Curriculum Vitae

Personal Information

Family name, First name: Bugli, Matteo
ORCID ID: 0000-0002-7834-0422
Date of birth: April 25, 1986
Nationality: italian

E-mail: matteo.bugli@iap.fr
Personal webpage: https://www.iap.fr/useriap/bugli

Education

2013 - 2017 PhD
Physics Department, Technische Universität München, Germany
Supervisor: Ewald Müller
Thesis: *Non-axisymmetric modes in 3D magnetized tori accreting onto black holes*

2009 - 2013 Master degree
Physics and Astronomy Department, Università degli Studi di Firenze, Italy
Supervisor: Luca del Zanna
Thesis: *Simulations of kinematic dynamo in magnetized disks around rotating black holes*

2005 - 2009 Bachelor degree
Physics and Astronomy Department, Università degli Studi di Firenze, Italy
Supervisor: Luca del Zanna
Thesis: *Interactions between pulsar wind and supernovae remnants*

Research positions

2024 - present Postdoc
Institut d'astrophysique de Paris, France
Advisor: Frédéric Daigne

2022 - 2024 Marie-Curie Fellow
Physics Department, Università di Torino, Italy
Advisor: Andrea Mignone

2018 - 2022 Postdoc
Astrophysics Department, CEA-Saclay, France
Advisor: Jérôme Guilet

2017 Postdoc
Max Planck Institut für Astrophysik, Germany
Advisor: Ewald Müller

Fellowships and awards

2026 - 2030 ERC Starting Grant "BlackJET"
2024 - 2026 ANR Tremplin ERC-StG (*BlackJET* project)
2022 - 2024 Marie-Curie Postdoctoral Fellowship (*GR-PLUTO*)
2022 PSL Fellowship (Observatoire de Paris - Université Paris) - declined
2017 *Leibniz Large Scaling Award 2017* for the development of the `ECHO` code
2013 - 2017 IMPRS fellowship (Max Planck Institut für Astrophysik)

Supervision of students

2025 **Andrea Celati** (Master student/PhD student, Università degli Studi di Firenze, Italy)
Supervisor (co-supervision by Luca Del Zanna)
Core-collapse supernovae, multi-messenger astrophysics, HPC techniques, data analysis

2023 - 2025 **Vittoria Berta** (PhD student, Università di Torino, Italy)
Co-supervision with Andrea Mignone (2 publications)
Resistive relativistic MHD, magnetic reconnection, HPC techniques

2023 - present **Edoardo Lopresti** (Master student/collaborator, Università di Torino, Italy)
Co-supervision with Andrea Mignone (1 publication)
Resistive relativistic MHD, numerical techniques, data post-processing and visualization

2018 - 2022 **Niccolò Tomei** (PhD student, Università degli Studi di Firenze, Italy)
Co-supervision with Luca del Zanna (4 publications)
Physics of accretion, GRMHD framework, HPC techniques,
data post-processing and visualization, version control (`GIT`)

2019 **Sebastian Paine** (Bachelor student, CEA-Saclay, France)
Co-supervision with Thierry Foglizzo
Numerical techniques, data post-processing and visualization

Teaching activities

2021 Certification for *Maître de Conferences*

2014 - 2015 Tutor for the master course *Computational Physics 1* (Technische Universität München)
Responsible: prof. Stefan Recksiegel (30 hours)

2013 - 2014 Tutor for the master course *Computational Physics 2* (Technische Universität München)
Responsible: prof. Stefan Recksiegel (30 hours)

2009 - 2013 Tutor for High School and University students (Università degli Studi di Firenze)
Calculus, Mechanics, Thermodynamics, Electromagnetism (40 hours)

Scientific animation

2025 Chair of the EAS 2025 session SS31: "Numerical models of extreme stellar explosions"
2025 SOC member of the SF2A 2025 session S16: "Transient sky and multi-messenger astronomy"
2024 LOC member for the PLUTO Symposium 2024
2018 - 2022 Organizer of the DAp general seminars, CEA-Saclay

Reviewing activities

2024 - present Project reviewer for UK Research and Innovation (DiRAC HPC facility), UK
2019 - present Project reviewer for the Gauss Center for Supercomputing (GCS), Germany
2016 - present Reviewer for MNRAS, ApJ, A&A, PASJ, Astropart. Phys.

