Резюме профессора Артёма Р. Оганова, FRSC, MAE
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Личная информация

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Дата рождения: 3 марта 1975 г.
Семейное положение: Женат, четверо детей (дочери Жанна и Адриана, сыновья Лев и Александр).
Языки: Родной русский, свободный английский, средний уровень французского, базовый итальянский и немецкий.

Профессиональный опыт

2024–н.в.: Заслуженный профессор, Сколковский институт науки и технологий, Россия.
2015–2024: Профессор, Сколковский институт науки и технологий, Россия.
2021–2024: Заведующий лабораторией кристаллохимии, Институт геохимии и аналитической химии им. В.И. Вернадского РАН, Москва, Россия.
2020–2024: Профессор, Университет МИСИС, Москва, Россия (заведующий кафедрой полупроводников и диэлектриков, 2021–2024).
2017–2020: Основатель и директор, Международный центр дизайна материалов, Северо-Западный политехнический университет, Сиань, Китай.
2013–2020: Заведующий лабораторией и профессор, Московский физико-технический институт, Россия.
2008–2017: Профессор (2010–2017) и доцент (2008–2010), Факультет наук о Земле и Институт передовых вычислительных наук, Университет Стоуни-Брук, США.
2007: Хабилитация, Факультет материалов, ETH Zurich, Швейцария (признано как доктор физико-математических наук, высшая учёная степень в России, 2016).
2003–2008: Старший научный сотрудник (2003–2007) и приват-доцент (2007–2008), Факультет материалов, ETH Zurich, Швейцария.
2002–2003: Постдок, Университетский колледж Лондона, Великобритания.

Образование

2002: Ph.D. по кристаллографии, Университетский колледж Лондона, Великобритания.
1997: диплом по кристаллографии (с отличием), Геологический факультет, Московский государственный университет, Россия.

Научные публикации

Публикации: 371 статья, включая 5 в *Nature* и 2 в *Science*, а также главы в книгах.
Цитирования:

- Google Scholar: суммарная цитируемость 42400, h-индекс = 98.
- Web of Science: суммарная цитируемость 30682, h-индекс = 84.
  Книги: 2 коллективные монографии по вычислительному материаловедению, 1 коллективная монография по истории Земли, 1 научно-популярная книга по химии (бестселлер).
  Приглашённые лекции: 557 выступления, включая 89 пленарных и ключевых докладов на международных конференциях.

Основные награды и отличия

2025:

- Член ученого совета, International Core Academy of Sciences and Humanities.
- Премия *Voice: Главные лица* (представитель премии *ВЫЗОВ*).

2024:

- Highly Cited Researcher Award (Clarivate Analytics).
- Избран Distinguished Professor, Сколковский институт науки и технологий.
- Премия *Тянь-Шань* для иностранных экспертов (провинция Синьцзян, Китай).
- Distinguished Scientist of the President's International Fellow Initiative (PIFI), Китайская академия наук.
- Избранный член International Core Academy of Sciences and Humanities.
- Премия *Знание* (за популяризацию науки и вклад в образование).

2023: Национальная премия за популяризацию науки (*"За верность науке"*).
2022: Highly Cited Researcher Award (Clarivate Analytics).
2020: Fellow of the American Physical Society и Royal Society of Chemistry (FRSC).
2019–н.в.: Ежегодно входит в топ-2% самых цитируемых учёных (Elsevier).
2019: Премия Дружбы правительства Китая.
2017: Премия Джорджа Гамова, премия *Согласие*, член Academia Europaea (MAE).
2016: Russian Highly Cited Researcher Award (химия, Clarivate Analytics).
2015: Japan Society for the Promotion of Science Invitation Fellow.
2013: Fellow of the Mineralogical Society of America.
2007: Медаль за научные достижения, Европейское минералогическое общество.
2004: Премия European High-Pressure Research Group.

