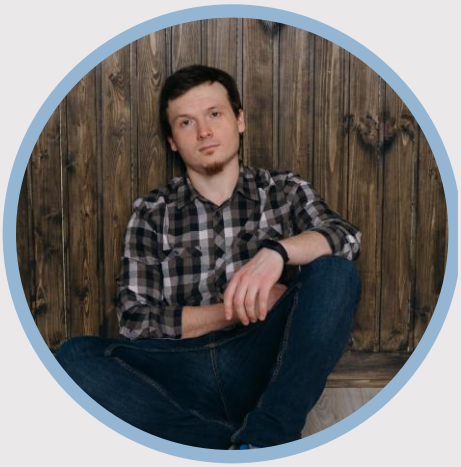

CURRENT POSITION

- Group Leader
  MagBBB Group
- MCSA Postdoctoral Fellow (Keele University, UK)

ResearcherID (Publons):
P-6404-2015
Reserchgate:
www.researchgate.net/profile/Alexander_Pakhomov
ORCID:
0000-0001-8092-4817

CONTACT

WEBSITE:
https://magbbb.com
EMAIL:
sasha_p.bio@mail.ru

LANGUAGES

Udmurt
Native language
Russian
First language
English
Fluently read, written and spoken

Dr. Alexander Pakhomov, PhD

SUMMARY

RESEARCH INTERESTS

- The ecological, behavioural and physiological basis of avian migration
- Animal orientation and navigation

EDUCATION

PhD in Life Sciences - Zoology, 2012 - 2016

Department of Vertebrate Zoology
Faculty of Biology, Lomonosov Moscow State University (Moscow, Russia)
Research Advisor: Dr Ogurtsov Sergey, PhD
Dissertation: Role of the magnetic compass and a magnetic map in choosing of migratory direction by songbird migrants.

Specialist's Degree in Vertebrate zoology, 2007 - 2012

Department of Vertebrate Zoology
Faculty of Biology, Lomonosov Moscow State University (Moscow, Russia)
Research Advisor: Dr Marova Irina, PhD
Thesis title: Orientation of nocturnal migratory birds at sunset and at the beginning of night.

High-School Graduation Diploma, 2005 - 2007

The Advanced Educational Scientific Center (faculty) – Kolmogorov's boarding school of Lomonosov Moscow State University (Moscow, Russia)
Biological class

Middle-School Graduation Diploma, 1997 – 2005

Kijasovo middle school, Kijsovo village (Udmurt Republic, Russia)

ACADEMIC EMPLOYMENT

Group leader, 01/2020 – present
MagBBB Group

MCSA Postdoctoral Fellow (UKRI Guarantee Scheme) (100%), 07/2024 – 06/2026
School of Life Sciences, Keele University, UK

Senior researcher (100%), 05/2022 – 06/2024
Biological Station Rybachy, Zoological Institute of Russian Academy of Sciences, Russia

Researcher (100%), 03/2017 – 05/2022
Biological Station Rybachy, Zoological Institute of Russian Academy of Sciences, Russia

Researcher (50%), 05/2016 – 12/2020
Laboratory of the evolution of sense organs, Sechenov Institute of Evolutionary Physiology& Biochemistry of Russian Academy of Sciences, Saint-Petersburg, Russia

Junior researcher (100%), 05/2015 – 03/2017

Biological Station Rybachy, Zoological Institute of Russian Academy of Sciences, Russia

PUBLICATIONS

Preprints and manuscripts in preparation/under review

2026

1) **Aleksandr Pakhomov***, David Dreyer, Thomas Zechmeister, Henrik Mouritsen, Dmitry Kishkinev. The Role of Magnetic and Celestial Cues in Orientation and Navigation of Red Underwing (Catocala nupta), a European Migratory Moth // bioRxiv **2026**.03.04.709557; doi: https://doi.org/10.64898/2026.03.04.709557.

