

**HORIZON EUROPE Research and Innovation Framework Programme  
MARIE SKŁODOWSKA-CURIE ACTIONS**

**INVITATION TO APPLY FOR  
POSTDOCTORAL FELLOWSHIPS 2022**



<b>Organisation Name/ Department</b>	Czech University of Life Sciences Prague/Faculty of Engineering, Department of Vehicles and Ground Transport
<b>Website of the organisation</b>	<a href="https://www.tf.czu.cz/en">https://www.tf.czu.cz/en</a> <a href="https://www.facebook.com/tf.czu.cz">https://www.facebook.com/tf.czu.cz</a> <a href="https://www.instagram.com/tfczucz/">https://www.instagram.com/tfczucz/</a>
<b>Research Fields</b>	<input checked="" type="checkbox"/> Chemistry (CHE) <input type="checkbox"/> Social Sciences and Humanities (SOC) <input type="checkbox"/> Economic Sciences (ECO) <input checked="" type="checkbox"/> Information Science and Engineering (ENG) <input type="checkbox"/> Environment and Geosciences (ENV) <input checked="" type="checkbox"/> Life Sciences (LIF) <input type="checkbox"/> Mathematics (MAT) <input type="checkbox"/> Physics (PHY)
<b>Sub-Fields/ Keywords</b>	Sustainable transport, renewable fuels, energy, emissions, air quality
<b>Marie Skłodowska-Curie Action(s) of interest</b>	<input checked="" type="checkbox"/> <b>European Postdoctoral Fellowships</b> ( <i>European nationals or long-term residents working on R&amp;I projects with organisations outside EU Member States and Horizon Europe Associated Countries.</i> )

	<p><b>Duration:</b> 24-36 months (12-24 months outgoing phase in a non-associated Third Country (TC) &amp; 12 months mandatory return phase to a host organisation in Europe).</p> <p>☒ <b>Global Postdoctoral Fellowships</b> (researchers of any nationality working on R&amp;I projects by either coming to Europe from any country in the world or moving within Europe)</p> <p><b>Duration:</b> 12-24 months</p>
<p><b>Short Description of the Organisation/ Department - ,</b></p>	<p><b>DESCRIPTION OF THE ORGANISATION/ DEPARTMENT:</b> Department of Vehicles and Ground Transport</p> <p><b>EXPERTISE:</b> The department has a broad scope, historically focusing on the technology of motor vehicles and the utilization of alternative and emerging fuels, but has expanded into examination of traffic flows, real driving emissions, and evaluation of the effects of new fuels, engine and exhaust aftertreatment technologies, transportation planning, and other measures on emissions, air quality and human health.</p> <p><b>RESEARCH TEAM COMPOSITION:</b></p> <ul style="list-style-type: none"> <li>✓ Michal Vojtisek (Full professor),</li> <li>✓ Martin Pechout (Associate Professor),</li> <li>✓ Petr Jindra (Assistant Professor),</li> <li>✓ several students, with external experts frequently joining in for specialty projects.</li> </ul> <p><b>STRENGTHS AND SCIENTIFIC ACHIEVEMENTS:</b> One of the pioneers of innovative instrumentation for real-world emissions monitoring (i.e., on-board FTIR analyser, miniature on-board instrument – Mini-PEMS – for motorcycle measurements, portable toxicological incubator for direct assessment of the effects of complex mixtures on cell cultures).</p> <p><b>IMPORTANT INFRASTRUCTURE:</b></p> <ul style="list-style-type: none"> <li>✓ light-vehicle chassis dynamometer,</li> <li>✓ instrumentation for on-road monitoring of exhaust emissions and fuel consumption,</li> <li>✓ instrumentation for remote sensing of emissions</li> <li>✓ extensive infrastructure for online measurement and off-line analysis of nanoparticles and hazardous air pollutants is available through cooperating partners (aerosol group, nanotoxicology group, chemistry group)</li> </ul>
<p><b>Previous Projects/ Research Experience</b></p>	<p>H2020 projects:</p> <ul style="list-style-type: none"> <li>• <a href="#">uCARE - You can also reduce emissions,</a></li> <li>• <a href="#">CARES - City Air Remote Emission Sensing,</a></li> <li>• <a href="#">TUBE - Transport derived Ultrafines and the Brain Effects,</a></li> </ul>