Scientific collaborations

2025 - present NewAthena (WG5 - Transients and multi-messenger astrophysics)
2023 - present MultiMex - "Analyse multi-messager des explosions de supernovae" (PNHE)
2023 - present TeonGrav - Theory of Gravitational Wave Sources (INFN)
2023 - present SPACE - EU Centre of Excellence (`PLUTO` code)
2021 - present GdR Gravitational waves - Neutron stars, supernovae and heavy elements synthesis (CNRS)
2021 - present Einstein Telescope OSB (Div. 7 - Stellar collapse and isolated neutron stars)
2020 - present LEAK project (APC, Observatoire de Paris, CEA-Saclay)
2018 - present EHT Code Comparison Project (Event Horizon Telescope collaboration)

Research interests

- Core-collapse supernovae (CCSN) and magnetorotational explosions
- Gamma-ray bursts and magnetar formation
- Gravitational waves and neutrino emission from CCSN
- Magnetohydrodynamics simulations in general relativity
- Accretion discs around compact objects
- Relativistic reconnection and dynamos
- Numerical schemes for stiff hyperbolic equations
- Parallel environments and High Performance Computing

Languages

Italian:	Mother tongue
English:	Level C2 (proficient user)
French:	Level B2 (independent user)
German:	Level B1 (independent user)

Technical competences

Scientific programming:	Fortran, C/C++, Python, IDL, VisIt, Yt, LaTeX
Libraries & Utilities:	MPI, OpenMP, bash-shell, HDF5 serial/parallel, GIT
Operating systems:	Linux/Unix, MacOs, Windows

Computational resources

2024 - 2025:	P.I. of the project *Magnetar formation and extreme stellar explosions*; GENCI, France (**6.6 Million core-hours**)
2021 - 2022:	co-P.I. of the project *Formation des magnétars et explosions stellaires extrêmes*; GENCI, France (**13.45 Million core-hours**)
2018 - 2021:	co-P.I. of the project *Explosions stellaires extrêmes : de l'amplification du champ magnétique au lancement de l'explosion*; GENCI, France (**29.57 Million core-hours**)
2018 - 2020:	P.I. of the project *Magnetized accretion disks onto black holes and beyond: testing the standard GRMHD framework*; LRZ, Garching, Germany (**20 Million core-hours**)

Conferences & workshops

2025:	*IAU Symposium 402*, Ensenada, Mexico	**invited**
	1st *IGWN Symposium on CCSN Gravitational Waves*, Warsaw, Poland	(contributed)
	Journées SF2A 2025, Toulouse, France	(E-poster)
	European Astronomical Society Annual Meeting, Cork, Ireland	(contributed, E-poster)
	Kinetic physics of astrophysical plasmas, Paris, France	**invited**
	Doctoral School Astronomy and Astrophysics, Paris, France	**invited lecture**
	1st *ACME workshop*, Toulouse, France	(contributed)
2024:	*CoCoNut Meeting*, València, Spain	(contributed)
	Journées Théorie de la communauté Hautes Énergies, Paris, France	**invited**
	2024 Arcetri Workshop on Plasma Astrophysics, Florence, Italy	(contributed)
	Journée de l'Axe Astro (GS de Physique), Orsay, France	(contributed)
	8ème *GdR Ondes Gravitationnelles*, Marseille, France	(contributed)
	GdR-OG: meeting of the group "NS, SN and SHE", Caen, France	**invited**
	PLUTO Symposium 2024, Turin, Italy	(contributed)
	1st *TEONGRAV international workshop*, Rome, Italy	(contributed)
	COSPAR 2024 Scientific Assembly, Busan, South Korea	(2 contributed)
	European Astronomical Society Annual Meeting, Padova, Italy	(2 contributed, E-poster)
	Supernova Remnants III, Crete, Greece	(2 posters)
	Journées SF2A 2024, Marseille, France	(contributed, E-poster)
2023:	19th *Russbach School on Nuclear Astrophysics*, Russbach, Austria	**invited lecture**
	2023 Arcetri Workshop on Plasma Astrophysics, Florence, Italy	(contributed)
	7ème *GdR Ondes Gravitationnelles*, Meudon, France	(contributed)
	26ème Congrès Général de la SFP, Paris, France	**invited**
	ASTRONUM 2023, Pasadena, USA	**invited**
	Journées SF2A 2023, Strasbourg, France	(contributed)
2022:	*ASNUM 2022*, Lyon, France	(contributed)
	Supernova 2022 (OzGrav), Melbourne, Australia	**invited**
	2022 Arcetri Workshop on Plasma Astrophysics, Florence, Italy	(contributed)
	6ème *GdR Ondes Gravitationnelles*, Toulouse, France	(contributed)
	31st *Texas Symposium*, Prague, Czech Republic	(contributed)
	Journées SF2A 2022, Besançon, France	**invited**
	Progress in algorithms and numerical tools for QCD, Orsay, France	**invited**
	Pharos Conference 2022, Rome, Italy	(contributed)
2021:	*IAU Symposium 363*, virtual conference	(contributed)
	XX Workshop on Nuclear Astrophysics, Ringberg, Germany	(contributed)
	5ème *GdR Ondes Gravitationnelles*, Annecy, France	(contributed)
	European Astronomical Society Annual Meeting, virtual conference	(E-poster)
2019:	30th *Texas Symposium on Relativistic Astrophysics*, Portsmouth, UK	(contributed)
	4M-COCOS workshop, Fukuoka, Japan	**invited**
	YITP Workshop: MM astrophysics in the GW era, Kyoto, Japan	(contributed)
	XIX Workshop on Nuclear Astrophysics, Ringberg, Germany	(contributed)
2018:	*CoCoNut Meeting*, Saclay, France	(contributed)
	26th *Euromicro PDP International Conference*, Cambridge, UK	(contributed)
2017:	29th *Texas Symposium on Relativistic Astrophysics*, Cape Town, SA	(contributed)
	CoCoNut Meeting, Garching, Germany	(contributed)
	Arcetri Workshop on Plasma Astrophysics, Florence, Italy	(contributed)
2016:	*CoCoNut Meeting*, València, Spain	(contributed)
	Super-Eddington accretion onto compact objects, Arbatax, Italy	(contributed)
2015:	28th *Texas Symposium on Relativistic Astrophysics*, Geneva, Switzerland	(contributed)
	CoCoNut Meeting 2015, Màlaga, Spain,	(contributed)