2025

2) **Aleksandr Pakhomov***, Nazar Shapoval, Anatoly Shapoval, Dmitry Kishkinev. Not All Butterflies Are Monarchs: Compass Systems in the Red Admiral (Vanessa atalanta), a European Diurnal Migrant // bioRxiv **2025**.05.01.651646; doi: https://doi.org/10.1101/2025.05.01.651646

2023

3) **Alexander Pakhomov***, Roberts Jansons, Nazar Shapoval, Fedor Cellarius, Anatoly Shapoval, Oliver Lindecke. Orientation tests and long-term movement phenology establish the red admiral Vanessa atalanta as an applicable model for navigation research in migratory butterflies // **bioRxiv 2023.**09.09.554419; doi: https://doi.org/10.1101/2023.09.09.554419
4) Fyodor Cellarius, Gleb Utvenko, Mikhail Markovets, **Alexander Pakhomov***. Birds are easier to trick: an effect of magnetic field manipulation on migratory orientation of Nathusius' pipistrelle in the circular release box // **bioRxiv 2023**.02.20.529207; doi: https://doi.org/10.1101/2023.02.20.529207
5) Nadezhda Romanova, Gleb Utvenko, Anisia Prokshina, Fyodor Cellarius, Aleksandra Fedorischeva, **Alexander Pakhomov*.** Migratory birds are able to choose the appropriate migratory direction under dim yellow monochromatic light // **bioRxiv 2023**.01.13.523666; doi: https://doi.org/10.1101/2023.01.13.523666

Published (16)

2026

1. **Aleksandr Pakhomov**, Dmitry Kishkinev, **2026**. Insect Migration: A sense of direction // **eLife** 15:e110796.https://doi.org/10.7554/eLife.110796

2025

2. Utvenko G, Gorvat P, Grebenkova A, **Pakhomov A**, Chernetsov N, **2025**. Magnetic orientation of marsh warblers (Acrocephalus palustris) and spotted flycatchers (Muscicapa striata) after simulated crossing of the magnetic equator // **The Journal of Experimental Biology** 228 (3): JEB248169. doi: 10.1242/jeb.248169

2023

1. Bojarinova J., Kavokin K., Cherbunin R., Sannikov D., Fedorishcheva A., **Pakhomov A.**, Chernetsov N, **2023**. Sensitivity threshold of avian magnetic compass to oscillating magnetic field is species-specific // ***Behavioral Ecology and Sociobiology*** 77, 6. doi: 10.1007/s00265-022-03282-7
2. Bojarinova J., Kavokin K., Cherbunin R., Sannikov D., Fedorishcheva A., **Pakhomov A.**, Chernetsov N., **2024**. Oscillating magnetic field does not disrupt orientation in the presence of stellar cues in an avian migrant // **Journal of Ornithology,** 165: 347–354 doi: 10.1007/s10336-023-02129-w
3. Romanova N, Utvenko G,, Prokshina, A., Cellarius F., Fedorischeva A., **Pakhomov A.*, 2023**. Migratory birds are able to choose the appropriate migratory direction under dim yellow narrowband light // **Proceedings of Royal Society B: Biological Sciences** 290:20232499. doi: 10.1098/rspb.2023.2499

2022

4. **Pakhomov A.***, Prokshina A., Cellarius F., Mouritsen H., Chernetsov N., **2022.** Access to the sky near the horizon and stars does not play a crucial role in compass calibration of European songbird migrants // ***The Journal of Experimental Biology*** 225 (16)*:* jeb.243631. doi: https://doi.org/10.1242/jeb.243631

2021

5. Zolotareva A., Utvenko G., Romanova N., **Pakhomov A.**, Chernetsov N., **2021**. Ontogeny of the star compass in birds: pied flycatchers (*Ficedula hypoleuca*) can establish the star compass in spring // ***The Journal of Experimental Biology*** 224(3): jeb.237875. doi: 10.1242/jeb.237875

2020

6. **Pakhomov A.*,** Chernetsov N., **2020**. A hierarchy of compass systems in migratory birds // ***Biological Communications*** 65(3): 262-276. doi: 10.21638/spbu03.2020.306
7. Chernetsov N, **Pakhomov A**, Davydov A, Cellarius F, Mouritsen H, **2020**. No evidence for the use of magnetic declination for migratory navigation in two songbird species // ***PLOS ONE*** 15(4): e0232136. doi: 10.1371/journal.pone.023213
8. Bojarinova J., Kavokin K., **Pakhomov A.**, Cherbunin R., Anashina A., Erokhina M., Ershova M., Chernetsov N., **2020**. Magnetic compass of garden warblers is not affected by oscillating magnetic fields applied to their eyes // ***Scientific Reports*** 10: 3473. doi: 10.1038/s41598-020-60383-x

