

Curriculum Vitae

PERSONAL INFORMATION

Family name, First name: Bugli, Matteo

ORCID ID: [0000-0002-7834-0422](https://orcid.org/0000-0002-7834-0422)

Date of birth: April 25, 1986

Nationality: italian

E-mail: matteo.bugli@iap.fr

Personal webpage: <https://matteobugli.github.io>

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 Conférences*
- 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-messenger 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, L^AT_EX
 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)
8^{ème} 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)
7^{ème} GdR Ondes Gravitationnelles, Meudon, France (contributed)
[26^{ème} 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)
6^{ème} 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)
5^{ème} 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, Málaga, 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 4th-order accurate finite volume method for ideal and resistive classical and special relativistic 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*, ASTRONUM 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*