2003: Премия для молодых учёных, Европейский союз наук о Земле.
2002: Премия Президента Лондонского Геологического общества.

Профессиональная деятельность

Редактор в журналах:

- Исполнительный редактор по химии журнала *The Innovation* (IF > 30).
- Член редколлегий: *Matter at Radiation and Extremes*, *Crystals*, *Geochemistry International*.
- Бывший член редколлегий: *Scientific Reports* (2006–2024), *Journal of Superhard Materials* (2009–2022), ассоциированный редактор *American Mineralogist* (2006–2010).

Руководящие должности:

- Председатель научного комитета Национальной премии в области будущих технологий *ВЫЗОВ* (2023–н.в.).
- Сопредседатель жюри премии *Sustainable Development Young Scientist Award* (2024).
- Член научно-технического совета корпорации *Роснано* (2021–н.в.).
- Член учёного совета Минералогического музея им. А.Е. Ферсмана РАН (2016–н.в.).
- Член Комиссии по популяризации науки при РАН (2025–н.в.).
- Ассоциированный член комиссии по вычислительной физике, Международный союз теоретической и прикладной физики (2024–2026).
- Комиссия по кристаллографии материалов IUCr: консультант (2017–2023), основатель и председатель (2011–2017).
- Член Совета по науке и образованию при Президенте РФ (2017–2020).

Организация конференций:
Организовал 22 международных воркшопа по предсказанию кристаллических структур (Франция, Китай, Индия, Канада, США, Швейцария, Италия, Иран, Россия). Организовал и председательствовал на десятках симпозиумов. Сопредседатель двух панелей на Всемирном экономическом форуме (Далянь, июнь 2017).

Ключевые научные достижения

- Решение задачи предсказания кристаллических структур: создал алгоритм **USPEX**, широко используемый в материаловедении, химии, физике и науках о Земле.

- Открытие новых фаз высокого давления, включая **новые аллотропы** элементов, **экзотические соединения** и рекордные высокотемпературные **сверхпроводники**.
- Предсказание новых земле- и планетообразующих материалов: **$MgSiO_3$ пост-перовскит**, новые фазы оксидов, карбонатов, силикатов, химия системы **C-H-N-O** под давлением.
- **Предсказание вероятных молекул** с помощью эволюционной глобальной оптимизации и разработка концепции *"магических молекул"*.
- Предсказание новых **сверхтвёрдых**, **термоэлектрических**, **термобарьерных**, **нелинейно-оптических** и других материалов.
- Уточнение термохимических и спектроскопических шкал **электроотрицательности**. Расширение концепции электроотрицательности на высокие давления и определение электроотрицательностей и химической твёрдости элементов под давлением.

В масс-медиа

- Участие в документальных фильмах: *Наблюдая за полетом мысли* (реж. В. Герчиков, 2017), *Новый элемент в русской таблице* (реж. Е. Тухарели, 2019).
- Документальные фильмы об А.Р. Оганове: *Цвет кристалла* (реж. В. Герчиков, 2012), *Made by Russians* (реж. Л. Парфёнов, 2015), *Дом учёных: Артём Оганов* (реж. Н. Попова, 2018), *Крутая история: Возвращение профессора* (реж. Т. Миткова, 2018), *Дети XX века: Артем Оганов* (режиссер А. Черкасов, 2022).
- Включён в списки самых влиятельных российских учёных по версии *Russian Newsweek* (2008), *Forbes Россия* (2011), *Русский репортёр* (2014). Включен в список самых влиятельных россиян по версии *GQ* (2019).