2018

9. **Pakhomov A.**, Anashina A., Heyers D., Kobylkov D., Mouritsen H., Chernetsov N., **2018**. Magnetic map navigation requires input from the trigeminal nerve in a migratory songbird // ***Scientific Reports*** 8: 11975. doi: 10.1038/s41598-018-30477-8

2017

10. Chernetsov N., **Pakhomov A.**, Kobylkov D., Kishkinev D., Holland A. R., Mouritsen H., **2017**. Migratory Eurasian reed warblers can use magnetic declination to solve the longitude problem // ***Current Biology***, 27 (17): 2647–2651. doi: 10.1016/j.cub.2017.07.024
11. **Pakhomov A***, Bojarinova J, Cherbunin R, Chetverikova R, Grigoryev PS, Kavokin K, Kobylkov D, Lubkovskaja R, Chernetsov N., **2017**. Very weak oscillating magnetic field disrupts the magnetic compass of songbird migrants // ***Journal of Royal Society Interface***, 14 (133): 20170364. doi: 10.1098/rsif.2017.0364
12. **Pakhomov A.**, Anashina A., Chernetsov N., **2017**. Further evidence of a time-independent stellar compass in a night-migrating songbird // ***Behavioral Ecology and Sociobiology***, 71 (3): 48. doi: 10.1007/s00265-017-2279-3

2015

13. Kishkinev D., Chernetsov N., **Pakhomov A.**, Heyers D., Mouritsen H., **2015**. Eurasian reed warblers compensate for virtual magnetic displacement // ***Current Biology***, 25 (19): R822–R824. doi: 10.1016/j.cub.2015.08.01

2014

14. **Pakhomov A.***, Chernetsov N., **2014**. Early evening activity of migratory Garden Warbler Sylvia borin: compass calibration activity? // ***Journal of Ornithology***, 155 (3): 621-630. doi: 10.1007/s10336-014-1044-x
15. Kavokin K., Chernetsov N., **Pakhomov A.**, Bojarinova J., Kobylkov D., Namozov B., **2014**. Magnetic orientation of garden warblers (Sylvia borin) under 1.4 MHz radiofrequency magnetic field // ***Journal of Royal Society Interface***, 11 (97): 20140451. doi: 10.1098/rsif.2014.0451

* *correspondence author*

RESEARCH FUNDINGS, AWARDS AND FELLOWSHIPS

Fellowships

- **Marie Skłodowska-Curie Actions Postdoctoral Fellowship (UKRI Guarantee Scheme), 2024-2026.**
  Project: Magnetoreception in migratory insects: the magnetic compass and the magnetic map in European migratory Lepidoptera (EP/Y036239/1)
  Keele University, UK. Total: 200 000 EUR

Research grants

as a Principal Investigator or co-PI

- **Research Grant for Young Investigators, Russian Science Foundation, 2021 – 2023**
  Project: Magnetoreception in mammals: the magnetic compass of migratory bats and its position in a hierarchy of compass systems.
  PI: **Alexander Pakhomov**. Total is 3 000 000 RUB (equiv. to 48 000 EUR)
- **Research Grant, Russian Foundation for Basic Research, 2020 – 2022**
  Project: Light-dependent magnetoreception in songbird migrants: true or false?
  PI: **Alexander Pakhomov**. Total is 3 000 000 RUB (equiv. to 48 000 EUR)
- **Research Grant, Russian Foundation for Basic Research, 2018-2020**
  Project: Calibration of compass systems in migratory birds.
  PI: **Nikita Chernetsov (**PI**), Alexander Pakhomov** (co-PI)
  Amount: 30 000€
- **Publication Grant, Russian Foundation for Basic Research, 2019 – 2020**
  Project: A hierarchy of compass systems in migratory birds.
  PI: **Alexander Pakhomov**. Total is 300 000 RUB (equiv. to 4 800 EUR)

as a main participant

- **Research Grant, Russian Science Foundation, 2016-2020**

Project: A mechanism of magnetic compass in migratory birds.
PI: Nikita Chernetsov
Amount: 250 000€

