

Dr Andrzej Kądziaława

Curriculum Vitae

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Experience

- 2023 – **Senior data engineer**, *Santander Bank Polska*, Wrocław, Poland.
- 2018 – 2023 **Researcher**, *IT4Innovations National Supercomputing Centre*, Ostrava, Czechia.
Modelling for Nanotechnologies Lab
- 2015 – 2022 **Researcher & Lecturer**, *Institute of Theoretical Physics, Jagiellonian University*, Kraków, Poland.
Department of Condensed Matter Theory; Note that ITP split from Marian Smoluchowski Institute of Physics in 2020.

Education

- 2011 – 2015 **PhD in Physics**, *Jagiellonian University*, Kraków, Poland, *summa cum laude*.
First-Principle Approach to Electronic States and Metal - Insulator Transition in Selected Correlated Model Systems
- 2006 – 2011 **MSc in Physics**, *Jagiellonian University*, Kraków, Poland, Uniform interdisciplinary program with 2-years-long thesis research; physics, mathematics, computer science, and biology; final grade **5.0**.
Evolution of a massless test scalar field on Boson Star space-time
- 2010 **Graduate Level**, *Niels Bohr Institute*, Copenhagen, Denmark.
Courses in Quantum Field Theory, Topology, Differential Geometry, and Quantum Optics

Research and Scientific Activities

Publications

- 2015 – **5 software packages**, *Open Source*, vide bitbucket.org/azja/qmt & github.com/Mellechowicz.
- 2013 – **20 papers**, in *peer-reviewed journals*, (cf., [orcid.org/ 0000-0003-0093-1967](https://orcid.org/0000-0003-0093-1967) for details).
Mater. Lett., Corros. Sci., Phys. Rev. B, Scientific Reports, Comput. Phys. Commun., New J. Phys.
- Topics *W-Cr alloys, corrosion inhibitors, quantum chemistry, ab-initio calculations, HPC, metallization hydrogen*
- 2019 – **9 computational grants**, (cf., andrzejkadzielawa.github.io/computational for details).
including one three-year project: OPEN-18-33: *Tailoring thermal stability of W-Cr based alloys for fusion applications*

Conferences, Schools and Seminars

- 2012 – **21 oral and 13 poster presentations**, (cf., andrzejkadzielawa.github.io/projects for details).

Project participation

- 2020 – 2022 **GAČR**, *Tailoring thermal stability of W-Cr based alloys for fusion applications*, **Principal Investigator**.
Management of a team of 8 employees; Budget: 7 900 000 CZK
- 2018 – 2022 **IT4Innovations National Supercomputing Center**, *Path to Exascale*, Researcher.
- 2015 – 2018 **Project MAESTRO (NCN)**, *Fundamental Properties of Strongly Correlated Systems*, Researcher.
- 2012 – 2015 **Project TEAM (FNP)**, *Correlations and coherence in quantum materials and structures*, Researcher.

Miscellaneous

- 2020 – 2025 **Volunteer Researcher**, *Institute of Theoretical Physics, Jagiellonian University*, Kraków, Poland.
- 2020 – 2023 **Union of Czech Mathematicians and Physicists**, regular member.
- 2019 – **Polish Physical Society**, regular member.
- 2010 **Erasmus student exchange**, *Niels Bohr Institute*, University of Copenhagen, Denmark.

Teaching

2013 – 2018 **teacher**, Jagiellonian University, Kraków.

3D Geometry for Video Games Programming, Basics of Computer Programming: C with Elements of C++, Advanced Object Programming Techniques in C++, Robotics Laboratory, and Programming of Real-Time Physics for game developers

2011 – 2015 **doctoral student / teaching assistant**, Faculty of Physics, Jagiellonian University, Kraków.

Courses included: Physics 101, Physics Laboratory, and Programming of Real-Time Physics

Skills

C-family	C C++11 C++17	Libraries			
		GNU Scientific Library	OpenMP	OpenMPI	LAPACK++
		CBLAS	CUDA	SPGLib	CUBA
		Compilers			
		GCC	Clang	llvm	Intel C++ Compiler
Python	v3 v2.7	Other			
		Intel Parallel Studio XE	Valgrind	accelerator offloading	generic programming
		Modules			
		NumPy	SciPy	Matplotlib	Pandas
		Sci-kit & SK-Learn	SPGLib	Sympy	TensorFlow
Science	Physics Math	SQLAlchemy	pika	NLTK	pymc
		Quantum Mechanics	Statistical Physics	Condensed Matter	Classical Physics
		Statistics	Geometry	Linear Algebra	Topology
		Phase Transitions	ab-initio	Thermodynamics	Monte Carlo Methods
		Big Data			
other		SQL	Databricks	Apache Hive	RabbitMQ
		PySpark	Delta Lake	MLFlow	MS Azure
		Other			
		Linux Systems	Kernel programming	Shell programming	slurm/PBS
		vim	L ^A T _E X	git	GitHub Actions
		Interpersonal			
		Public speaking	Active listing	Teaching	Persuasion
		Teamwork	Emotional intelligence	Decision making	Problem-solving
		Empathy	Conflict resolution	Patience	Flexibility

Administrative tasks

2016 – 2019 **administration of Computational Cluster EDABI**, Jagiellonian University, Kraków, Poland.

acquisition (2016) and expansion (2018); performance of ~ 12 TFLOPS DP

Languages

CEFR levels	Polish (native)	English (C2)	Spanish (B1)	German (B1)
		Czech (A2)	Danish (A1)	Russian (A1)

Interests

professional	<ul style="list-style-type: none"> electronic correlations stochastic algorithms 	<ul style="list-style-type: none"> computational physics low-level computing
other	<ul style="list-style-type: none"> traveling and hiking scuba-diving 	<ul style="list-style-type: none"> tea gaming

Licenses

driving licence	A, B	motorcycles and cars
diving licence	Advanced Open Water Diver, Ice Diver	PADI
UAS pilot licence	A1/A2/A3 POL-RP-5dfa88ca456f	EASA
	counsellor	day care