA-400 Gamma-Ray Telescope Construction Features*
- A. Tiberia (ISAC-CNR), *Gamma-Ray Storms*
- N. Topchiev (Lebedev Phys. Inst., Russia), *Gamma-Ray Astronomy in Russia: from Anna-3 to GAMMA-400*
- A. Ursi (INAF-IAPS), *AGILE and Terrestrial Gamma-Ray Flashes: an Update*
- A. Ursi (INAF-IAPS), *Detection of Gamma-Ray Bursts with the AGILE MCAL*
- V. Vitale (ASI), *Measurement of the Low-Energy Charged Particle Background with HEPD*
- V. Vittorini (INAF-IAPS), *Very Fast Variability in FSRQs: Mirror Effects in the Jet*