- **Research Grant, Russian Science Foundation, 2017-2019**
  Project: Sensory systems underlying short- and long-distance navigation in birds.
  PI: Dmitry Kishkinev
  Amount: 250 000€
- **Research Grant, Russian Foundation for Basic Research, 2015-2017**
  Project: Impact of oscillating magnetic fields of different frequency on orientation behaviour in passerines
  PI: Nikita Chernetsov
  Amount: 30 000€
- **Research Grant, Russian Foundation for Basic Research, 2015**
  Project: Magnetic declination as a part of a navigational map in migratory birds.
  PI: Nikita Chernetsov, **Alexander Pakhomov (co-applicant)**
  Amount: 5 000€
- **Research Grant, Russian Foundation for Basic Research, 2014**
  Project: Stellar compass in migratory birds.
  PI: Nikita Chernetsov**, Alexander Pakhomov (co-applicant)**
  Amount: 5 000€
- **Research Grant, Russian Foundation for Basic Research, 2014 – 2015**
  Project: Geomagnetic orientation of anuran amphibians.
  PI: Vladimir Shakhparonov
  Amount: 14 000€
- **Research Grant, Scientific program of SPbSC RAS, 2014**
  Project: A mechanism of magnetic compass in migratory birds.
  PI: Nikita Chernetsov
  Amount: 3 000€
- **Research Grant, Russian Foundation for Basic Research, 2012 – 2014**
  Project: A hierarchy and calibration of compass systems in migratory birds.
  PI: Nikita Chernetsov
  Amount: 30000€

Other grants and awards

- **Award from the Government of Kaliningrad region for academic excellence/performance, 2020.**
  Sponsor: Government of Kaliningrad region, Russia.
- **Attendance and Travel Grants**

2018: Sponsor: International Society for Neuroethology
Event: International Congress of Neuroethology (Brisbane, Australia). Amount: 1000 AUD
2022: Sponsor: Leventis Conservation Foundation and Oppenheimer Generations Foundation
Event: International Ornithological Congress (Durban, South Africa/online). Amount: $360

- **Government stipend for academic/educational excellence/performance (for PhD students), Lomonosov Moscow State University, Russia, 2013.**
  Sponsor: Ministry of High Education and Science of Russian Federation

CONFERENCES, SCHOOLS, AND WORKSHOPS

2026

- ASAB Spring 2026 Conference, Bristol, UK, 23-25 March 2026. **Poster: Pakhomov A.** The Role of Magnetic and Celestial Cues in Orientation Behaviour of European Migratory Lepidoptera.

2025

- Biologists@100 Conference (100 year of the Company of Biologists), Liverpool, UK, 24-27 March 2025. **Poster: Pakhomov A.** Not all butterflies are monarchs: Compass systems in European migratory butterflies

2024

- The 11th International Conference on Animal Navigation, Royal Holloway College, Egham, UK, 12-14 April 2023. **Poster:** Jansons R (presenter), **Pakhomov A** (design). Red admiral Vanessa atalanta as a new model species to study orientation and navigation in European diurnal migratory butterflies

2023

- 2nd All-Russian Ornithological Congress, St. Petersburg, Russia, February 2023. **Poster: Pakhomov A.** (presenter), Romanova N. (design). Magnetic orientation of migratory birds under low-intensity monochromatic light (in Russian).

2022

- 22th International Ornithological Congress, Durban, South Africa, 15-19 August 2022. **Oral talk: Pakhomov A.** Two sensitivity peaks of the avian magnetic compass to monochromatic light: true or false?

2019

- 2nd Autumn school for students and young researchers "Animal navigation and orientation", Zvenigorod biological station MSU, Russia, 5 – 6 October 2019. **Oral talk: A. Pakhomov**. Orientation and navigation of bats and butterflies (in Russian).
- 12th Conference of the European Ornithologists' Union (EOU 2019), Cluj Napoca, Romania, 26-30 August 2019. **Oral talk: Pakhomov A.**, Anashina A., Chernetsov N. No evidence for compass calibration in European songbird migrants during both migratory seasons.
- 10th International Animal Navigation Conference **«Orientation & Navigation Birds, Humans & Other Animals» (RIN16), 10-12 April 2019, Egham, UK. Poster: Pakhomov A, Kobylkov D, Mukhin A.** Do songbird migrants use the magnetic field during the non-migratory season

2018

- 1st All-Russian Ornithological Congress, Tver, Russia, 29 January - 4 February 2018. **Oral talk: Pakhomov A**. A hierarchy of compass systems in migratory birds (in Russian).
- International Congress of Neuroethology, Brisbane, Australia, 15-20 July 2018. **Oral talk: A. Pakhomov**, A. Anashina, D. Heyers, D. Kobylkov, H. Mouritsen, N. Chernetsov Magnetic map navigation requires input from the trigeminal nerve in a migratory songbird.