Профессора, вышедшие из моей лаборатории:

• Yanming Ma (постдок в 2006-2008, сейчас академик Китайской академии наук и ректор Zhejiang University, Китай).
• Qiang Zhu (аспирант в 2009-2013, сейчас доцент в Univ. North Carolina Charlotte, США).
• Maribel Nunez Valdez (2015-2016, сейчас профессор в Университете Франкфурта, Германия).
• Andriy O. Lyakhov (постдок в 2007-2011, затем Research Assistant Professor в Университете Стоуни-Брук, США).
• Yu Xie (аспирант в 2007-2010, сейчас профессор в Jilin University, Китай).
• Fei Qi (постдок в 2013-2015, сейчас доцент в Xidian University, Китай).
• Qinggao Wang (постдок в 2013-2016, сейчас Professor at Henan University, Китай).
• Xiaohu Yu (постдок в 2013-2015, сейчас доцент в Henan Normal University, Китай).
• Huafeng Dong (постдок в 2013-2015, сейчас профессор в Guangdong University of Technology, Китай).
• Xiang-Feng Zhou (постдок в 2012-2015, сейчас профессор в Yanshan University, Китай).

• Dongxu Li (visiting scientist в 2013-2014, сейчас доцент, Huaqiao University, Китай).
• Qianku Hu (visiting scientist в 2013-2014, сейчас Asst. Prof. at Henan Polytechnic University, Китай).
• Xiao Dong (visiting PhD student в 2012-2014, сейчас профессор в at Nankai University, Китай).
• Qingfeng Zeng (visiting scientist в 2011-2012, сейчас доцент в Northwestern Polytechnical University, Китай).
• Chaohao Hu (visiting scientist в 2011-2012, сейчас профессор в Guilin University of Electronic Technology, Китай).
• Weiwei Zhang (visiting scientist в 2011-2013, сейчас профессор в China Agricultural University).
• Feiwu Zhang (аспирант в 2005-2008, сейчас профессор в Institute of Geochemistry, Chinese Acad. Sci.).
• Haiyang Niu (visiting PhD student в 2014, затем постдок в 2015-2016, сейчас профессор в Northwestern Polytechnical University, Китай).
• Alexander Kvashnin (постдок в 2015-2021, сейчас Full Professor at Skoltech).
• Congwei Xie (аспирант в 2015-2019, сейчас профессор в Xinjiang Technical Institute of Physics and Chemistry, Китай).

Кандидатские диссертации, защищенные под моим руководством: Dmitrii Semenok (2018-2022), Tao Fan (2018-2022), Zahed Allahyari (2016-2020), Christian Tantardini (2018-2020), Valery Roizen (2015-2019), Congwei Xie (2015-2019), Oleg Feya (2014-2019), Ivan Kruglov (2014-2018), Jin Zhang (2014-2017), Mahdi Davari (2013-2017), Shengnan Wang (2013-2016), Guangrui Qian (2011-2015), Qiang Zhu (2009-2013), Yu Xie (2007-2010), Feiwu Zhang (2005-2008), Colin W. Glass (2006-2009), Donat Adams (2004-2007), Kai H. Hassdenteufel (2003-2006), Daniel Y. Jung (2004-2008).

Докторские диссертации, защищенные под моим руководством: Александр Квашнин (2021).

Профили в научных базах данных:

ORCID: https://orcid.org/0000-0001-7082-9728

Google Scholar: https://scholar.google.com/citations?user=PqAlzTcAAAAJ&hl=en

Web of Science: https://www.webofscience.com/wos/author/record/O-8234-2019

Researchgate: https://www.researchgate.net/profile/Artem-Oganov

Scopus: https://www.scopus.com/authid/detail.uri?authorId=6701334785

SciProfiles: https://sciprofiles.com/profile/2219577

Colab.ws: https://colab.ws/researchers/R-35BD7-0CB5B-OQ30X

Список публикаций Артема Р. Оганова

КНИГИ

1. **Oganov, A.R.** (Editor). *Modern Methods of Crystal Structure Prediction*. Berlin: Wiley-VCH, 2010. ISBN: 978-3-527-40939-6.

