

Fraschetti Federico

Position: Postdoctoral fellow (CEA Saclay, DSM/DAPNIA/Service d'Astrophysique)

Period covered: 2006- present



I Scientific Work

My scientific activity is focused on Theoretical Astrophysics. I have wide interests also into plasma physics and black hole physics.

In the past I dealt with a theoretical model for the Gamma-Ray Bursts (GRBs), developing a hydrodynamics lagrangian code to study the temporal structure of the light curves. I arrived to an interpretation of the BATSE distribution of duration of GRBs. Under the assumption of a thermal spectrum in the comoving frame of the expanding shell, I produced theoretical predictions on the time-resolved and time-integrated spectra either in the so-called prompt emission and in the afterglow phase.

At present I work on an 3D Adaptive Mesh Refinement hydro code based on a second-order Godunov method, in order to study the evolution of Supernova Remnant since the onset of the Chevalier self-similar phase.

I'm working also on the basical physical processes of the acceleration of particles behind the shock of the Supernova remnant and on the intriguing problem of the Ultra High Energy Cosmic Rays.

My interests extends to Black Hole Physics as well.

II Conferences and educational activities

ATTENDED CONFERENCES AND WORKSHOPS

2007 August 6-17; "From Massive Stars to Supernova Remnants", Lorentz Center, University of Leiden (Holland).

2007 May 17-18; "Physics of the Universe Confronts Observations", Ecole Internationale d'Astrophysique Daniel Chalonge, Rencontre at the Colegio de Espana, Paris.

2006 November 13-15; "XMM-Newton SSC Consortium Meeting", AIP, Potsdam, (Germany).

2006 July 23-29; "XI Marcel Grossmann Meeting", in Berlin (Germany).

2006 May 5-9; "SWIFT and GRBs: Unveiling the relativistic Universe", in Venezia (Italy).

2005 May 2-7; "Congresso annuale della SAIt", in Catania (Italy).

2005 February 2; "5th AGILE Workshop on the Galactic Center and other Cosmic Accelerators" in Rome.

2004 October 18-22; "Fourth Rome Workshop on Gamma-Ray Bursts in the Afterglow Era" in Rome.

2004 September 20-23; "Testing the Equivalence Principle in Space and on Ground" in Pescara (Italy).

2004 July 07-17; "The 1st Italian-Sino Workshop and the XIV ICRANet Workshop on Cosmology and Relativistic Astrophysics" in Rome and Pescara (Italy).

2004 September 01-06; "XII Seminario Nazionale di Fisica Teorica" in Parma (Italy).

2003 July 20-26; "X Marcel Grossmann Meeting" in Rio de Janeiro (Brasil).

2002 September 17-20; "Third Rome Workshop on Gamma-Ray Bursts in the Afterglow Era" in Rome.

2002 July 15-20; "Black Holes, Gravitational Waves and Cosmology, a meeting in celebration of the 60th birthday of Remo Ruffini", Rome/Pescara.

2002 March 15-18; "Science & Ultimate Reality: Celebrating the Vision of John Archibald Wheeler and Taking It Forward into a New Century of Discovery", Princeton University, Princeton, New Jersey (USA).

2001 July 23-28, ; "Seventh Korean-Italian meeting on Relativistic Astrophysics", Inje University (South Korea).

2001 July 02-13; "ICRA Network Workshop VI, Time structures in relativistic astrophysics", ICRA center of Pescara.

2000 August 02-08; "Marcel Grossmann Meeting IX" in University of Rome "La Sapienza".

1998 November 16, 1998; "Bruno Touschek Celebration Day" in "Laboratori Nazionali" in Frascati (Rome).

1998 October 05-10; "3K Cosmology Conference" in University of Rome "La Sapienza".

INVITED TALKS, SEMINARS AND POSTER PRESENTATIONS

Invited Talks

2007 May 17-18; "Theoretical model for the Afterglow of Gamma-Ray Bursts", Ecole Internationale d'Astrophysique Daniel Chalonge, Rencontre at the Colegio de Espana, Paris.

2007 May 25; "Afterglow of Gamma-Ray Bursts", CEA Saclay, DSM/DAPNIA/Service d'Astrophysique, Gif-sur-Yvette.

2007 February 13; "Afterglow of Gamma-Ray Bursts", University of Orleans.

2005 May 2-7; "Theoretical model for Gamma-Ray Bursts", Congresso annuale della SAIt, Catania (Italy).

2005 January 25; "Afterglow of Gamma-Ray Bursts", Osservatorio Astronomico di Brera, Merate (LC).

2003 November 24; "On the spectrum of the Afterglow of Gamma-Ray Bursts", Max-Planck-Institut fuer Astrophysik, Garching.

Contributes Talks

2006 July 23-29; "XI Marcel Grossmann Meeting", Berlin.

2004 September 20-23; "Testing the Equivalence Principle in Space and on Ground" in Pescara (Italy).

2004 July 07-17; "The 1st Italian-Sino Workshop and the XIV ICRA Net Workshop on Cosmology and Relativistic Astrophysics" in Rome and Pescara (Italy).

2003 July 20-26; "X Marcel Grossmann Meeting" in Rio de Janeiro.

2002 July 15-20; "Black Holes, Gravitational Waves and Cosmology, a meeting in celebration of the 60th birthday of Remo Ruffini", Rome/Pescara.

2001 July 23-28, ; "Seventh Korean-Italian meeting on Relativistic Astrophysics", Inje University (South Korea).

2001 July 02-13; "ICRA Network Workshop VI, Time structures in relativistic astrophysics", ICRA center of Pescara.

Teaching Duties

AY 2006-2007, I semester, TP (Optique electrocinétique), Département de Physique, Université de Versailles, Paris, France.

AY 2002-2005; Supervision of Degree thesis within group at Department of Physics in University "La Sapienza" of Rome.

AY 1999-2000, II semester, Optics-electromagnetism, Department of Physics in University "La Sapienza" of Rome.

AY 1998-1999, II semester, Mechanics-electromagnetism, Department of Physics in University "La Sapienza" of Rome.

III Service activities

Within ICranet

2006 Research Assistant

2004, September 20-23; Member of Local Organizing Committee of the XV ICranet Workshop on "Testing the Equivalence Principle in Space and on Ground", Pescara.

2002, July 15-20; Member of Local Organizing Committee of the X ICranet Workshop on "Black Holes, Gravitational Waves and Cosmology; a meeting in celebration of the 60th birthday of Remo Ruffini", University of Rome "La Sapienza".

2001, October 3-7; Member of Local Organizing Committee of the IX ICranet Workshop on "Fermi and Astrophysics", University of Rome "La Sapienza" and Pescara.

2001, July 23-28; Member of Organizing Committee of the VII ICranet Workshop on "Relativistic Astrophysics", Inje University (South Korea).

2001, July 2-14; Member of Local Organizing Committee of the VI ICranet Workshop on "Time structures in Relativistic Astrophysics", Pescara.

Outside ICranet

2006 June -present Post Doc at CEA Saclay, DSM/DAPNIA/Service d'Astrophysique.

2005 January-July. Fellowship by Brera Astronomical Observatory (Merate, Italy) within Swift mission for GRB.