

FORM FOR EMPLOYERS

INSTITUTION: Institute of Organic Chemistry of the Polish Academy of Sciences

CITY: Warsaw

POSITION: Post-doctoral fellow (assistant)

DISCIPLINE: Chemistry, Physics, Material Science, Material Engineering or related.

POSTED: 02.07.2026

EXPIRES: 30.07.2026

WEBSITE: <https://www.icho.edu.pl/en/>

KEY WORDS: *molecular electronics, STM, break-junction technique, single-molecule conductance, memristors*

Project title: "Center for Quantum Digital Organic Memristors"

FENG.02.01-IP.05.-M005/25

The „Center for Quantum Digital Organic Memristors” project is carried out within the International Research Agendas (MAB FENG) programme of the Foundation for Polish Science co-financed by the European Union under the European Funds for Smart Economy 2021-2027 (FENG).

Number of positions available: 1

Researcher profile: R2

Job description:

The Center for Quantum Digital Organic Memristors (CKCOM) project focuses on the development of a new generation of molecular memory and logic elements based on proton quantum tunneling. The aim is to advance energy-efficient memcomputing technologies that integrate information processing and storage within single molecular systems, with potential applications in nanoelectronics and AI systems.

The project focuses on the electrical characterization of organic molecules for memristor application.

Description of tasks:



Republic
of Poland

Co-funded by the
European Union



Foundation for
Polish Science

- Contribution to the setting up of the new electron-transport laboratory and the installation of a scanning tunneling microscope (STM) operating in air.
- Conducting experiments using the STM break-junction method to evaluate the electrical conductivity of single molecules and their current-voltage (I-V) characteristics.
- Optimization of measurement conditions.
- Electrochemical characterization of new organic compounds.
- Data analysis and result visualization.
- Fluid communication and coordination with collaborators
- Writing and preparing scientific reports
- Contribution in the writing of publications
- Collaboration with MSc and PhD students
- Participation in group meetings, project meetings and preparation of topical seminars
- Result dissemination

Envisaged job starting date: 01.09.2026

Offer:

Terms of employment: Full-time employment for 12 months, with the possibility of extension (*no longer than until 31 December 2029*); a monthly salary of approximately PLN 11,800 gross, corresponding to the level of remuneration offered for comparable positions at the Institute of Organic Chemistry PAS in projects funded from external sources.

Benefits: *private medical care package; co-financing of sports cards*

Career development opportunities: *work in a open-minded and supportive team; participate in an international MAB project; collaborate in the design of breakthrough molecular quantum technologies; access to advanced research infrastructure; possibility of cooperation with foreign research centers; possibility of short stays in international centers; opportunity to build a strong international publication and patent record; networking and further professional development at IChO PAS; participation in international conferences.*

Requirements:

PhD degree, awarded no more than five years before the application date,¹ in Chemistry, Physics, Material science, Material engineering or closed-related discipline,

¹ *The five years is calculated from the year in which the doctoral degree was awarded. The beginning of this period is determined by the calendar year of obtaining the degree, and the end by the year preceding the deadline for submitting applications in the competition. The five-year limit may be extended by any documented interruptions in research activity that occurred after the award of the doctoral degree, provided that each interruption lasted no less than six months. Documented interruptions in research activity include, among others, unpaid leaves, parental leaves, breaks caused by long-term illness, employment in the R&D sector without involvement in scientific research, or employment in other sectors of the economy. For women who have given birth to a child or for individuals who have adopted a child, the five years shall be extended by one year per child, regardless of the date of birth or adoption, even if the documented leave or break related to this event was shorter.*

or a submitted doctoral dissertation along with a certificate confirming the scheduled PhD defense date.

required competencies

- Strong background in molecular electronics or nanoelectronics
- Expertise in break junction technique for electron-transport characterization of single molecules using STMs or MCBJ devices.
- Proven experience working with Scanning Probe Microscopies
- Knowledge of Python and LabVIEW programming.
- Experience with data acquisition systems, electronic circuits and instrumentation.
- Familiarity working with organic compounds, organic solvents, preparation of solutions.
- Proficiency in English.
- Experience working in multidisciplinary projects and international teams.

desirable competencies

- Experience working with memristive systems;
- Experience with structural characterization of organic compounds using NMR, MS, UV-Vis, and IR spectroscopy
- Experience in forming molecular self-assembled monolayers and electron-transport measurements at bulk.
- Experience in electrochemistry and photophysics.
- Experience in device integration
- Experience in knowledge transfer
- Ability to work both independently and as part of a research team
- Experience in mentoring students

Candidate evaluation criteria:

- Level of fulfilment of the required and desirable competencies previously described.
- Scientific achievements, measured by the quality and quantity of scientific publications or patents
- Candidate's professional experience
- Creativity and independence in conducting research
- Ability to work in a team/ability to transfer knowledge/managerial predispositions
- Awards or distinctions
- Opinions about the candidate contained in the recommendation letters
- Language knowledge enabling conducting scientific research (fluid communication with the team members and collaborators, and writing of scientific papers and reports)

List of required documents:

- Candidate's *Curriculum Vitae*

- description of scientific achievements, including a list of publications, ongoing projects, etc.
- diplomas and certificates confirming qualifications, completed courses, completed training, etc.
- cover letter
- letters of recommendation and references from previous employers/supervisors (at least two)
- consent to the processing of the Candidate's personal data for the purposes of the competition

Along with the required documents, please send a scan of a signed consent to the processing of personal data available at: <https://www.icho.edu.pl/en/cooperations/career/>

Competition settlement date: 15.08.2026

Additional information:

Research team leader: Dr Lucía Palomino Ruiz

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Secretariat

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Applications must be sent to e-mail address: rekrutacja@icho.edu.pl

ATTENTION! In the title of the e-mail, please enter reference number "CKCOM/2026/MD/8".

We are an open and inclusive employer – we encourage applications from all individuals, regardless of gender, origin, nationality, or minority background.