2. **Oganov, A.R., Saleh, G., Kvashnin, A.G.** (Editors). *Computational Materials Discovery*. Royal Society of Chemistry, 2018. ISBN: 978-1-78262-961-0.
3. **Kuzmin, M.I., Yarmolyuk, V.V., Gladkochub, D.P., Goryachev, N.A., Derevyanko, A.P., Didenko, A.N., Donskaya, T.V., Kravchinsky, V.A., Oganov, A.R., Pisarevsky, S.A.** *Geological Evolution of the Earth: From Space Dust to the Home of Mankind*. Academic Publishing House "Geo", Novosibirsk, 2021. ISSN: 2686-9993. (In Russian).
4. **Oganov, A.R.** *Chemistry*. AST Publishing House, Moscow, 2022. (Popular science book, in Russian). ISBN: 978-5-17-145181-3.

ОБЗОРЫ И ГЛАВЫ В КНИГАХ

1. **Oganov, A.R., Brodholt, J.P., Price, G.D.** *Ab initio theory of thermoelasticity and phase transitions in minerals*. EMU Notes in Mineralogy, Vol. 4 ('Energy Modelling in Minerals', edited by C.M. Gramaccioli), pp. 83–170, 2002.

2. **Oganov, A.R.** *Theory of Minerals at High and Ultrahigh Pressures: Structure, Properties, Dynamics, and Phase Transitions*. In: *High-Pressure Crystallography*, NATO Science Series: II: Mathematics, Physics and Chemistry, Vol. 140, pp. 199–215 (edited by A. Katrusiak, P.F. McMillan). Kluwer Academic Publishers, Dordrecht, 2003.

3. **Oganov, A.R.** *Phase diagrams of minerals from first principles*. Proceedings of the CECAM Workshop «First-Principles Simulations: Perspectives and Challenges in Mineral Sciences» (Berichte aus Arbeitskreisen der DGK, Nr. 14, German Crystallographic Society), pp. 53–62, 2004.

4. **Adams, D.J., Oganov, A.R.** *Theory of minerals at extreme conditions: predictability of structures and properties*. EMU Notes in Mineralogy, Vol. 7 ('High-Pressure Behaviour of Minerals', edited by R. Miletich), pp. 441–457, 2005.

5. **Jung, D.Y., Oganov, A.R.** *Basics of first-principles simulation of matter under extreme conditions*. EMU Notes in Mineralogy, Vol. 7 ('High-Pressure Behaviour of Minerals', edited by R. Miletich), pp. 117–138, 2005.

6. **Oganov, A.R.** *Thermodynamics, phase transitions, equations of state and elasticity of minerals at high pressures and temperatures*. Treatise on Geophysics, Vol. 2 (Mineral Physics, edited by G.D. Price), pp. 121–152, 2007.

7. **Oganov, A.R., Ma, Y., Glass, C.W., Valle, M.** *Evolutionary crystal structure prediction: overview of the USPEX method and some of its applications*. Psi-k Newsletter, No. 84, Highlight of the Month, pp. 142–171, 2007. (Invited review).

8. **Oganov, A.R., Ma, Y., Lyakhov, A.O., Valle, M., Gatti, C.** *Evolutionary crystal structure prediction and novel high-pressure phases*. In: *High-Pressure Crystallography* (eds. E. Boldyreva, P. Dera), pp. 293–325. Springer Verlag, 2010.

9. **Oganov, A.R.** *Crystal structure prediction, a formidable problem*. In: *Modern Methods of Crystal Structure Prediction* (ed. A.R. Oganov), pp. xi–xxi. Berlin: Wiley-VCH, 2010.

10. **Lyakhov, A.O., Oganov, A.R., Valle, M.** *Crystal structure prediction using evolutionary approach*. In: *Modern Methods of Crystal Structure Prediction* (ed. A.R. Oganov), pp. 147–180. Berlin: Wiley-VCH, 2010.

