

Curriculum vitae

GENERAL INFORMATION

Full Name: **Andrey Rybakov**
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ResearcherID: **W-6960-2019**
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Date of Birth: **30th October 1997**
Languages: **English, Russian**

EDUCATION

2021-now	PhD. ICMol, University of Valencia. Supervisor: Prof. Eugenio Coronado. Valencia, Spain.
2019-2021	Master in Applied Mathematics and Physics (with Honors). Moscow Institute of Physics and Technology. Supervisor: Prof. Andrew Palii. Dolgoprudny, Russia.
2015-2019	BSc in Applied Mathematics and Physics (with Honors). Moscow Institute of Physics and Technology. Supervisor: Prof. Andrew Palii. Dolgoprudny, Russia.

EXPERIENCE

12.2023-01.2024	Research visit. Department of Physics, University of Oviedo. Oviedo, Spain.
2021-now	Pre-doctoral Fellow. ICMol, University of Valencia. Valencia, Spain.
2018-2021	Research assistant. Laboratory of Molecular Magnetic Nanomaterials, Institute of Problems of Chemical Physics. Chernogolovka, Russia.

FELLOWSHIPS AND AWARDS

2021-now	GRISOLIA pre-doctoral fellowship. Valencian Regional Government. Spain.
2019	Scholarship named after N.N. Semenov. Moscow Institute of Physics and Technology. Russia.
2016	Excellence scholarship. Foundation for the development of innovative education in the field of natural sciences. Russia.

OPEN SOURCE PROJECTS

2024-now	Magnopy. Magnons with python.
2023-now	Wulfric. Crystal, Lattice, Atoms, K-path..
2022-now	RAD-tools. Sandbox (mainly condense matter plotting).

ORAL PRESENTATIONS

16-20 September 2024	Magnons on an Island 2024. Relevance of the higher harmonics of the spiral cone magnetic ground states. Texel, Netherlands.
19-24 May 2024	17th European School on Molecular Nanoscience (ESMolNa2024). Twisted magnetic multilayers of CrSBr. Cuenca, Spain.
6-10 March 2023	MATSUS23 and Sustainable Technology Forum València (STECH23). Modelling the dynamics of spin waves in 2D limit. Valencia, Spain.
23-29 November 2020	63 All-Russian Scientific Conference in Moscow Institute of Physics and Technology. Double Exchange Clusters as a New Class of Cells for Quantum Cellular Automata with Additional Functions. Dolgoprudny, Russia.
18-24 November 2019	62 All-Russian Scientific Conference in Moscow Institute of Physics and Technology. Comparison of Theoretical Models of Cells for Molecular Quantum Cellular Automata Based on Mixed Valence Molecules. Dolgoprudny, Russia.

POSTER PRESENTATIONS

- 5-8 April 2022 **European Conference on Molecular Spintronics.** Magnon straintronics in the 2D van der Waals ferromagnet CrSBr. Dortmund, Germany.
- 20-24 June 2022 **Frontiers in Quantum Materials and Devices.** Magnon straintronics in the 2D van der Waals ferromagnet CrSBr. Valencia, Spain.

SCHOOLS

- 18-22 July 2022 **4th International Advanced School on Magnonics (MAGNETOFON).** Porto, Portugal.
- 16-20 May 2022 **Wannier 2022 Summer School.** Trieste, Italy.
- 2-6 October 2023 **First steps with SIESTA: from zero to hero.** Online.

