



Curriculum vitae et studiorum

Personal informations

Surname First name	Farinelli Ruben
Date of birth	August 1, 1975
Citizenship	Italian
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Name and address of employer	Senior high school "Liceo Statale Carducci" via Canapa 75, 44123 Ferrara (Italy)
Other languages	English: high level French : basic level

Research employments

01/07/2013-31/03/2014	Scientist position at the Integral Science Data Center (ISDC) <i>University of Geneva, Switzerland</i>
04/01/2012 -30/06/2013	Postdoc position on Gamma Ray Bursts <i>Physics Department, University of Ferrara, Italy</i>
01/01/2011-31/12/2011	Postdoc position on Supergiant Fast X-ray Transients <i>INAF-IASF of Palermo, Italy</i>
01/09/2003-31/12/2010	Postdoc position in High Energy Astrophysics <i>Physics Department, University of Ferrara, Italy</i>

University professorships

2007/08	Physics Department of Ferrara University Course of <i>High Energy Astrophysics</i>
	Engineering Faculty of Ferrara University Course of <i>Numerical applications of Classical Mechanics</i>
2006/07	Engineering Faculty of Ferrara University Course of <i>Numerical applications of Classical Mechanics</i>
2005/06	Pharmacy Faculty of Ferrara University Courses of <i>Preparatory Mathematics</i> and <i>Preparatory Physics</i>
2004/05	Engineering Faculty of Ferrara University Course of <i>Numerical applications of Classical Mechanics</i>

Teaching at high-school

21/10/2014-to date 24/03/2014-31/05/2014 24/01/2012-31/03/2012	Mathematics and Physics at senior high school specializing in didactics and education “G. Carducci”, Ferrara
29/11/2011-15/12/2011	Mathematics and Physics at senior high school specializing in classical studies “L. Ariosto”, Ferrara
08/03/2000-10/06/2000	Mathematics and Science at I.T.A. “A. Serpieri”, Bologna

Students advisor activities at the Physics Department of the Ferrara University

2007/08	<i>Comptonization in ultra-strong magnetic fields: a theoretical and numerical approach</i>
2004/05	<i>Identificazione con INTEGRAL di sorgenti serendipity viste con lo strumento PSD a bordo di BeppoSAX</i>
2002/03	<i>La natura delle binarie X di piccola massa ad alta luminosità: il caso di GX 3+1 osservata con INTEGRAL</i>

Lecturer activity to PhD students

Ferrara, May 2010	Invited lecture for ICRANet/IRAP PhD
Nizza, September 2010	Invited lecture for Erasmus Mundus IRAP-PhD

Education and training

2003	PhD in Physics at Ferrara University Title of the thesis <i>Spectral study of Low Mass X-Ray Binaries with BeppoSAX</i> Evaluation: very good Advisor: Prof. Filippo Frontera
1999	Graduation in Astronomy at Bologna University Title of the thesis <i>Osservazioni con HST del nucleo dell'ammasso globulare NGC 2808</i> Evaluation: 110/110 cum Laude Advisor: Prof. Pierluigi Battistini

Main research fields and activities

Binary systems LMXB SFXT XRP	Data reduction and analysis of observations performed with X-ray satellites (RXTE, BeppoSAX, INTEGRAL, Swift, XMM) MHD simulations using FLASH Development of numerical codes for the X-ray spectral formation and application to data
Gamma Ray Bursts	Theoretical and observational studies of the prompt emission
Radiative transfer	Theory, numerical solutions and Montecarlo simulations
Alternative Theories of Gravity	Stellar structures in $f(R)$ -gravity
Scientist on duty (ISDC period)	Running a quick-look analysis of the INTEGRAL data within few hours to detect new and unexpected sources, monitoring the instruments and dealing with triggers from the INTEGRAL Burst Alert System. The Scientist on duty is primarily responsible for monitoring the scientific output of the INTEGRAL instruments and reacting quickly to problems or scientific results
Peer-review	Astrophysical Journal, Astronomy & Astrophysics, PASJ and Revista Mexicana de Astronomia y Astrofisica, Monthly Notices of the Royal Astronomical Society

Official contributed S/W for the astronomical community

Models for the X-ray spectral fitting XSPEC package

COMPAG: thermal and bulk Comptonization for cylindrical accretion onto the polar cap of a magnetized neutron star

heasarc.gsfc.nasa.gov/xanadu/xspec/manual/XSmodelCompmag.html

COMPTB: thermal and bulk Comptonization in subrelativistic spherical accretion symmetry

heasarc.gsfc.nasa.gov/xanadu/xspec/manual/XSmodelComptb.html

GRBCOMP: thermal and bulk Comptonization in subrelativistic outflows (soon update to the XSPEC web page)

Informatics skills and competences

Linux and Mac

Hard-disk partitioning tools
System configuration and upgrades via RPM and source code
Source and binary S/W installation
Networking