11. **Oganov, A.R., Schön, J.C., Jansen, M., Woodley, S.M., Tipton, W.W., Hennig, R.G.** *First blind test of inorganic crystal structure prediction*. In: *Modern Methods of Crystal Structure Prediction* (ed. A.R. Oganov), pp. 223–231. Berlin: Wiley-VCH, 2010.

12. **Oganov, A.R.** *Boron under pressure: phase diagram and novel high-pressure phase*. In: *Boron Rich Solids*, Chapter 14 (pp. 207–215). Eds. N. Orlovskaya and M. Lugovy. Springer Verlag, Berlin, 2011.

13. **Oganov, A.R.** *Discovery of γ-B_{28}, a Novel Boron Allotrope with Partially Ionic Bonding*. In: *Boron and Boron Compounds – From Fundamentals to Applications*. Materials Research Society, ISBN 978-1-61839-514-6, Chapter 1, pp. 1–15, 2011.

14. **Oganov, A.R., Lyakhov, A.O., Zhu, Q.** *Theory of superhard materials*. In: *Comprehensive Hard Materials Review*, Elsevier, Vol. 3, pp. 59–79, 2014.

15. **Yu, X.H., Oganov, A.R., Wang, Z.H., Saleh, G., Baturin, V.S., Sharma, V., Zhu, Q., Wang, Q.G., Zhou, X.F., Popov, I.A., Boldyrev, A.I.** *Predicting the structure and chemistry of low-dimensional materials*. In: *Handbook of Solid State Chemistry*, Vol. 5, eds. R. Dronskowski, S. Kikkawa, A. Stein, pp. 527–570, 2017.

16. **Dong, X., Oganov, A.R.** *Electrides and their high-pressure chemistry*. In: *Correlations in Condensed Matter Under Extreme Conditions*, ed. G.N.N. Angilella & A. La Magna, Springer Verlag, pp. 69–84, 2017.

17. **Oganov, A.R., Kruglov, I.A., Zhang, J., Davari Esfahani, M.** *Computational materials discovery using evolutionary algorithms*. In: *Computational Materials Discovery*. Eds.: A.R. Oganov, A.G. Kvashnin, G. Saleh. Royal Society of Chemistry, pp. 15–65, 2018.

18. **Oganov, A.R., Kvashnin, A.G., Saleh, G.** *Computational materials discovery: dream or reality?* In: *Computational Materials Discovery*. Eds.: A.R. Oganov, A.G. Kvashnin, G. Saleh. Royal Society of Chemistry, pp. 1–14, 2018.

19. **Allahyari, Z., Oganov, A.R.** *Multi-objective optimization as a tool for materials design*. In: *Handbook of Materials Modeling* (ed. W. Andreoni, S. Yip). Volume 2 Applications: Current and Emerging Materials. Springer Verlag, pp. 2777–2790, 2018.

20. **Kruglov, I.A., Dolgirev, P.E., Oganov, A.R., Mazitov, A.B., Pozdnyakov, S.N., Mazhnik, E.A., Yanilkin, A.V.** *Machine learning interatomic potentials for global optimization and molecular dynamics simulation*. In: *Materials Informatics* (edited by O. Isayev, A. Tropsha, S. Curtarolo), pp. 253–288. Wiley-VCH, 2019.

21. **Oganov, A.R., Konson, G.R.** *The way the people of art and science study the world*. In: *Art History in the Context of Other Sciences in Modern World: Parallels and Interactions* (Proceedings of the international academic conference, April 21–26, 2019), pp. 278–291, 2020.

СТАТЬИ В РЕЦЕНЗИРУЕМЫХ НАУЧНЫХ ЖУРНАЛАХ

350. ***Zhao L., Zong H., Oganov A.R., Ding X., Sun J., Ackland G.J.*** Quasi-atomic electron driven fast crystallization at ultra-low temperatures. *Phys. Rev. Lett.*, in press (2025).

