CONTACT INFORMATION	Department of Mathematics and Physics
	University of Ljubljana
	Jadranska 19
	1000 Ljubljana
	Slovenija

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PERSONAL INFORMATION

Place of birth: Trieste, Italy
Date of birth: 19.12.1979
Address: via del Refosco 11/10
                 34151 Opicina-Opčine (TS)
                 Italy
Citizenship: Italian

ACADEMIC TITLE

Assistant Professor (for Astronomy and Astrophysics)
appointed 30.9.2019 (electoral period 5 years)

POSITION

Teaching Assistant and Assistant Professor
at Faculty of Mathematics and Physics, University of Ljubljana
Jadranska 19, 1000 Ljubljana

Member of programme
P1-0188 Astrofizika in fizika atmosfere (Astrophysics and Physics of the Atmosphere) (Astronomy group)
SICRIS researcher code: 33858

Member of International Astronomical Union (IAU) (*Division C* - Education, Outreach and Heritage, and *Division J* - Galaxies and Cosmology)

Member of the *Athena* Science Study Team (ASST) within the Science working group Hot Universe (SWG 1.2 The astrophysics of galaxy groups and clusters)

RESEARCH INTERESTS AND PROJECTS

Imprint of physical processes on galaxy cluster properties, studied with cosmological hydrodynamical simulations, focusing on:
- IntraCluster medium (ICM) thermodynamics
- chemical enrichment history of the ICM
- AGN (Active Galactic Nuclei) feedback effect on ICM properties
- galaxy cluster scaling relations and their evolution
- Sunyaev-Zeldovich effect from galaxy clusters
- properties of the Warm-Hot Intergalactic Medium (WHIM) at low redshift

EDUCATION

International School for Advanced Studies SISSA-ISAS, Trieste, Italy

Master in Science Communication, February 2012
- Thesis: *La comunicazione istituzionale ai tempi della PlayStation*
- Advisor: Romeo Bassoli, Head of INFN Press Office

University of Trieste, Trieste, Italy

Ph.D. in Physics, March 2010
- Thesis: *The effect of star formation and feedback on the X-ray properties of simulated galaxy clusters*,2009, 217 pages, COBISS-ID: 3376961
- Advisor: Prof. Stefano Borgani

M.S., Astrophysics and Space Physics, October 2006
- Mark: *110/110 cum Laude*

- Thesis: *Simulazioni idrodinamiche di ammassi di galassie: proprietà chimiche e termodinamiche*,2006, 125 pages, COBISS-ID: 377473
- Advisors: Prof. Stefano Borgani,Dr. Luca Tornatore

B.S., Scienze e tecnologie fisiche, November 2003
- Mark: *102/110*
- Thesis: *Il fondo cosmico nelle microonde*,2003, 47 pages, COBISS-ID: 377217
- Advisor: Prof. Marino Mezzetti

ACADEMIC CAREER

from Feb 2011 to present

- Astronomy Group
  Faculty of Mathematics and Physics, University of Ljubljana, Slovenia

from Sept 2010 to Dec 2013

- R&D Working Group on Astrophysics
  Center of excellence SPACE-SI

from Jan 2010 to Aug 2010

- Research project at Department of Astronomy,
  University of Trieste, Italy
  - Project title: *Diffuse baryons in cosmic history: cosmological hydrodynamical simulations of the interaction between galaxies and intergalactic medium*
  - Supervisor: Prof. S. Borgani

PROFESSIONAL SERVICE

Contributor to Smac software (map making utility for idealized observations) (http://www.mpa-garching.mpg.de/ kdolag/Smac/).

PROFESSIONAL EXPERIENCE

University of Ljubljana, Slovenija

Assistant Professor   **from Oct 2019**
- Theoretical Astronomy
  - teaching: Winter Semester (2019-20, 2020-21, 2021-22)
- Astronomy 2
  - teaching (in person and via Zoom): Spring Semester (2019-20, 2020-21, 2021-22)

Teaching Assistant   **from Feb 2011**
- Astronomy 2
  - teaching: Spring Semester (2013-14)
  - exercises: Spring Semester (2016-17, 2018-19)
- Astronomical observations
  - Spring Semester (2010-11, 2011-12, 2012-13, 2014-15, 2016-17, 2018-19, 2019-20)
- Astronomy 1
  - Winter Semester (2012-13, 2013-14, 2014-15, 2016-17, 2018-19, 2019-20, 2020-21, 2021-22)
- Our and Other Solar Systems
  - Spring Semester (2014-15)
- Physics Laboratory I
  - Spring Semester (2016-17, 2020-21, 2021-22)
- Theoretical Astrophysics
  - Spring Semester (2018-19), Winter Semester (2019-20, 2020-21, 2021-22)
- Cosmology
  - Spring Semester (2018-19)
  - grad. degree in Physics

- Observational Methods in Astrophysics
  - Winter Semester (2016-17)
  - grad. degree in Physics

- Astrophysics lab
  - Spring Semester (2019-20, 2021-22)
  - grad. degree in Physics

Seminar Organizer   **Sept 2010 - May 2015; May 2016 - Sept 2017**

- Astrodebata seminars
  - Organizing seminars about astronomical topics for undergraduate, graduate students and staff of the Astronomy group

