Personal information

Surname / First name	**Ziosi Brunetto Marco**
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Nationality	Italian
Date of birth	03/05/1985

Current Position	PhD student since 01/2012 at Università degli Studi di Padova - Dipartimento di Fisica e Astronomia **PhD advisors:** Dr. Michela Mapelli (INAF-OAPd) **PhD Fellowship funded by:** Strategic Research Project AACSE - Algorithms and Architectures for Computational Science and Engineering PhD Thesis Defense expected on July 2015

Education

2012-present	PhD School in Astronomy - Dipartimento di Fisica e Astronomia (Università degli Studi di Padova), Research project title: **"The impact of stellar evolution and dynamics on the formation of compact-object binaries"**, supervisors: Dr. Michela Mapelli
2007-2011	Master Degree Thesis in Astronomy - Dipartimento di Fisica e Astronomia (Università degli Studi di Padova), (108/110): **"Halo-matter cross-correlation in cosmological simulation"**, supervisors: Prof. Giuseppe Tormen and Prof. Ravi K. Sheth
2004-2007	Bachelor Degree Thesis in Astronomy - Dipartimento di Fisica e Astronomia (Università degli Studi di Padova), (103/110): **"Studio del profilo dei vortici ottici con diverso momento angolare"** (Characterization of optical vortexes with different angular momentum), supervisors: Prof. Cesare Barbieri, Dr. Fabrizio Tamburini, Dr. Gabriele Anzolin

Teaching experience

2012-2013

- Teaching assistant - Dipartimento di Fisica e Astronomia (Università degli Studi di Padova), Mathematical
- Teaching assistant - Dipartimento di Fisica e Astronomia (Università degli Studi di Padova), Python course

Grants

2013	Awarded 1000 EUR to attend the Gravasco IHP trimester "N-body gravitational dynamical systems From N=2 to infinity."

Accepted computational proposals

2014

- "Star cluster formation through merger of sub-clusters", 50.0k CPU hours on IBM PLX cluster @ CINECA, PI: Mapelli, CO-I: Ziosi and 3 other COIs

2013

- "Investigating the statistics and parameter space of double compact object binaries in young star clusters", 50.0k CPU hours on GPU cluster EURORA, IBM PLX cluster and IBM Blue Gene/Q Fermi @ CINECA, PI: Ziosi, 2 COIs
- "Making very massive stars through stellar collisions", 50.0k CPU hours on GPU cluster EURORA and IBM PLX cluster @ CINECA, PI: Mapelli, CO-I: Ziosi and 2 other COIs
- "Star formation in proximity of a supermassive black hole", 2.28M CPU hours on the IBM Blue Gene/Q Fermi cluster @ CINECA, PI: Mapelli, CO-I: Ziosi and 2 other 7 COIs

2012

- "The violent life of the Galactic Centre", 281.6k CPU hours on IBM PLX and on the IBM Blue Gene/Q Fermi cluster @ CINECA, PI: Mapelli, CO-I: Ziosi and 2 other COIs
- "Computational Frontiers of Black Hole Dynamics", 50.0k CPU hours on IBM PLX cluster @ CINECA, PI: Ripamonti, CO-I: Ziosi and 2 other COIs

Schools and Workshops

2014

- **Perspectives of GPU computing in Physics and Astrophysics**, Dep. of Physics of Sapienza - Rome, 15-17 Semptember 2014 (poster)
- **Stellar N-body Dynamics**, Sexten (Italy), 8-12 September 2014 (poster)
- **Astro-GR@Rome**, Monteporzio Catone (Rome), 14-18 July 2014
- **MODEST 14 - The dance of stars: dense stellar systems from infant to old**, Bad Honnef Physics Center (Germany), 2-6 June 2014 (poster)

2013

- **Workshop on Dynamics & Kinetic theory of self-gravitating systems**, Gravasco IHP trimester "N-body gravitational dynamical systems From N=2 to infinity...", Paris, 4-8 November 2013 (contributed talk)
- **Seminar on Galactic Dynamics**, Gravasco IHP trimester "N body gravitational dynamical systems From N=2 to infinity...", Paris, 21 October-1 November 2013
- **Workshop on High Performance Scientific Computing**, Strategic Research Project AACSE, Departement of Information Engineering - Padova, 9 Semptember 2013
- **PhD Summer School on High Performance Scientific Computing**, Strategic Research Project AACSE, Departement of Information Engineering - Padua, 16-18 Semptember 2013 (contributed talk)
- **INFN School Of Statistics**, Vietri sul Mare (Italy), 3-7 June 2013
- **School on Gravitational Waves, neutrinos and multiwavelenght e.m. observations: the new frontier of Astronomy**, Monteporzio Catone (Rome), 10-15 April 2013

2012

- **IMPRS Summer School on Computational Astrophysics**, Heidelberg, Germany, 10-14 September 2012
- **International School of Astrophysics on the Fundamental Cosmic distance scale and the Transient Sky**, Teramo, Italy, 11-15 June 2012 (contributed talk)
- **Summer School of Parallel Computing**, CINECA (Bologna), 2-13 July 2012
- **Introduction to C language for scientific programming**, CINECA (Bologna), 17-18 May 2012