349. ***Mazitov A., Kruglov I., Yanilkin A.V., Arsenin A.V., Volkov V.S., Kvashnin D.G., Oganov A.R., Novoselov K.S.*** Substrate-aware computational design of two-dimensional materials. *npj Comp. Mater.* **11**, 270 (2025).

348. ***Trukhan E., Mazhnik E., Oganov A.R.*** Acceleration of crystal structure relaxation with deep reinforcement learning. *npj Comp. Mater.*, in press (2025).

347. ***Chepkasov I.V., Radina A.D., Baidyshev V.S., Polovinkin M., Rybin N., Shapeev A., Krikorov A.A., Oganov A.R., Dashevsky Z., Kvashnin D.G., Kvashnin A.G.*** Tuning of mechanical properties of doped PbTe-based thermoelectric materials driven by intrinsic defect. *J. Mater. Chem. A*, in press (2025).

346*. Momenzadeh Abardeh Z., Salimi A., Oganov A.R.* Synthon modularity in crystal structure prediction: designing pomalidomide polymorphs and co-crystals. *CrystEngComm. **27**,* 5514-5526 (2025).

345. Novoselov D., Korotin D., Mazannikova M., Anisimov V.I., Oganov A.R. Towards understanding the driving forces of the formation of multicomponent compounds: the case of complex oxides. *J. Chem. Phys.* **162**, 204106 (2025).

344. Fedyaeva M., Lepeshkin S., Oganov A.R. First-principles prediction of the structure and stability of boron-carbon clusters. *Comput. Mater. Sci.* **257**, 113952 (2025).

343. Alaei M., Oganov A.R. Optimizing supercell structures for Heisenberg exchange interaction calculations. *Phys. Rev. B* **111**, 144419 (2025).

342. Anisimova E.D., Vaneeva E.E., Baturin V.S., Lepeshkin S.V., Oganov A.R. Structural motifs and evolution of boron nanoclusters. *J. Clust. Sci.* **36**, 98 (2025).

341. Maltsev A.P., Iosimovska A.V., Chepkasov I.V., Oganov A.R. Structure transformations and ionic conductivity in germanides of sodium and potassium. *J. Mater. Chem.* (in press, 2025).

340. Rezaei N., Alaei M., Oganov A.R. Evaluating SCAN and r^{2}SCAN meta-GGA functionals for predicting transition temperatures in antiferromagnetic materials. *Phys. Rev. B* **111**, 144406 (2025).

339. Alaei M., Sobieszczyk P., Ptok A., Rezaei N., Oganov A.R., Qaiumzadeh A. Origin of A-type antiferromagnetism and chiral split magnons in altermagnetic α-MnTe. *Phys. Rev. B* **111**, 104416 (2025).

338. Zeraati M., Oganov A.R., Maltsev A.P., Solodovnikov S.F. Computational screening of complex oxides for next-generation thermal barrier coatings. *J. Appl. Phys.* **137**, 065106 (2025).

337. Vaneeva E.E., Lepeshkin S.V., Rybkovskiy D.V., Oganov A.R. Exploring the diversity of molecular carbon oxides, and their potential as energy density materials. *Mater. Today Energy* **46**, 101821 (2025).

336. Alkabakibi Y., Barma D.D., Rybkovskiy D.V., Tudi A., Xie C., Oganov A.R. Computational identification of four promising nonlinear optical materials for near and middle ultraviolet operation. *JETP Lett.* **121**, 266–272 (2025).

335. Chang L., Tamaki H., Yokoyama T., Wakasugi K., Yotsuhashi S., Kusaba M., Oganov A.R., Yoshida R. Shotgun crystal structure prediction using machine-learned formation energies. *npj Comput. Mater.* **10**, 298 (2024).

334. Fan T., Oganov A.R. Combining machine-learning models with first-principles high-throughput calculations to accelerate the search for promising thermoelectric materials. *J. Mater. Chem. C* **13**, 1439–1448 (2025).

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