

Amati Lorenzo

Position: ICRA Net external collaborator (researcher at INAF, Bologna)

Period covered:



I Scientific Work

My scientific collaboration with ICRA Net is focused on Gamma-Ray Burst (GRB) astrophysics, with particular emphasis on the testing of the fireshell model against X-ray and gamma-ray data of the prompt emission. In particular, in 2009 we concentrated on the physical explanation of the $E_{p,i}$ – Eiso (“Amati”) correlation, the identification and interpretation of “disguised” short GRBs, based also on their location and evolution in the $E_{p,i}$ – Eiso plane, the synthesis of prompt emission spectra, with particular emphasis on the explanation of the soft X-ray spectral data.

Besides my collaboration with ICRA Net, my main scientific activity includes: spectral, timing and correlation properties of GRBs, investigation of the cosmological use of GRBs, study of the scientific case and concept design of GRB detectors for future missions, X-ray spectral and timing properties of X-ray binaries.

II Conferences and educational activities

Conferences and Other External Scientific Work

September 2009 The Shocking Universe
Venice, Italy
(*Solicited oral presentation*)

July 2009 Twelfth Marcel Grossmann Meeting
Paris, France
(*Invited oral presentation*)

June 2009 6th Italian-Sino Workshop on Relativistic Astrophysics
Pescara, Italy
(*oral presentation*)

May 2009 Frascati Workshop 2009: Multifrequency Behaviour of High Energy Cosmic Sources
Vulcano (ME), Italy
(*Invited oral presentation*)

May 2009 53rd Meeting of the Italian Astronomical Society (SAIT)

Pisa, Italy
(oral presentation)

February 2009 44th Rencontres de Moriond - Very High Energy Phenomena in the Universe
La Thuile, Italy
(invited oral presentation)

Work With Students

Discussions and joint data analysis of GRBs with some of the ICRANet IRAP Ph.D. students (e.g., collaboration with L. Caito on GRB 071227 and G. Barros on GRB 050509B).

III Service activities

Within ICRANet

- Member of the International Scientific Advisory Committee of the 1st Galileo - Guangqui
- Member of Commissions for the Discussion of the Thesis of IRAP PhD: Students at Rome University "La Sapienza".

Outside ICRANet

- Reviewer of several articles for the main astrophysical journals (ApJ, A&A, MNRAS, JCAP, ...)

2009 list of Publications

Refereed

L. Amati, F. Frontera, C. Guidorzi, 2009, " Extremely energetic Fermi Gamma-Ray Bursts obey spectral energy correlations " , Astronomy & Astrophysics, in press

L. Amati, 2009, " The correlation between peak photon energy and radiated energy in Gamma-Ray Bursts " , Journal of the Korean Physical Society, in press

L. A. Antonelli, P. D'Avanzo, R. Perna, L. Amati, S. Covino, S. Cutini, V. D'Elia, S. Gallozzi, A. Grazian, E. Palazzi, S. Piranomonte, A. Rossi, S. Spiro, L. Stella, V. Testa, G. Chincarini, A. Di Paola, D. Fugazza, E. Giallongo, E. Maiorano, N. Masetti, F. Pedichini, R. Salvaterra, G. Tagliaferri, S. Vergani 2009, " GRB090426: the farthest short gamma-ray burst? " , Astronomy & Astrophysics, 547, L45

R. Salvaterra, M. Della Valle, S. Campana, G. Chincarini, S. Covino, P. D'Avanzo, A. Fernandez-Soto, C. Guidorzi, F. Mannucci, R. Margutti, C.C. Thone, L.A. Antonelli, S.D. Barthelmy, M. De Pasquale, V. D'Elia, F. Fiore, D. Fugazza, L.K. Hunt, E. Maiorano, S. Marinoni, F.E. Marshall, E. Molinari, J. Nousek, E. Pian, J.L. Racusin, L. Stella, L. Amati, et al. 2009, " GRB 090423 at a redshift of z approximately 8.1 " , Nature, 461, 1258

E. Branchini, E. Ursino, A. Corsi, D. Martizzi, L. Amati, J.W. den Herder, M. Galeazzi, B. Gendre, J. Kaastra, L. Moscardini, F. Nicastro, T. Ohashi, F. Paerels, L. Piro, M. Roncarelli, Y. Takei, M. Viel, 2009, " Studying the WHIM with Gamma Ray Bursts " , The Astrophysical Journal, 697, 328

P. Ferrero, S. Klose, D. A. Kann, S. Savaglio, E. Palazzi, E. Maiorano, P. Böhm, S. Schulze, D. Grupe, S. R. Oates, S. F. Sánchez, L. Amati, et al., 2009, " Analysing afterglows using integral field spectroscopy: GRB 060605, the first practical example " , Astronomy & Astrophysics, 497, 729

F. Frontera, C. Guidorzi, E. Montanari, F. Rossi, E. Costa, M. Feroci, F. Calura, M. Rapisarda, L. Amati, D. Carturan, M. R. Cinti, D. Dal Fiume, L. Nicastro, M. Orlandini, 2009, " The Gamma-Ray Burst catalog obtained with the Gamma Ray Burst Monitor Aboard BeppoSAX " , The Astrophysical Journal Supplement, 180, 192

L. Piro, J.W. den Herder, T. Ohashi, L. Amati, et al., 2009, " EDGE: Explorer of diffuse emission and gamma-ray burst explosions " , Experimental Astronomy, 23, 69

L. Amati, C. Guidorzi, F. Frontera, M. Della Valle, F. Finelli, R. Landi, E. montanari, 2008, " Measuring the cosmological parameters with the E_p - i -Eiso correlation of Gamma-Ray Bursts " , Monthly Notices of the Royal Astronomical Society, 391, 577

Conference proceedings

M. Feroci, L. Amati, Antonelli, L. A.; Bonvicini, V.; Campana, R.; Costa, E.; Del Monte, E.; Donnarumma, I.; Evangelista, Y.; Fiore, F., et al., 2009, " A Light and Effective Wide Field Monitor for Gamma Ray Bursts and Transient Sources " , AIP Conference Proceedings, Volume 1133, pp. 49-51

L. Amati, 2009, " Gamma-ray bursts as cosmological probes " , Memorie della Societa Astronomica Italiana, v.80, p.207

L. Amati, 2009, " Measuring cosmological parameters with Gamma-Ray Bursts " , EAS Publications Series, Volume 36, 2009, pp.25-29