Elena Pian: Curriculum Vitae

Personal Information:

Elena PIAN, born in Rimini (Italy), 26 June 1965
Citizenship: Italian
Present Position: Senior Astronomer (Dirigente di Ricerca) at INAF Astrophysics and Space Science Observatory (Osservatorio di Astrofisica e Scienza dello Spazio, OAS), Bologna, Italy
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Résumé:

1st Aug 2017 - present	Senior Astronomer (*Dirigente di Ricerca*) at INAF OAS, Bologna, Italy
1st May 2009-31st Jul 2017	Visiting Professor at Scuola Normale Superiore di Pisa
30 Dec 2005-31st Jul 2017	Associate Astronomer (*Primo Ricercatore*) at INAF OA Trieste and INAF OAS Bologna
30 Jun 2000-29 Dec 2005	Assistant Astronomer (*Ricercatore Astronomo*) at INAF OA Trieste
2nd May 1997-29 Jun 2000	Research Scientist (ex art. 23 and 36) at INAF OAS Bologna
1995-1997	Postdoctoral Fellow at the STScI, Baltimore, Maryland
1994-1995	Teacher of Mathematics in the Italian High School, Rimini, Italy
1994	PhD in Astrophysics, SISSA-ISAS, Trieste, Italy
1990	Degree in Physics (Laurea) *cum laude*, University of Bologna, Italy

Research activity

My research field encompasses all high energy astrophysical aspects of Time Domain Astronomy, notably multi-wavelength observations of Active Galactic Nuclei (especially of blazar type), Gamma-ray Bursts (GRB), supernovae and kilonovae with both ground-based telescopes and satellites. My most important achievements, documented in my most frequently cited first-author papers, are as follows:
1) detection with the *BeppoSAX* satellite of a **bright X-ray outburst in the blazar Mkn 501** in April 1997, associated with a simultaneous flare at the TeV energies. During the outburst, the synchrotron spectrum reached in few days a peak energy of $\gtrsim$ 100 keV starting from a quiescent energy of $\sim$1 keV (Pian et al. 1998, ApJ, 492, L17). This motivated the search for more events in this and other blazars with similar spectral shape and the designation of a new class of objects, the "extreme synchrotron blazars";
2) detection with *IUE* and *HST* of a **thermal component in the blazar prototype 3C 279**, interpreted as central accretion disk emission, during a low synchrotron state (Pian et al. 1999, ApJ, 521, 112). This is often cited as the first clear evidence of thermal emission in blazars;
3) detection with *BeppoSAX* of the **first X-ray supernova associated with a GRB** (GRB980425/SN 1998bw, Pian et al. 2000, ApJ, 536, 778);
4) first spectroscopic detection of a supernova associated with an X-ray Flash in 2006, with the ESO Very Large Telescope (Pian et al. 2006, Nature, 442, 1011). This is listed in the ESO website among the ESO Top 10 Astronomical Discoveries (http://www.eso.org/public/science/top10.html);
5) detection with *Swift*/XRT of **X-ray variability in low-luminosity active galactic nuclei** (LINERs), leading to the conclusion that LINERs represent a low-power version of normal AGNs, rather than a distinct class characterized by a low-efficiency (ADAF) accretion regime (Pian et al. 2010, MNRAS, 401, 677). In this study we also show that at the lowest X-ray luminosities the optical-to-X-ray spectral index reaches a limiting value;

6) first spectroscopic identification of r-process nucleosynthesis, with the ESO Very Large Telescope and optical/infrared X-Shooter spectrograph, in a double neutron star merger detected by the gravitational interferometers LIGO and Virgo in August 2017 (Pian et al. 2017, Nature, 551, 67). The spectra are consistent with "kilonova" emission, the radioactively powered counterpart of a double neutron star merger, with superposed absorption features produced by heavy atoms moving at speed $\sim 0.1 - 0.2c$. This is listed in the ESO website among the ESO Top 10 Astronomical Discoveries (http://www.eso.org/public/science/top10.html).

I have authored more than 300 refereed papers published in main astrophysics journals (H-index 71, first-author H-index 18, from The SAO/NASA Astrophysics Data System, many conference proceedings, a few popular astronomy articles and 10 Press Releases on my work.

A full list of my refereed publications can be found at www.iasfbo.inaf.it/∼pian/ElenaPian_pubs.pdf

Observing Experience

1993-present	Principal Investigator of ∼100 observing programs as guest observer at many ground- and space-based observatories
1993 and 1994	Guest observer at ESA IUE-VILSPA (Madrid, Spain)
1997 and 1998	Guest observer at ESO 0.9m Dutch telescope (Chile)
1997	PI of HST STIS and NICMOS first light program on GRB970508 host galaxy
1997-2000	Member of BeppoSAX satellite Phoswich Detection System
2002-present	PI of *INTEGRAL* satellite program of follow-up of blazars in outburst
2003	Member of ESO 0.6m Rapid Eye Mount consortium (PI: G. Chincarini)
2007-2008	Member of ESO VLT X-Shooter consortium
2007-present	Member of ESA *EUCLID* mission consortium
2005-present	PI of ESO VLT program for search and follow-up of GRB-supernovae
2014-present	PI of ESO VLT program for follow-up of gravitational wave sources
2014-2017	PI of Nordic Optical Telescope for follow-up of gravitational wave sources
2016-present	Member of INAF-LSST WG on AGNs, UHE neutrinos and FRBs (PI: C.M. Raiteri)