Invited Seminars

2025 *APC Colloquium*, Paris, France;
Galaxy Coffee - MPIA, Heidelberg, Germany;
Seminario di Astrofisica - UniTo, Torino, Italy;
CCRG Friday Lunch Talk - RIT, Rochester (NY), USA;
2023: ESO informal discussion, Garching, Germany;
Séminaire IPAG, Grenoble, France;
Séminaire Artémis - Observatoire de la Côte d'Azur, Nice, France;
2022: *AstroCoffee seminar - University of Frankfurt*, Frankfurt, Germany;
GReCO seminar - IAP, Paris, France;
Seminario di Astrofisica - UniTo, Torino, Italy;
AEI Seminar, Potsdam, Germany;
2020: *IAP Journal Club*, Paris, France;
LEAK Meeting, Paris, France;
Séminaire du LUTh, Meudon, France;
2019: *Seminario all'Osservatorio Astronomico d'Arcetri*, Firenze, Italy;
Theorie-Seminar at Theoriezentrum, Darmstadt, Germany;
2018: *Seminari del DDA*, València, Spain;
2015: *MPA Institute Seminar*, Garching, Germany.

Outreach activities

07/11/2025 Presentation of CEA research activity on core-collapse supernovae (Montrouge, France)
Festival Explor'Espace
19/05/2025 Presentation core-collapse supernova physics (Paris, France)
Pint of Science Festival
2025 Member of the organizing committee of Astronomy On Tap - Paris
28/01/2025 Presentation on core-collapse supernovae (Astronomy On Tap, Paris)
"Exploding stars and where to find them"
03/11/2023 Presentation of CEA research activity on core-collapse supernovae (Montrouge, France)
Festival Explor'Espace
27/09/2023 Winner of the *SumoScience Marie Curie Championship Sharper 2022/23*
(high school outreach event)
25/07/2023 Outreach article - Forum della Ricerca di Ateneo UniTo:
Supercomputer, campi magnetici e buchi neri: una miscela esplosiva!
25/02/2022 Video-seminar for OPC - Osservatorio Polifunzionale del Chianti:
Esplosioni stellari: come da una supernova nasce una stella di neutroni
07/11/2021 Presentation of CEA research activity on core-collapse supernovae (Montrouge, France)
Festival Explor'Espace
17/06/2020 Video-seminar for the Lions Club of Munich:
"Dal collasso di una stella alla sua rinascita: come si formano le stelle di neutroni"
10/04/2017 Seminar at the Rotary Club of Munich:
"Black holes: ravenous and self-centered protagonists of the Universe"
09/04/2016 Seminar at the Lions Club of Munich:
"Buchi neri: famelici ed egocentrici protagonisti dell'Universo"
2014 - 2023 Member of Astronomical Society Galileo Galilei
Scientific advisor of the San Martino Observatory, Castagno d'Andrea (Italy)

List of main publications

[1] **M. Bugli**, E. F. Lopresti, E. Figueiredo, A. Mignone, B. Cerutti, G. Mattia, L. Del Zanna, G. Bodo and V. Berta (2025), *Relativistic reconnection with effective resistivity - I. Dynamics and reconnection rate*, A&A, 693, id.A233, 17 pp.

