ALEKSY GŁUCHOW

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I am a Physics student pursuing a Master's degree. My scientific interests lie in Optics and Photonics. I currently work on Zero- to ultralow-field (ZULF) NMR. I hold a B.Sc. in Physics and have a solid background in data analysis, laboratory work, as well as theoretical foundations in mathematics and physics. I aim to pursue a career in modern quantum technologies.

EDUCATION

M.Sc. in Physics — Jagiellonian University 2025 – exp.2027

B.Sc. in Physics — Jagiellonian University 2021 – 2025

Selected courses: *Optics, Quantum Mechanics I, II, Electronics (lecture + lab), Special Theory of Relativity, Nuclear Physics, Advanced Physics Lab*

EXPERIENCE

RESEARCH EXPERIENCE 2024 – present

- **Research Volunteer — Department of Photonics, Jagiellonian University *(2024–present)***
  Experimental work on Zero- and Ultra-Low-Field Nuclear Magnetic Resonance (ZULF NMR).
- **Summer Intern — Department of Photonics, Jagiellonian University *(July 2024)***
  GNOME project on dark matter; assembled and configured spectroscopy setups on the optical table. Supervisor: Prof. Szymon Pustelny.
- **Visiting Student — Helmholtz-Institut, JGU Mainz (Budker Group) *(July–August 2025)***
  Awarded with a scholarship; assisted a PhD student with day-to-day experimental tasks, troubleshooting, and ensuring stable operation of the setup. Contributed to ZULF NMR research and laboratory experiments.

CONFERENCES & TALKS 2024 – 2025

- XXIII Interdisciplinary Student Conference SEMPOWISKO (May 2025) — talk: *Reimagining Spectroscopy: The Capabilities of ZULF NMR*.
- International Student Physics Conference SMOK (April 2025) — talk: *Spectroscopy in the Absence of Magnets: The Capabilities of ZULF NMR*.
- SMOK Conference (May 2024) — attendee.

STUDENT ACTIVITIES 2021 – present

- **Conference Volunteer — Quantum Optics XI, Jagiellonian University *(Sep 2025–present)***
  Registration of participants, information desk assistance, and organizational/technical support.
- **Board Member — Physics Student Association, Jagiellonian University *(2021/22–2022/23)***
  Organized events including the Winter School and SMOK conference; responsible for procurement, documentation, and other management tasks.

TECHNICAL SKILLS, SOFT SKILLS & LANGUAGES

- **Experimental physics**: optics and photonics (laser/detector principles, optical table setups, spectroscopy), electrical signal measurement (oscilloscopes, multimeters, function generators), electronics (analog circuits, op-amps, RC filters, breadboard assembly, testing)
- **Programming & prototyping**: C++ (algorithms, data structures, OOP basics), Arduino (sensors, actuators, measurement devices), Raspberry Pi (Python data acquisition, Linux automation/control systems)
- **Software tools**: Wolfram Mathematica (simulations, data analysis, model fitting, high-quality plots), LaTeX (scientific writing, mathematical typesetting), Autodesk Fusion 360 (3D design and prototyping for experimental hardware), 3D print (printed multiple details for ZULF experiment as well as for Arduino project)
- **Soft skills**: Team collaboration in research groups, Independent experimental work, Problem-solving of engineering and laboratory issues
- **Languages**: Polish (native), English (fluent), German (beginner)
- **Additional activities & interests**: Arduino-based electronic projects, Playing guitar, JavaScript programming, hiking