Programming languages

C and Perl
High-level programming, also using support from the CFITSIO
Gnu Scientific Library
Bash scripting especially devoted to automatization of running programs
Mathematica
All tools necessary to face several problems of mathematical methods of physics (e.g., PDEs, systems of ODEs)

Astronomical software

FTOOLS, XSPEC, XIMAGE, XRONOS
High-level knowledge and managing of the astronomical FITS file format

Graphical tools

GNU PLOT, QDP, IDL

Web design

Joomla! CMS

Windows

Word, Powerpoint, managing for installation of programs and updates

National and international approved funds for research projects

2009 PRIN-MIUR

Gamma Ray Bursts: dai progenitori alla Fisica del processo dell'emissione "prompt"
P.I. Filippo Frontera (University of Ferrara)

2007 PRIN-INAF

Bulk Motion Comptonisation models in X-ray binaries: from phenomenology to physics
P.I. Massimo Cocchi (INAF-IASF, Rome)

Approved scientific proposals for satellite observations

1. INTEGRAL Proposal ID #1140005 (A11) , 2014 (Co-PI)
ToO observations of the “Bursting pulsar” during outburst with INTEGRAL
Data rights for ToO
2. INTEGRAL Proposal ID #0930035 (A09) , 2011 (Co-PI)
The evolution of Comptonization in XTE J1701-462: from A to Z
Data rights for To0
3. INTEGRAL Proposal ID #0830091 (A08) , 2010 (Co-PI) Data rights for To0
The evolution of Comptonization in XTE J1701-462: from A to Z
Data rights for To0
4. Chandra Proposal ID # 11400197 (AO11), 2009 (Co-PI)
Investigating New Integral Sources with Chandra
Observing time: 2 x 20 ksec (ToO)
5. INTEGRAL Proposal ID # (AO7), 2009 (Co-PI)
The evolution of Comptonization in XTE J1701-462:from A to Z
Key Programme Observation
6. Chandra Proposal ID # 11400197 (AO11), 2009 (Co-PI)
Investigating New Integral Sources with Chandra
Observing time: 2 x 20 ksec (ToO)
7. INTEGRAL Proposal ID # (AO7), 2009 (Co-PI)
The evolution of Comptonization in XTE J1701-462: from A to Z
Key Program Observation
8. Chandra Proposal ID # 10400008 (AO10), 2008 (Co-PI)
Investigating New Integral Sources with Chandra
Observing time: 20 ksec (ToO)

9. INTEGRAL Proposal ID # 0630021 (AO6), 2008 (Co-PI)
Hard X-ray emission from persistent NS LMXBs in the Galactic Centre
Key Program Observation
10. INTEGRAL Proposal ID # 0633011 (AO6), 2008 (Co-PI)
Hard X-ray emission from persistent NS LMXBs in the Galactic Disk
Key Program Observation
11. INTEGRAL Proposal ID #0632000 (AO6), 2008 (Co-PI)
Hard X-ray emission from Cyg X-2
Key Programme Observation
12. INTEGRAL Proposal ID #0530003 (AO5), 2007 (Co-PI)
Hard X-ray emission from persistent NS LMXBs
Key Programme Observation
13. INTEGRAL Proposal ID #0532004 (AO5), 2007 (Co-PI)
Hard X-ray emission from Cyg X-2
Key Programme Observation
14. INTEGRAL Proposal ID #053101 (AO-5 Key Programme 2), 2007 (PI)
Searching with INTEGRAL for possible counterparts of unresolved X-ray sources observed with the PDS onboard BeppoSAX
North Ecliptic Pole Key Program
15. Chandra Proposal ID #09400414 (AO9), 2007 (Co-PI)
Investigating New Integral sorgenti with Chandra
Observing time: 20 ksec (ToO)
16. INTEGRAL Proposal ID #0430021 (AO4), 2006 (Co-PI)
Hard Xray emission from persistent NS LMXBs
Key Program Observation
17. RXTE Proposal ID #90022, 2004 (Co-PI)
Persistent bright LMXBs in the Galactic plane
Observing time: 252 ksec
18. RXTE Proposal ID #90022, 2003 (Co-PI)
Persistent bright LMXBs in the Galactic plane
Observing time: 72 ksec