[2] M. Reichert, **M. Bugli**, J. Guilet, M. Obergaulinger, M. Á. Aloy and A. Arcones (2024), *Nucleosynthesis in magnetorotational supernovae: impact of the magnetic field structure*, MNRAS, 529(4), 3197-3209

[3] **M. Bugli**, J. Guilet, T. Foglizzo, M. Obergaulinger (2023), *Three-dimensional core-collapse supernovae with complex magnetic structures - II. Rotational instabilities and multi-messenger signatures*, MNRAS, 520(4), 5622-5634

[4] **M. Bugli**, J. Guilet, M. Obergaulinger (2021), *Three-dimensional core-collapse supernovae with complex magnetic structures - I. Explosion dynamics*, MNRAS, 507(1), 443-454

[5] **M. Bugli**, J. Guilet, M. Obergaulinger, P. Cerdá-Durán, and M. A. Aloy (2020), *The impact of non-dipolar magnetic fields in core-collapse supernovae*, MNRAS, 492(1), 58–71

[6] **M. Bugli**, L. Iapichino, F. Baruffa (2018), *Advancing the Performance of Astrophysics Simulations with ECHO-3DHPC*, Intel®Parallel Universe Magazine, 34, 49

[7] **M. Bugli**, J. Guilet, E. Müller, L. Del Zanna, N. Bucciantini and P. J. Montero (2018), *Papaloizou-Pringle instability suppression by the magnetorotational instability in relativistic accretion discs*, MNRAS, 475(1), 108-120

[8] **M. Bugli** (2017), *ECHO-3DHPC: Relativistic Magnetized Disks Accreting onto Black Holes*, Innovative Supercomputing In Deutschland, 15(2), 86-88

[9] **M. Bugli**, L. Del Zanna and N. Bucciantini (2014), *Dynamo action in thick discs around Kerr black holes: high-order resistive GRMHD simulations*, MNRAS, 440, L41-L45

Other publications in peer-reviewed scientific journals

[1] M. Rossazza, A. Mignone, **M. Bugli**, L. Riha, T. Panoc, O. Vysocky, N. Shukla, A. Romeo, V. Berta (2025), *The PLUTO Code on GPUs: a first look in the context of MHD simulations*, submitted to Computer Physics Communications

[2] G. Mattia, D. Crocco, D. Fuksman, **M. Bugli**, V. Berta, E. Puzzoni, A. Mignone, B. Vaidya (2025), *PyPLUTO: a data analysis Python package for the PLUTO code*, Journal of Open Source Software, 10(113), 8448, https://doi.org/10.21105/joss.08448

[3] A. Mignone, V. Berta, M. Rossazza, **M. Bugli**, G. Mattia, L. Del Zanna and L. Pareschi (2024), *A fourth-order accurate finite volume scheme for resistive relativistic MHD*, MNRAS, 533(2), 1670

[4] M. Bendahman, I. Goos, J. Coehlo, **M. Bugli**, A. Coleiro, S. El Hedri, T. Foglizzo, D. Franco, J. Guilet, A. Kouchner, R. Raynaud and Y. Tayalati (2024), *Prospects for realtime characterization of core-collapse supernova and neutrino properties*, JCAP, 2024(2), id.008

[5] L. Del Zanna, S. Landi, L. Serafini, **M. Bugli** and E. Papini (2024) *A GPU-Accelerated Modern Fortran Version of the ECHO Code for Relativistic Magnetohydrodynamics* Fluids, 9(1), 16

[6] V. Berta, A. Mignone, **M. Bugli** and G. Mattia (2024), *A 4th-order accurate finite volume method for ideal classical and special relativistic MHD based on pointwise reconstructions*, JCP, 499, 112701

