Dr. Andrzej Piotr Kądzielawa

Curriculum Vitae

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& Ostrava, Czechia
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Mellechowicz

Experience

2018 – **Researcher**, *IT4Innovations National Supercomputing Centre*, Ostrava, Czechia.
Modelling for Nanotechnologies Lab; Responsibilities: Development of software for magnetic symmetry detection and assessment of the interaction scale (`python3`); Design of new materials including robust Cobalt alloys and permanent magnets (`VASP`); Utilization of HPC libraries to model strongly-correlated electron systems with disorder (`C++`).

2017 – **Researcher & Lecturer**, *Marian Smoluchowski Institute of Physics*, Kraków, Poland.
Member of MAESTRO team (– 2018); Responsibilities: Development of high-performance low-level quantum-chemical libraries (`C++`); Expansion and administration of the new comptutational cluster (to 12 `TFLOPS DP`); Teaching (cf. Teaching section); Organization of 2018 *Spin to Cooper Pairs* conference; Research (cf. andrzejkadzielawa.github.io);

2015 – 2017 **Research assistant**, *Marian Smoluchowski Institute of Physics*, Kraków, Poland.
Member of MAESTRO team; Responsibilities: Development of high-performance low-level libraries for realistic crystalline systems (`C++`,`python2.7`); Acquisition and administration of the new computational cluster (8 `TFLOPS DP`) for Institute of Physics; Organization of 2016 *Spin to Cooper Pairs* conference; Research (cf. andrzejkadzielawa.github.io);

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 and Quantum Optics

Research and Scientific Activities

Conferences, Schools and Seminars

2013 – **14 oral presentations,seminars & invited lectures**, (cf. ↘).

2012 – **10 poster presentations**, (cf. `andrzejkadzielawa.github.io/projects` for details).

Publications

2013 – **8 papers**, *in peer-reviewed journals*, (cf. `andrzejkadzielawa.github.io/articles` for details).
Phys. Rev. B, Scientific Reports, Comput. Phys. Commun., New J. Phys., Acta Phys. Pol. A, Eur. Phys. J. B

Topics include: **Condensed Matter Physics, Computational Methods** — *ab-initio calculations, metallization hydrogen, high-performance computing, multilevel parallelism*

Miscellaneous

2015 – 2018 **Project MAESTRO**, *Researcher*, National Science Centre (NCN).
Fundamental Properties of Strongly Correlated Systems: Unconventional Superconductivity, Quantum Critical Behavior, and Complex Electronic Structure

2012 – 2015 **Project TEAM**, *doctoral scholarship*, Foundation for Polish Science (FNP).
Correlations and coherence in quantum materials and structures - unique properties on macro and nano scales

2010 **Erasmus student exchange**, Erasmus programme.
Niels Bohr Institute, University of Copenhagen

Teaching

2017 – **research and teaching assistant**, *Faculty of Physics*, 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

2013 – **teaching assistant**, *civil contract*, Jagiellonian University, Kraków.
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

Programming

		Libraries			
		GNU Scientific Library	*OpenMP*	*OpenMPI*	*LAPACK*
		CBLAS	*qmt*	*SPGlib*	*CUBA*
		OpenGL	*GLU*	*GLUT*	*CUDA*
C-family	`C`	***Compilers***			
	`C++11`	*GCC*	*Clang*	*llvm*	*Intel C++ Compiler*
	`C++17`	***IDEs***			
		personalized `vim`	*Microsoft Visual Studio*	*kDevelop*	*Eclipse*
		Other			
		Intel Parallel Studio XE	*Valgrind*	*accelerator offloading*	*together with git*
		Modules			
		NumPy	*SciPy*	*Matplotlib*	*Mayavi 2*
		JorG	*SPGlib*	*Sympy*	*TensorFlow*
Python	`v3`	***IDEs***			
	`v2.7`	*personalized `vim`*	*IDLE*	*PyCharm*	*kDevelop*
		Other			
		together with git	*fluent in RegEx's*	*fluent in parallelism*	*2*
		Fortran			
		v95	*v2008*	*VASP*	*Valgrind*
other		***Other***			
		RegEx's	*Agile (XP)*	*PBS Professional*	*Torque*
		Wolfram Mathematica	*office-suite*	*LaTeX*	*Gnuplot*
		Godot 3.0	*GoLang*	*Bash*	*awk*

Administrative tasks

2016 – **administration of Computational Cluster `EDABI`**, *Jagiellonian University*, Kraków, Poland.
Acquisition (2016) and expansion (2018); performance of ~ 12 `TFLOPS DP`

2013 – **(co-)writing grant proposals**.
eg. National Science Centre (NCN) grants, grant-in-aid for two-week visit at the University of Parma;

Languages

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

Interests

professional
- electronic correlations
- stochastic algorithms
- computational physics
- low-level computing

other
- traveling and hiking
- scuba-diving
- tea
- gaming

Licenses

driving licence	**A, B**	*motorcycles and cars*
diving licence	**Advanced Open Water Diver, Ice Diver**	*PADI*
licence	**counsellor**	*day care*