SHORT PERIOD VISITS

- **University of Washington, Department of Astronomy, USA**
  (UW - University of Ljubljana Scholars Exchange)
  Matthew McQuinn (host), period: 13.10.2019-28.10.2019
  working on feedback from Active galactic nuclei and intergalactic medium at low redshift in simulations, and exploring options for ongoing collaboration in these areas between the UW and Ljubljana
  https://slavic.washington.edu/uw-university-ljubljana-scholars-exchange-past-participants
- **Universitäts-Sternwarte München, Germany**
  Klaus Dolag (host), period: 5.5.2013-24.5.2013
  using Smac code (idealized observations) to study large simulations
- **Max-Planck Institut fuer Astrophysik, Muenchen, Germany**
  Klaus Dolag (host), period: 31.1.2010–26.2.2010
  working on Smac - map making utility for idealized observations
  https://wwwmpa.mpa-garching.mpg.de/ kdolag/Smac/
- **University of Michigan, Ann Arbor, Department of Physics, USA**
  Elena Rasia (host), period: 2.11.2008 − 10.12.2008
  published paper: Dunja Fabjan, Stefano Borgani, Elena Rasia, Annalisa Bonafede, Klaus Dolag, Giuseppe Murante, Luca Tornatore, "X-ray mass proxies from hydrodynamic simulations of galaxy clusters − I", Monthly notices of the royal astronomical society, 416, 2, 801-816, 2011

SUCCESFUL APPLICATIONS AT INTERNATIONAL HPC FACILITIES

- Murante G. (P.I.), Borgani S., Monaco P.,Rasia E., Planelles S., Granato G.L., De Lucia G., Fabjan D., Mongardi C., Goz D., Barai P.,Ragone Figueroa C., Biffi V., Villaescusa-Navarro F., Munari E., Silva L., Curir A., Zoldan A., Valentini M., Sartoris B.,Gaspari M., Gjergo E., Meneghetti M., Batalha de Castro T., ISCRA-CINECA (class C project), 2016, 50.000h
- Murante G. (P.I.), Borgani S., Monaco P., Rasia E., Planelles S., Granato G.L., De Lucia G., Fabjan D., Mongardi C., Goz D., Barai P., Ragone Figueroa C., Biffi V., Villaescusa-Navarro F., Munari E., Silva L., Curir A., Zoldan A., Valentini M., Sartoris B., Gaspari M., Gjergo E., *Expoliting numerical simulations of cosmic structures*, Expression of Interest in BigData Analytics, 2015, 50.000h
- Tornatore L. (P.I.), Murante G., Borgani S., Monaco P., Fabjan D., *Feedback effects on baryons in galaxy clusters*, ISCRA-CINECA (class B projecs), 2012, 750.000h
- Borgani S. (P.I.), Murante G., Fabjan D., Dolag K., Tornatore L., Rasia E., Saro A., Brunino R., Tormen G., *Feedback effects on the large-scale distribution of cosmic baryons*, ISCRA-CINECA (class B projecs), 2011, 140.000h
- Borgani, S. (P.I.), Dolag K., Rasia E., Saro A., Tormen G., De Lucia G., Fabjan D., Murante G., Tornatore L., *Cosmological Simulations of a Large Sample of Massive Galaxy Clusters: The effect of the Black-Hole Feedback*, ISCRA-CINECA (class B project), 2010, 100.000h
- Borgani, S. (P.I.), Dolag K., Rasia E., Saro A., Tormen G., De Lucia G., Fabjan D., Murante G., Tornatore L., *Cosmological Simulations of a Large Sample of Massive Galaxy Clusters*, ISCRA-CINECA (class B project), 2010, 95.000h
- Fabjan, D. (P.I.), Borgani, S., Dolag, K., Murante, G., Tornatore, L., *Simulations of feedback effects on the properties of galaxy clusters*, standard project CINECA, 2009, 50000h

OTHER WORK EXPERIENCE

Društvo matematikov, fizikov in astronomov, Slovenija

from 2012

Collaborator at the astronomy contest for Slovenian schools
- member of the evaluating commission (local and national)
- translation in Italian of exercises (at local and national level)

from 2013

Collaborator at the selection of the Slovenian team participating at the International Astronomy and Astrophysics Olympiad

- member of the evaluating commission
- preparation of the theoretical exercises for the team selection
- mentorship (lectures and exercises) for the selected team before the Olympiad

INAF - Observatory of Trieste, Italy

Project collaboration   **November 2003 to July 2004**
- collaboration at the project *Le stelle vanno a scuola* (Stars at school)

SCIENCE COMMUNICATION

Writer and contributor for the web portal Portal v vesolje (in Slovene), Presek and Obzornik fakultete za matematiko in fiziko.
Translator of the Slovenian version of the Astronomical Picture of the Day (APOD) and of ESOcast videos (subtitles in Slovenian).
Mentoring research project of high-school students for the *Slovenia from space* contest organized by the Center of excellence Space-SI, and from 2013 for the *Slovenian teams* that participate to the *International Astronomy and Astrophysics Olympiad.*
Giving **public talks** at different events as *Open days of the Astronomical observatory Golovec* (from dec 2010), at *Night at the observatory* and *Sprehodi skozi vesolje* (series of popular talks on astronomy topics).

HARDWARE AND SOFTWARE SKILLS

Computer Programming:
- python, C, Fortran (77, 79), IDL, UNIX shell scripting, gawk
- parallel programming in MPI

Productivity Applications:
- TeX (LaTeX, BibTeX, PSTricks), Vim, most common productivity packages (for Windows and Linux platforms)
- Gnuplot, SuperMongo

Operating Systems:
- Linux (Gentoo, Debian, Ubuntu), Windows (95, XP, 7)

PERSONAL SKILLS

Languages:
- Slovene (mother language): reading (excellent), writing (excellent), verbal (excellent)
- Italian: reading (excellent), writing (excellent), verbal (excellent)
- English: reading (good), writing (good), verbal (good)
  - FCE - First Certificate in English obtained in December 1998
- German: reading (basic), writing (basic), verbal (basic)