[7] G. Mattia, L. Del Zanna, **M. Bugli**, A. Pavan, R. Ciolfi, G. Bodo and A. Mignone (2023), *Resistive relativistic MHD simulations of astrophysical jets*, A&A, 679, A49

[8] J. Guilet, A. Reboul-Salze, R. Raynaud, **M. Bugli** and B. Gallet (2022), *MRI-driven dynamo at very high magnetic Prandtl numbers*, MNRAS, 516(3), 4346

[9] A. Reboul-Salze, J. Guilet, R. Raynaud and **M. Bugli** (2022), *MRI-driven $\alpha\Omega$ dynamos in protoneutron stars*, A&A, 667, A94

[10] S. Cielo, A. Pöpple, L. Del Zanna, **M. Bugli** (2022), *DPEcho: General Relativity with SYCL* for the 2020s and Beyond*, Intel®Parallel Universe Magazine, 51, 14

[11] L. Del Zanna, N. Tomei, K. Franceschetti, **M. Bugli** and N. Bucciantini (2022), *General Relativistic Magnetohydrodynamics Mean-Field Dynamos*, Fluids, 7(2), 87

[12] N. Tomei, L. Del Zanna, **M. Bugli** and N. Bucciantini (2021), *Are GRMHD Mean-Field Dynamo Models of Thick Accretion Disks SANE?*, Universe, 7(8), 259

[13] A. Reboul-Salze, J. Guilet, R. Raynaud and **M. Bugli** (2021), *A global model of the magnetorotational instability in protoneutron stars*, A&A, 645, A109

[14] S. Cielo, L. Iapichino, F. Baruffa, **M. Bugli** and C. Federrath (2020), *Honing and proofing Astrophysical codes on the road to Exascale. Experiences from code modernization on many-core systems*, FGCS, 112, 93-107

[15] N. Tomei, L. Del Zanna, **M. Bugli** and N. Bucciantini (2020), *General relativistic magnetohydrodynamic dynamo in thick accretion discs: fully non-linear simulations*, MNRAS, 491(2), 2346-2359

[16] O. Porth, K. Chatterjee, R. Narayan, C. Gammie, Y. Mizuno, P. Anninos, J. G. Baker, **M. Bugli** et al. (2019), *The Event Horizon General Relativistic Magnetohydrodynamic Code Comparison Project*, ApJSS, 243(2), 26

[17] Q. Qian, C. Fendt, S. Noble and **M. Bugli** (2017), *rHARM: Accretion and Ejection in Resistive GR-MHD*, ApJ, 834(1), 29

[18] L. Del Zanna, E. Papini, S. Landi, **M. Bugli** and N. Bucciantini (2016), *Fast reconnection in relativistic plasmas: the magnetohydrodynamics tearing instability revisited*, MNRAS, 460(4), 3753-3765

Other publications in peer-reviewed conference proceedings

[1] **M. Bugli**, J. Guilet, K. Kotake, L. Kovalenko, B. Mueller, M. Obergaulinger, E. O'Connor, T. Takiwaki, V. Varma (2024), *Magneto-rotational supernova explosions: a comparison between state-of-the-art numerical models*, SF2A-2024, 435-438

[2] **M. Bugli**, E. F. Lopresti, E. Figueiredo, B. Cerutti, A. Mignone, G. Mattia, L. Del Zanna, G. Bodo, V. Berta (2024), *Relativistic reconnection with effective resistivity:a comparison between fluid and kinetic models*, SF2A-2024, 167-168

[3] M Bendahman, P. Barrère, A. C. Buellet, **M. Bugli** et al., *Core-collapse supernovae: from "nu" physics to new physics*, 38th International Cosmic Ray Conference, id. 1151

[4] G. Mattia, L. Del Zanna, **M. Bugli**, A. Mignone (2024), *Resistive relativistic MHD simulations of astrophysical jets* , HEPRO-2024, id.73

[5] V. Berta, A. Mignone, **M. Bugli**, G. Mattia (2024), *A 4() th-order accurate finite volume method for ideal and resistive classical and special relativisitc MHD in the PLUTO code*, HEPRO-2024, id.59

[6] **M. Bugli**, J. Guilet, K. Kotake, P. Moesta, B. Mueller, M. Obergaulinger, E. O'Connor, T. Takiwaki, V. Varma (2024), *3D numerical models of magneto-rotational explosions: a comparison between state-of-the-art codes*, EAS-2024, id.1436