2017

- VI All-Russian Animal Behaviour Conference, 4-7 December 2017, Moscow, Russia. **Oral talk**: **A. Pakhomov**, K. Kavokin, J. Bojarinova, R. Cherbunin, R. Chenverikova, N. Chernetsov. The disruptive effect of weak oscillating magnetic fields on magnetic orientation in songbird migrants (in Russian).
- 11th Conference of the European Ornithologists' Union, Turku, Finland, 18-23 August 2017. **Oral talk**: **A. Pakhomov**, A. Anashina, D. Heyers, H. Mouritsen, N. Chernetsov. The ophthalmic branch of the trigeminal nerve provides magnetic map information in a migratory songbird.

2016

- 9th International Animal Navigation Conference «**Orientation & Navigation Birds, Humans & Other Animals» (RIN16), 13-15 April 2016, Egham, UK.**

Poster: **A. Pakhomov**, N. Chernetsov. The magnetic compass of long-distance songbird migrant, garden warbler *Sylvia borin*, is not calibrated by celestial cues**.**

2015

- International conference "Energetics and annual cycles of birds (in memory of V. R. Dolnik)", ZBS MSU, Russia, 24-29 September 2015**. Oral talk**: **A. Pakhomov**. Magnetic map in migrating birds (in Russian).
- 10th Conference of the European Ornithologists' Union, Spain, Badajoz, 24-28 August 2015. **Oral talk**: **Pakhomov A.**, Chernetsov N., Kobylkov D., Kishkinev D., Holland A. R., Mouritsen H. Magnetic declination provides an east-west navigational map of a migratory songbird coordinate in the navigational map of a migratory songbird.

2014

- Scientific conference "Animal orientation and navigation", Moscow, Russia, 13-16 October 2014. **Oral talk**: **A. Pakhomov**. Stellar compass of songbird migrants (in Russian).
- 1st Autumn school for students and young researchers "Animal navigation and orientation", Zvenigorod biological station MSU, Russia., 11-12 October 2014. **Oral talk**: A. Pakhomov. Problems of a hierarchy of compass systems in migratory birds (in Russian).

2012

- V All-Russian Animal Behaviour Conference, Moscow, Russia, 20 - 23 November 2012. **Oral talk**: **A. Pakhomov**, N. Chernetsov. Locomotor activity and orientation of nocturnal songbird migrants at sunset and the beginning of the night (in Russian).
- International course for postgraduate student "Sensory ecology", Sweden, Lund University, 22 September-6 October 2012. **Poster: A. Pakhomov**, N. Chernetsov. Early evening activity of migratory Garden Warbler *Sylvia borin*: compass calibration activity?

2011

- 9th Conference of the European Ornithologists' Union, Riga, Latvia, 27 - 30 August 2011. **Poster: A. Pakhomov**, N. Chernetsov. Early evening activity of migratory Garden Warbler *Sylvia borin*: compass calibration activity?

STUDENT MENTORING AND TEACHING

- **Undergraduate students**

Lomonosov Moscow State University, Faculty of Biology (Moscow, Russia)

- **Maria Ershova (2018 - 2019)**. Effects of weak radio-frequency magnetic fields on migratory direction in garden warblers *Sylvia borin,* a bachelor's degree (2019).
- **Fedor Cellarius (2018 - 2020)**. Magnetic declination as a part of a navigational map in migratory birds by the example of garden warbler *Sylvia borin,* a bachelor's degree (2020).
- **Fedor Cellarius (2020 - 2022)**. Navigation and orientation of migratory bats by the example of Nathusius' pipistrelle *Pipistrellus nathusii*, a master's degree (2022).
- **Alexandra Fedorisheva (2021 - 2022)**. Magnetic field as an abiotic factor controlling the behaviour of songbirds during migration, a bachelor's degree (2022).
- **Alexandra Fedorisheva (2022 - 2024)**. Specificity of disruptive effect of weak oscillating magnetic fields on migratory behaviour of garden warblers *Sylvia borin*, a master's degree (2024).
- **Anisia Prokshina (2022 - 2023).** Effect of yellow monochromatic light on magnetic orientation of European pied flycatchers *Ficedula hypoleuca*, a master's degree (2023).
- **Anastasia Grebenkova (2022-2024).** Magnetic orientation of marsh warblers *Acrocephalus palustris* after a simulated crossing of the magnetic equator, a bachelor's degree (2024).