Oral contributions to international meetings

Meeting place and date	Title of the talk
<i>XXI SIGRAV meeting</i> Alessandria, September 15-19 2013	Numerical solutions of the Lane-Emden equation in $f(R)$ -gravity
<i>CNOC</i> <i>Congresso Nazionale Oggetti Compatti</i> Ferrara, September 17-19 2013	On the stability of the thermal Comptonization index in NS LMXBs in their different spectral states
<i>III Congresso Nazionale GRB</i> Napoli, September 20-22, 2012	Theoretical study of the peak energy vs. luminosity correlation in GRBs with Montecarlo simulations
<i>Royal Institute of Technology</i> Stockholm, June 13, 2012	Invited talk Upscattering spectral formation model for the prompt emission of Gamma Ray Bursts
<i>Second Ferrara Workshop on X-ray Astrophysics up to 511 keV</i> Ferrara, September 14-16, 2011	Spectral evolution of the X-ray nova XTE J1859+226 during its outburst observed by BeppoSAX and RXTE
<i>12th Italian-Korean Symposium on Relativistic Astrophysics</i> ICRANET-Pescara, July 4-8, 2011	Invited talk Upscattering spectral formation model for the prompt emission of Gamma Ray Bursts
<i>IASF-Bologna</i> September 8, 2010	Invited talk On the X-ray and gamma-ray emergent spectrum of super-Eddington explosion of very massive stars. Application to spectral appearances of gamma-ray bursts
<i>CNOC</i> Congresso Nazionale Oggetti Compatti Santa Margherita di Pula (CA), Italy September 22-25, 2009	Comptonization in ultra-strong magnetic fields. Numerical solution of the radiative transfer equation and application to the neutron star case
<i>The 12th Marcel Grossman Meeting</i> Paris, France, July 12-12, 2009	Transition layer in accretion disk around compact objects as origin of production of hard X-ray emission
<i>The X-ray Universe 2008</i> Granada, Spain, May 27-30, 2008	A new Comptonization model for low-magnetized accreting neutron stars in LMXBs
<i>CNOC</i> <i>Congresso Nazionale Oggetti Compatti</i> San Vito Lo Capo (TP), Italy September 11-14, 2007	Transition layers around compact objects (black holes and neutron stars): Evolution of their hydrodynamical structure and size as a function of the mass accretion rate

<p>4th <i>Italian-Sino Workshop</i> <i>International Center for Relativistic Astrophysics</i> Pescara, Italy July 20-29, 2007</p>	<p>Transition layers around compact objects (black holes and neutron stars): Evolution of their hydrodynamical structure and size as a function of the mass accretion rate</p>
<p><i>INTEGRAL Consortium Meeting</i> INTEGRAL Science Data Center Geneva, Switzerland April 17-18, 2007</p>	<p>A new Comptonization model for XSPEC: first results on a sample of LMXBs</p>
<p>11th <i>Marcel Grossman meeting on General Relativity</i> Berlin, Germany July 23-29, 2006</p>	<p>Evolution of X-ray spectra of Neutron Star LMXBs: two blackbody-like components as a signature of NS, accretion disk and transient hard X-ray tails as a Comptonization signature</p>
<p>6th <i>INTEGRAL Workshop</i> <i>"The obscured Universe"</i> Moscow, Russia July 2-8, 2006</p>	<p>Average hard X-ray emission from neutron star LMXBs: a view with INTEGRAL</p>
<p><i>The multicolored landscape of compact objects and their explosive origin</i> Cefalu', Italy June 11-24, 2006</p>	<p>The X-ray spectrum of the bursting atoll source 4U 1728-34 observed with INTEGRAL</p>
<p><i>Internal INTEGRAL Science Workshop</i> ESTEC, The Netherlands January 18-21, 2005</p>	<p>Two years of INTEGRAL Core Program observations of the bright bursting LMXBs GX 3+1: discovery of a variable non-thermal comptonization component</p>
<p>CNOC (Congresso Nazionale Oggetti Compatti) Padova, Italy December 2-4, 2004</p>	<p>Long time-averaged high-energy spectral properties of a sample of LMXBs observed with INTEGRAL</p>
<p>5th <i>INTEGRAL Workshop</i> <i>"The INTEGRAL Universe"</i> Monaco di Baviera, Germany February 16-20, 2004</p>	<p>INTEGRAL observations of four Neutron Star Low mass X-ray Binaries: GX 3+1, GX 354-0, GX 349+ and the Rapid Burster</p>

Scientific divulgation

Liceo Scientifico "P. Paleocapa" Rovigo October 23, 2012	Public conference <i>L'Universo ai raggi X e l'astrofisica delle alte energie</i>
Accademia dei Concordi Rovigo, December 10, 2007	Public conference <i>L'Universo alle alte energie: storia dell'Astrofisica dei raggi X</i>
Liceo Scientifico "P. Paleocapa" Rovigo May 5, 2006	Public conference <i>Sapere Scientifico e Formazione dello studente europeo La ricerca scientifica, oggi, nelle esperienze degli ex alumni del Paleocapa</i>
Liceo Classico "Celio" Rovigo 2005	Lectures of General Astronomy

Il sottoscritto acconsente, ai sensi del D.Lgs. 30/06/2003 n.196, al trattamento dei propri dati personali e alla pubblicazione del presente curriculum vitae sul sito dell'Università di Ferrara.

Ruben Ferrelli