PUBLICATIONS

- Boix-Constant C., Rybakov A., Miranda-Pérez C., Martínez-Carracedo G., Ferrer J., Mañas-Valero S., Coronado E. *Programmable Magnetic Hysteresis in Orthogonally-Twisted 2D CrSBr Magnets via Stacking Engineering* **Advanced Materials**, **2025**. , , .
[10.1002/adma.202415774](https://doi.org/10.1002/adma.202415774)
- Marino M., Rivero-Carracedo G., Rybakov A., Baldoví J. J., Fratesi G. *Chemical tuning of magnons in NiO(001) by Fe-phthalocyanine adsorption* **Physical Chemistry Chemical Physics**, **2025**. 27, 12, 6249-6254.
[10.1039/d4cp04547e](https://doi.org/10.1039/d4cp04547e)
- Ruiz A. M., Rivero-Carracedo G., Rybakov A., Dey S., Baldoví J. J. *Towards molecular controlled magnonics* **Nanoscale Advances**, **2024**. 6, 13, 3320-3328.
[10.1039/d4na00230j](https://doi.org/10.1039/d4na00230j)
- Rivero-Carracedo G., Rybakov A., Baldoví J. J. *Magnon Sensing of NO, NO2 and NH3 Gas Capture on CrSBr Monolayer* **Chemistry - A European Journal**, **2024**. , , .
[10.1002/chem.202401092](https://doi.org/10.1002/chem.202401092)
- Rybakov A., Boix-Constant C., Alba Venero D., van der Zant H. S. J., Mañas-Valero S., Coronado E. *Probing Short-Range Correlations in the van der Waals Magnet CrSBr by Small-Angle Neutron Scattering* **Small Science**, **2024**. , , .
doi.org/10.1002/smssc.202400244
- Ruiz A. M., Esteras D. L., Rybakov A., Baldoví J. J. *Tailoring spin waves in 2D transition metal phosphorus trichalcogenides via atomic-layer substitution* **Dalton Transactions**, **2022**. 51, 44, 16816–16823.
[10.1039/D2DT02482A](https://doi.org/10.1039/D2DT02482A)
- Boix-Constant C., Mañas-Valero S., Ruiz A. M., Rybakov A., Konieczny K. A., Pillet S., Baldoví J. J., Coronado E. *Probing the Spin Dimensionality in Single-Layer CrSBr Van Der Waals Heterostructures by Magneto-Transport Measurements* **Advanced Materials**, **2022**. 34, 41, 2204940.
[10.1002/adma.202204940](https://doi.org/10.1002/adma.202204940)
- Esteras D. L., Rybakov A., Ruiz A. M., Baldoví J. J. *Magnon straintronics in the 2D van der Waals ferromagnet CrSBr from first-principles* **Nano Letters**, **2022**. 22, 21, 8771–8778.
[10.1021/acs.nanolett.2c02863](https://doi.org/10.1021/acs.nanolett.2c02863)
- Palii A., Clemente-Juan J. M., Rybakov A., Aldoshin S., Tsukerblat B. *Toward multifunctional molecular cells for quantum cellular automata: exploitation of interconnected charge and spin degrees of freedom* **Physical Chemistry Chemical Physics**, **2021**. 23, 26, 14511–14528.
[10.1039/D1CP00444A](https://doi.org/10.1039/D1CP00444A)

- Palii A., Clemente-Juan J. M., Rybakov A., Aldoshin S., Tsukerblat B. *Exploration of the double exchange in quantum cellular automata: proposal for a new class of cells* **Chemical Communications**, **2020**. 56, 73, 10682–10685.
[10.1039/D0CC04135A](https://doi.org/10.1039/D0CC04135A)
- Palii A., Clemente-Juan J. M., Aldoshin S., Korchagin D., Rybakov A., Zilberg S., Tsukerblat B. *Mixed-valence magnetic molecular cell for quantum cellular automata: Prospects of designing multifunctional devices through exploration of double exchange* **The Journal of Physical Chemistry C**, **2020**. 124, 46, 25602–25614.
[10.1021/acs.jpcc.0c08186](https://doi.org/10.1021/acs.jpcc.0c08186)
- Palii A., Rybakov A., Aldoshin S., Tsukerblat B. *Semiclassical versus quantum-mechanical vibronic approach in the analysis of the functional characteristics of molecular quantum cellular automata* **Physical Chemistry Chemical Physics**, **2019**. 21, 30, 16751–16761.
[10.1039/C9CP02516B](https://doi.org/10.1039/C9CP02516B)
- Palii A., Zilberg S., Rybakov A., Tsukerblat B. *Double-dimeric versus tetrameric cells for quantum cellular automata: A semiempirical approach to evaluation of cell–cell responses combined with quantum-chemical modeling of molecular structures* **The Journal of Physical Chemistry C**, **2019**. 123, 36, 22614–22623.
[10.1021/acs.jpcc.9b05942](https://doi.org/10.1021/acs.jpcc.9b05942)