Herzen State Pedagogical University, Faculty of Biology (St. Petersburg, Russia)

- Anisia Prokshina (2020 - 2021). A hierarchy of compass systems in migratory songbirds by the example of garden warbler *Sylvia borin*, a bachelor's degree (2021).

Moscow State Pedagogical University, Faculty of Biology (Moscow, Russia)

- Gleb Utvenko (2019 – 2021). Ontogeny of the star compass in nocturnal songbirds by the example of Pied flycatchers *Ficedula hyppoleuca*, a bachelor's degree (2021).
- Nadezhda Romanova (2021 - 2022). Light-dependent magnetoreception of nocturnal songbird migrants: a replication study in Pied flycatchers *Ficedula hypoleuca*, a bachelor's degree (2022).

Saint-Pedersburg State University, Faculty of Biology (St. Petersburg, Russia)

- Gleb Utvenko (2022 – 2023). A study of migratory bats' orientation in the modified circular release box by the example of Nathusius pipistrelle, a master's degree (2023).

- **Teaching**

- practical training on the course of Vertebrate Zoology at Lomonosov Moscow State University, Moscow, Russia (2012-2013)
- lectures on bird orientation and navigation at Immanuel Kant Baltic Federal University, Kaliningrad, Russia (2015)

MANAGEMENT SKILLS

- **Management**

1. Experiment schedule
2. Grant managment
3. Student hiring
4. Student supervision

- **Administrative management**

1. an acting director, Biological Station Rybachy (Kaliningrad region, Russsia), 1-2 months/year, 2017-2024
2. a head of the laboratory deparment, Biological Station Rybachy (Kaliningrad region, Russsia), 2020 -2024

OTHER SKILLS, INFORMATICS, EXPIRIENCE

- Operating systems: Windows OS, Linux (Ubuntu, Raspbian)
- Statistical software: R studio, Oriana, Anaconda (for Python)
- Programming languages: R (basic level), C++ (basic level for Arduino projects), Python (basic level)
- Office automation software, reference managers and project management tools: Mendeley, JabRef, Docear (mind maps), SciNote (electronic lab notebook), Basecamp
- Website creation (html, css; CMS – Wordpress and Drupal) and uploading (FileZilla FTP Client)
- Photo/picture editing, 2D animation (Adobe Illustrator, Abobe Lightroom, Gimp, Inkscape, Krita)
- Video editing, 3D modelling and animation, basic and statndart levels (Adobe Premiere Pro, DaVinci, Blender 3D, OpenSCAD, Autodesk Fusion 360)
- Design and creating of DIY-experimental setups (wood/metal/plastic working, electrical engineering, 3D printing)

REVIEWER FOR FUNDING AGENCIES

- no data

REVIEWER FOR SCIENTIFIC JOURNALS

- Journal of Comparative Physiology A
- BioEssay
- Biological Bulletin
- BMS Zoology
- Biology Open
- Scientific Reports
- Behavioural Ecology and Sociobiology
- Current Biology
- Journal of Experimental Biology
- Proceedings of Royal Society B: Biological Sciences

SERVICE

- **Conference/panel organization**

- Co-organization, registration forms, program, website. 1st and 2nd Autumn school for students and early career researchers “Animal navigation and orientation”, October 2014 and 2019, Zvenigorod biological station MSU, Russia.
- Symposium Organizer (with Kirill Kavokin), “The mechanisms of orientation and navigation in migratory birds”, February 2023, 2nd All-Russian Ornithological Congress, St. Petersburg, Russia.

- **Web design and administration**
  - Website of the Department of Vertebrate Zoology, Faculty of Biology, Lomonosov Moscow State University, 2011 – 2012.
  - Website of the 1st and 2nd Autumn school for students and early career researchers “Animal navigation and orientation” (Zvenigorod biological station, MSU, Russia), 2014 and 2019.
  - Website of the MagBBB Group (2023 – present).