Charles University

XIX. Call for the Junior Fund, 2026

Proposal for a research project

Faculty/institute/unit of CU:	Faculty of Education
Department:	Department of Chemistry and Chemistry Education
Research project title:	Conceptual Learning and Chemical Thinking
Project description:	This postdoctoral research position is part of a broader initiative aimed at advancing research on conceptual learning and instructional innovation in chemistry education. The initiative focuses on how chemistry teaching can better support coherent understanding of key chemical ideas, meaningful learning experiences, and the development of scientific thinking across school and teacher education contexts. The postdoctoral researcher will conduct an independent research project examining how fundamental concepts in chemistry are understood, taught, and connected in educational settings. Particular attention will be given to identifying conceptual transformations that enable learners to develop more integrated and meaningful understanding of chemical phenomena, as well as the cognitive processes that support or hinder such transformations. The project will be carried out within the context of chemistry teacher education and will draw on contemporary theoretical frameworks in science education, such as threshold concepts and learning progressions in chemical thinking. Data will be collected through qualitative and mixed research methods, including interviews, analysis of learning tasks and course activities, and potentially cognitive process analysis using methodologies available within the host research group. Beyond the immediate context of the study, the researcher will also contribute to broader comparative and collaborative work within the research group, including the synthesis of findings with related studies conducted in other educational settings or countries. This broader perspective will help identify common patterns in conceptual learning, as well as context-sensitive opportunities for improving chemistry teaching. The project will include publishing research findings in international peer-reviewed journals, contributing to ongoing discussions on improving chemistry education, and engaging in collaborative activities linked to the development of innovative approaches in chemistry teacher preparation.

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	This fellowship provides an opportunity to contribute to a growing international research agenda focused on strengthening chemistry education through deeper attention to conceptual understanding, cognitive processes in learning, and the preparation of teachers capable of supporting meaningful chemical thinking in school classrooms.
What do we offer?	We offer a stimulating and supportive research environment within a dynamic and internationally engaged team. The position provides: • Flexible working hours, with the possibility of hybrid work arrangements, tailored to support a healthy work-life balance. • Involvement in an active research group with access to ongoing projects, regular internal seminars, and collaborative opportunities. • The opportunity to contribute to existing research lines, initiate an independent research agenda, and co-develop new grant proposals. • Optional involvement in teaching, mentoring, or science communication activities, depending on the candidate's interests and career goals. • Above-average salary compared to standard remuneration for similar postdoctoral positions in the region, reflecting the importance of the role and the candidate's expertise. • The chance to expand your academic network through institutional partnerships, joint projects, and events organized by the hosting department. • A collegial atmosphere that encourages interdisciplinary dialogue, openness to innovation, and support for early-career researchers. • Salary: Equivalent 50 000 CZK/month
Profile of an ideal candidate:	We are seeking a highly motivated postdoctoral researcher with a strong background in science education or chemistry education research. The ideal candidate will bring both independent research experience and a collaborative spirit to actively contribute to the work of our department. Essential qualifications and expectations: • A Ph.D. in science education, chemistry education, or a closely related field. • A strong publication record in peer-reviewed international journals demonstrating engagement with key issues in the field. • Proven affiliation with an active research group or academic department in science or chemistry education. • Excellent command of English, particularly in academic writing and professional communication. • Experience with designing and conducting empirical research, including data collection (e.g., surveys, interviews, experiments) and both qualitative and/or quantitative analysis. • Willingness to contribute to existing projects—supporting data analysis, co-authoring publications, and helping bring ongoing research to completion.

	• Eagerness to initiate or co-initiate new research activities, including the development of grant applications. • Readiness to work as a part-time team member on funded research projects, with flexible yet consistent engagement. • Ability to work independently and proactively, while also contributing constructively to the research team. Desirable assets: • Familiarity with research involving pre-service or in-service teachers, curriculum development, or educational interventions in STEM. • Experience in international collaboration, particularly within the European Research Area. • A track record of transforming research into publishable outcomes and contributing to academic discourse through conference presentations or workshops.
Position available from:	October 1, 2026 (possible postponement upon the candidates' request)
Workplace location:	Department of Chemistry and Chemistry Education
Supervisor(s):	Assoc. prof. Martin Rusek, Ph.D.
E-mail:	martin.rusek@pedf.cuni.cz
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Application deadline:	May 24, 2026
Applicants must submit required documents to:	Bc. Eliška Šmerdová (eliska.smerdova@pedf.cuni.cz)