2011

- **PhD Summer School on Algorithms and Architectures for Computational Science and Engineering**, Departement of Information Engineering - Padua, 12-16 Semptember 2011 (contributed talk)
- **Workshop on Visualization of Large scientific Data**, CINECA (Bologna), 14-15 June 2011
- **Python for computational science**, CINECA, 16-18 May 2011
- **Introduction to GPGPU and CUDA programming**, CINECA (Bologna), 27 April 2011

Other courses and experiences

2011	Internship at University of Padova: "Technical characterization of the Astrophysical Observatory of Asiago"
2009	Certificate of photometric and spectroscopic digital analysis expert (FSE european course)
2007	Certificate digital data analysis expert (FSE european course)
2004	"Il cielo come laboratorio" (Sky as a lab), in collaboration with the Astronomy Department of the University of Padua

Publications

- Ziosi B. M., Mapelli M., Branchesi M., Tormen G., *Dynamics of stellar black holes in young star clusters with different metallicities - II. Black hole-black hole binaries*, 2014, MNRAS, 441, 3703Z
- Branchesi M. , Woan G., Astone P., Bartos I., Colla A., Covino S., Drago M., Fan X., Frasca S., Hanna C., Haskell B., Hazboun J.S., Heng I.S., Holz D.E., Johnson-McDaniel N.K., Jones I.D., Keer L., Klimenko S., Kostas G., Larson S.L., Mandel I., Mapelli M., Messenger C., Mazzolo G., Melatos A., Mohanty S., Necula V., Normandin M., Obara L., Opiela R., Owen B., Palomba C., Prodi G.A., Re V., Salemi F., Sidery T.L., Sokolowski M., Schwenzer K., Tiwari V., Tringali M.C., Vedovato G., Vousden W., Yakushin I., Zadrożny A., Ziosi B.M., *C7 multi-messenger astronomy of GW sources*, 2014, General Relativity and Gravitation, 46, 1771

Language skills

Italian (Mother tongue), English (fluent)

Computer skills

OSs	Linux (excellent), MacOS (excellent), Windows (excellent)
Scripting/Programming Languages	Python (excellent), Go (excellent), Bash (excellent), C/C++ (excellent), Matlab/Octave (excellent), Fortran, IDL
Data Analysis/Plotting tools	Veusz (excellent), Matplotlib/Pylab (excellent), Supermongo, Gnuplot, IDL, IRAF

Experience in HPC

Codes: StarLab-GPU, Gadget

Libraries: Experiences with MPI and OpenMP

HCP facilities I have used during my PhD:

- **Eurora** (CINECA): Linux Cluster with 1024 cores (Intel Xeon E5-2658 and E5-2687W), 1.1 TB of RAM, 64 nVIDIA Tesla K20 (Kepler), CINECA storage, Infiniband network
- **Green II/gStar&swinStar** (Swinburne University): Linux cluster with 1976 cores (Intel Xeon 5650 and E5-2660), 7.904 TB of RAM, 100 NVIDIA Tesla C2070, 21NVIDIA Tesla M2090, 64 NVIDIA Tesla K10, 1.6 PB Lustre file system, QDR infiniband
- **PLX** (CINECA): Linux cluster with 3288 cores (Intel Xeon E5645), 528 nVIDIA Tesla M2070, 20 nVIDIA Tesla M2070Q, 14 TB of RAM, CINECA storage, Infiniband network
- **ZBOX** (University of Zurich): Linux cluster with 3072 cores (Intel Xeon E5), 12 TB of RAM, 684 TB Lustre filesystem, 800 TB tape backup, Infiniband and Gbit ethernet network
- **monster** (Dept. of Physics and Astronomy, UniPD): Linux cluster with 104 core (Intel Xeon e5430), 464 GB of RAM, 6.39 TB storage, Gbit ethernet network
- **SP7** (Dept. of Information Engineering, UniPD): IBM Power7 system, 92 equivalent computing cores for Linux (124 for ADA), 768 GB of RAM shared through hardware board, 1 TB storage, Infiniband network

Markup Languages/Web	LaTeX, Markdown, HTML, Javascript
Graphics	Inkscape, Gimp, ImageMagick, Blender
Presentation	Beamer, Sozi/Inkscape, Prezi, PowerPoint
Office/Internet	MSOffice, LibreOffice/OpenOffice, Chrome, Internet Explorer, Firefox, Opera, Outlook, Thuderbird
Others	Git, MySQL, PostgreSQL

Scientific interests

dynamics of black holes and neutron stars in star clusters – direct-summation N-body simulations in star clusters – gravitational waves in the frequency range of Advanced VIRGO and LIGO – stellar and binary evolution

Other interests

Volunteering with A.G.E.S.C.I. and Protezione Civile
Digital Photograpy
Piano and guitar
Travelling
Mapping and geo-data manipulation

Signature