Teaching Experience

1994-1995	Teacher of Mathematics in Italian High School, Rimini, Italy
2000	Lecture on Gamma-Ray Bursts for graduate students, Astronomy Department, Bologna Univ.
2002-2003	Course on High Energy Astrophysics, Master degree in Astrophysics, Trieste Univ.
2009-2017	Course on Observational HE Astrophysics, Master and PhD in Physics, Scuola Normale, Pisa
2013	Course on High Energy Astrophysics and Stellar Evolution at Shanghai Jiao Tong University
2015	Lectures on TeV astronomy and gravitational waves, University of La Plata, Argentina

Supervision of graduate students and postdoctoral fellows

1999 - 2005	3 undergraduates Univ. Bologna and Univ. Trieste, Italy
2002 - 2006	4 postdocs (EU RTN FP5) at Trieste Astronomical Observatory, Italy
2009 - 2012	1 postdoc at Scuola Normale Superiore in Pisa, Italy
2009 - 2017	2 undergraduates Univ. Pisa, Italy

Institutional Responsibilities

2002-2006	Coordinator of Trieste node in EU FP5 RTN GRBs: an Enigma and a Tool (PI: E. van den Heuvel)
2003	INAF Junior Faculty Selection Committee
2010-2011	INAF Junior Faculty Selection Committee
2014-2017	Member of committee for PhD in Physics at Scuola Normale Superiore in Pisa
2015-2016	INAF Junior Faculty Selection Committee
2016-2020	Member of INAF Coordinating Committee for Relativistic Astrophysics & and Astroparticles

International Advisory Committees and Commissions of Trust

2001-2003	Member of ESO Working Group on GRBs
2002-2003	Member of ESO X-Shooter Science Team
2007	Scientific reviewer for the Swedish National Space Board
2008	Member of Committee for PhD award in Astrophysics, Geneva Observatory
2008-present	Member of NASA *Swift* Users Group
2011-present	Scientific reviewer of the European Research Council
2014	Member of Committee for PhD award in Astrophysics, Australian National Univ., Canberra
2016	Scientific reviewer for the National Science Center of Poland
2017	Member of Committee for PhD award in Astrophysics, University of Valencia, Spain
2018	Scientific reviewer for the Israeli Science Foundation

Observing Time Allocation Committees

1996	*HST* Cycle 6 (AGN Panel Support Scientist)
2000	*HST* Cycle 10 (AGN Panel ESA Member)
2001-2004	*INTEGRAL* AO1-AO3 (GRBs and Nucleosynthesis Panel Member)
2004	*HST* Cycle 13 (Stars Panel ESA Member)
2006-2008	Telescopio Nazionale Galileo and REM Observatory AO15-AO18 (Member)
2007	*HST* Cycle 16 (Stars Panel ESA Member)
2007-2010	*AGILE* Data Allocation, AO1-AO3 (Member)
2009-2011	ESO OPC P85-P88 (Stars Panel Member)
2013	*HST* Cycle 21 (Cosmology Panel ESA Member)
2014-2015	*INTEGRAL* AO12-AO13 (Extragalactic Astronomy Panel Member)
2014	Subaru Telescope Open Time S14B (Compact Objects and Supernovae Panel Member)
2014	Danish reserved *Swift* Cycle 2 Time (Panel Member)
2016	*Swift* Cycle 13 (GRB-SN Panel Chair)
2017	*Chandra* Cycle 19 (SN, SNR and Isolated NS Panel Chair)
2017	Subaru Telescope Open Time S18A (Compact Objects and Supernovae Panel Member)
2017-2019	ESO OPC P101-P104 (Stellar Evolution Panel Chair; OPC Vice-Chair in P102-103)

Membership of scientific societies

2000-present	Member of the International Astronomical Union (IAU)
2013-2015	Member and Scientific Secretary of IAU Division D "High Energy Phenomena and Fundamental Physics" Steering Committee
2015-present	Vice-President of IAU Division D Steering Committee

International Conferences, Seminars and Collaborations

I have been invited to deliver ∼40 colloquia, and ∼60 talks/reviews at international conferences. I have organized a dozen of conferences as a SOC member and I was Co-Chair of IAU Symposium n. 279 (Nikko, Japan, March 12-16, 2012, "Death of Massive Stars: Supernovae and Gamma-Ray Bursts").