[7] **M. Bugli**, E. Lopresti, E. Figueiredo, B. Cerutti, A. Mignone, G. Mattia, L. Del Zanna, V. Berta, G. Bodo (2024), *Relativistic reconnection with effective resistivity: a comparison between RMHD and PIC models* , EAS-2024, id.1432

[8] **M. Bugli**, J. Guilet, M. Reichert, M. Obergaulinger (2024), *Recent developments on long GRB central engine numerical models: dynamics, multi-messenger signals, and nucleosynthesis*, EAS-2024, id.1430

[9] M. Reichert, **M. Bugli**, J. Guilet, M. Obergaulinger, M.Á Aloy, A. Arcones (2024), *The impact of the magnetic field topology on the nucleosynthesis of magnetorotational supernovae*, EAS-2024, id.267

[10] **M. Bugli**, J. Guilet, L. Del Zanna, A. Mignone, G. Mattia, V. Berta, R. Raynaud and A. Reboul-Salze (2023), *Amplification and Dissipation of Magnetic Fields in Accreting Compact Objects*, JPhCS (ASTRONUM 2023), 2742(1), id.012002

[11] **M. Bugli**, J. Guilet, T. Foglizzo, M. Obergaulinger, M. Reichert, M. Bendahman, S. El Hedri and I. Goos (2023), *The impact of rotation and dynamos on the multi-messenger emission of core-collapse supernovae*, SF2A-2023, 479-482

[12] **M. Bugli**, J. Guilet, R. Raynaud, A. Reboul-Salze, P. Barrère, A. Mignone, V. Berta, G. Mattia and L. Del Zanna (2023), *Numerical modeling of dynamos in compact objects: magnetic field amplification and dissipation*, SF2A-2023, 167-168

[13] M. Bendahman, A. Buellet, **M. Bugli** et al. (2023), *Exploiting synergies between neutrino telescopes for the next galactic core-collapse supernova*, RICAP-22, 8th Roma International Conference on Astroparticle Physics, 280, id. 05002

[14] **M. Bugli**, J. Guilet and M. Obergaulinger (2023), *Magnetorotational core-collapse supernovae: the impact of the magnetic field's structure*, IAU Symposium n. 363, 309-313

[15] **M. Bugli**, J. Guilet, T. Foglizzo and M. Obergaulinger (2022), *Probing the central engine of core-collapse supernovae with their multi-messenger emission*, SF2A-2022, 229-234

[16] **M. Bugli** (2022), *Multi-messenger emission from magnetized core-collapse supernovae*, 31st Texas Symposium on Relativistic Astrophysics

[17] M. Bendahman, **M. Bugli** et al. (2021), *Exploring the Potential of Multi-Detector Analyses for Core-Collapse Supernova Neutrino Detection*, 37th International Cosmic Ray Conference, id. 1090

[18] A. Reboul-Salze, J. Guilet, R. Raynaud and **M. Bugli** (2021), *A global model of the magnetorotational instability in proto-neutron stars*, SF2A-2019, 515-519

[19] L. Del Zanna, N. Tomei, **M. Bugli** and N. Bucciantini (2020), *Creation and dissipation of magnetic fields in non-ideal GRMHD simulations*, J. Phys.: Conf. Ser., 1623, 012004

[20] N. Tomei, L. Del Zanna, **M. Bugli** and N. Bucciantini (2020), *Amplification of magnetic fields in accretion discs by GRMHD dynamo*, Memorie della Societa Astronomica Italiana, 91, 307

[21] **M. Bugli** (2018), *ECHO-3DHPC: Relativistic Accretion Disks onto Black Holes*, 26th Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP), 674–681

[22] L. Del Zanna, **M. Bugli** and N. Bucciantini (2014), *High-order Schemes for Non-ideal 3+1 GRMHD: A Study of the Kinematic Dynamo Process in Accretion Tori*, ATRONUM 2013 ASP Conference Series, 488, 217

[23] **M. Bugli**, L. Del Zanna, N. Bucciantini (2014), *Mean Field Dynamo in Thick Disks around Kerr Black Holes: High Order Axisymmetric Simulations*, International Journal of Modern Physics: Conference Series, 28, 1460203

[24] N. Bucciantini, **M. Bugli**, L. Del Zanna (2014), *Dynamo action in thick discs around Kerr black holes: high-order resistive GRMHD simulations*, 40th COSPAR, E1.5-52-14

Doctoral Thesis

M. Bugli (2017), *Non-axisymmetric modes in three-dimensional magnetized tori accreting onto black holes*