I was a visiting scientist at ESO HQ in Garching and Santiago, ESTEC, Caltech, Oxford Univ., STScI, Kavli Institute for Theoretical Physics at Santa Barbara Univ., Tokyo Univ., NAOJ-Mitaka, Institute of Nuclear Theory at Washington Univ. (Seattle), Weizmann Institute of Science (Rehovot, Israel), Shanghai Jiao Tong Univ., Kavli Institute of Astronomy & Astrophysics at Peking Univ., Tsinghua Univ. and NAOC-CAS (Beijing), Purple Mountain Observatory (Nanjing), Aspen Center for Physics, Clemson Univ., Max-Planck Institute for Extraterrestial Physics, Max-Planck Institute for Astrophysics, Yukawa Institute for Theoretical Physics at Kyoto Univ., Astronomical Observatory of La Plata, Argentina. I am permanent visiting lecturer at the Astrophysics Research Institute of the Liverpool John Moores University.

Public Outreach

1994	Open House at SISSA, Trieste, for Week of the Scientific Culture
1994-1995	public exhibit of ancient physics laboratory instruments, City Museum of Rimini
1996	article on 19th century astronomer Alessandro Serpieri (1823-1885) for general public (Raffaelli & Luisé Eds.)
1999	lecture of astronomy for high school teachers, Rimini
1999-present	collaborator of the Italian popular astronomy magazine *Coelum*
2000	Open House at INAF, Bologna, "Universe 2000"
2003	seminar at Associazione Friulana di Astronomia e Meteorologia, Remanzacco (Udine), Italy
2017	Press Conference "ESO Telescopes Observe First Light from Gravitational Wave Source" ESO, Garching bei München

Awards

2002	Descartes Prize - FP5 of the European Community for research, technological development and demonstration activities (1998 - 2002): "Solving the Gamma-Ray Burst riddle: the universe's biggest explosions" (PI: E. Van Den Heuvel) 500 kEuro total, 10 kE allocated to my research unit
2012	Winner of the One Thousand Talent Program of the People Republic of China Shanghai Jiao Tong University aimed at developing human resources through education, training, and research & development
2014	Premio Cittá di Arpino for career in astronomy

Funding programs

As Principal Investigator:

2008-2009	ASI-INAF Contract I/088/06/0: 75,000 Euro High energy astrophysics (Studio AAE): *Swift* archival data of supernovae
2014	Biennial research project at Scuola Normale Superiore: 27,000 Euro A multi-frequency view of TeV-blazars in outburst: present observations and future observatories
2018	Agreement 2017-14-H.0 ASI-INAF: 27,000 Euro Extragalactic jets and outflows: probing their physics over multiple scales

As leader of co-investigating research unit:

2000 Development and installation of a robotic telescope (REM)
Italian Space Agency (ASI) contract for new instrumentation: 500,000 Euro
Principal Investigator: E. Palazzi

2001 "GRBs: an enigma and a tool"
EU FP5 Research Training Network (HPRN-CT-2002-00294): 1,800,000 Euro
of which 292,500 Euro allocated to the research unit I coordinated at Trieste Astronomical Observatory and Institute of Space Astrophysics in Rome
Principal Investigator: E. Van Den Heuvel

2002 "BeppoSAX and XMM data analysis"
ASI Contract I/R/045/02: 6,000 Euro allocated to my research unit
Principal Investigator: P. Grandi

2004 ASI Contract I/R/046/04: 3,600 Euro allocated to my research unit
INTEGRAL data analysis
PI: P. Ubertini

2005 ASI-INAF Contract I/023/05/0: 12,400 Euro allocated to my research unit
Analysis of *Swift* data of supernovae and blazars
Coordinator: G. Micela; PIs: L. Maraschi, L. Stella

2005 Ministry of Research (Cofin. MIUR): 352,000 Euro total
Observations and theory of GRBs after the launch of the *Swift* satellite
PI: G. Chincarini

2006 PRIN INAF: 60,000 Euro total
10,000 allocated to my research unit
A study of the supernova-GRB connection in the local Universe
PI: M. Della Valle

2007 ASI Contract I/016/07/0: 27,000 Euro allocated to my research unit
Cosmology: Analysis of HST data of Type Ia supernovae
PI: S. Cristiani, P. De Bernardis

2008-2009 ASI-INAF Contract I/088/06/0: 110,000 kEuro total
20,500 Euro allocated to my research unit
High energy astrophysics (Studio AAE): multiwavelength data of blazars and preparatory study for GRIPS mission
Coordinators: E. Costa, L. Maraschi, G. Matt; PIs: C.M. Raiteri, C. Labanti

2010 ASI-INAF Contract I/009/10/0: 6,000 Euro allocated to my research unit
Extragalactic investigation with the AGILE satellite
Coordinator: G. Micela; PI: S. Vercellone

2011 PRIN INAF: 75,000 Euro total
14,000 Euro allocated to my research unit
Four steps forward in understanding GRBs
PI: G. Ghirlanda

2015 Strategic INAF program on gravitational waves: 8000 Euro allocated to my research unit
Gravitational wave astronomy with the first detections of adLIGO and adVIRGO experiments
PI: E. Brocato

2016 Biennial research project at Scuola Normale Superiore: 58,000 Euro
Electromagnetic Follow-up of Gravitational Wave Sources: Identification and Characterization of their Counterparts via Multi-Wavelength Observations
PI: A. Stamerra

Bologna, April 26, 2018