	<ul style="list-style-type: none"> <li>• <a href="#">EU LIFE project MEDETOX</a> - Innovative means of monitoring engine exhaust toxicity under realistic urban driving conditions</li> </ul>
<p><b>Thematic areas and a list of supervisors who are going to participate in preparing a project proposal with postdoctoral researchers.</b></p>	<p><b>1. Thematic area:</b></p> <ul style="list-style-type: none"> <li>✓ Utilization of emerging gaseous and liquid renewable fuels in the existing vehicle fleet and/or in industrial engines.</li> <li>✓ Effects of new fuels and technologies on emissions.</li> <li>✓ Non-regulated and real-driving emissions from L-category vehicles and from small farm machinery.</li> <li>✓ Research in support of local and EU emissions legislation (Euro 7).</li> </ul> <p><b>2. Supervisors:</b> Michal Vojtisek (MV) and Martin Pechout (MP)</p> <ul style="list-style-type: none"> <li>• <b>Current position:</b> <b>MV:</b> Professor <b>MP:</b> Associate Professor (Energy Engineering)</li> <li>• <b>Professional profile</b> <b>MV:</b> <ul style="list-style-type: none"> <li>✓ 55 papers in Web of Science (in majority of these first or last author),</li> <li>✓ h=13, 2 U.S. and 5 CZ patents,</li> <li>✓ member of the board of the Czech Aerosol Society, member of the Czech government Committee for Sustainable Energy and Transport, ERMES (European Research on Mobile Emissions Sources)</li> </ul> </li> <li><b>MP:</b> <ul style="list-style-type: none"> <li>✓ 25 papers in Web of Science,</li> <li>✓ h=9</li> </ul> </li> <li>• <b>Research experience &amp; education</b> <b>MV:</b> <ul style="list-style-type: none"> <li>✓ M.S. in Energy Resources, University of Pittsburgh;</li> <li>✓ Ph.D. in machine design, Technical University of Liberec;</li> <li>✓ 25 years of research in real-world emissions of vehicles and mobile machinery;</li> <li>✓ diverse background from a bus mechanic to a director of research and development in a high-tech company;</li> <li>✓ active international cooperation, three active H2020 projects, past positions in USA, Switzerland and European Commission Joint Research Center;</li> <li>✓ hands-on experiential education approach in mentoring small groups</li> </ul> </li> </ul>

	<p><b>MP:</b></p> <ul style="list-style-type: none"> <li>✓ M.Eng. and Ph.D. in Machine Design, Technical University of Liberec,</li> <li>✓ 10+ years of experience in research on utilization of butanol and other advanced fuels on emissions and in conducting real-world emissions studies,</li> <li>✓ past internships at the EC Joint Research Center, Bern Univ of Applied Sciences and Istituto Motori at Napoli</li> </ul>
<p><b>Short description of Postdoctoral Fellowships programme</b></p>	<ul style="list-style-type: none"> <li>✓ Utilization of emerging gaseous and liquid renewable fuels in the existing vehicle fleet and/or in industrial engines.</li> <li>✓ Effects of new fuels and technologies on emissions.</li> <li>✓ Non-regulated and real-driving emissions from L-category vehicles and from small farm machinery.</li> <li>✓ Research in support of local and EU emissions legislation (Euro 7).</li> <li>✓ Development of remote sensing and on-board instrumentation for advanced emissions measurements.</li> <li>✓ Participation in interdisciplinary projects (examples from the past: nanoparticles from wear of friction brakes, toxicity of particles from direct injection spark ignition engines, remote sensing of emissions, citizen science air quality studies).</li> </ul>
<p><b>Contact Person/ Position in the Organisation/ Phone/ E-mail</b></p>	<p>Pavlina Ruzickova project manager email: ruzickova@tf.czu.cz phone: + 420 605 294 906</p>
<p><b>Deadline for Expressions of Interest from postdoctoral researchers</b></p>	<p>28 February 2022</p>
<p><b>Necessary documents from applicants (<i>postdoctoral researchers</i>)</b></p>	<ul style="list-style-type: none"> <li>✓ CV</li> <li>✓ List of publications</li> <li>✓ Brief description of the project idea</li> </ul> <p><i>(a project proposal will be made jointly by the researcher and a host institution)</i></p>
<p><b>What we offer</b></p>	<ul style="list-style-type: none"> <li>✓ Full-time contract to work on a research project and enjoy advanced training,</li> <li>✓ Competitive salary – (€ 5 080*0.791) = gross amount, including compulsory deductions under national law, such as employer and employee social security contributions and direct taxes;</li> <li>✓ Mobility (€ 600) and Family allowances (if applicable - € 660);</li> <li>✓ Budget for Research, Training and Networking costs (€ 1 000);</li> <li>✓ Special needs allowance (if applicable).</li> </ul>

<p><b>Eligibility of Applicants</b></p>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>✓ Applicants should be in a possession of a doctoral degree at the call deadline (applicants who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will also be considered eligible to apply).</li> <li>✓ At the call deadline, supported researchers must have a maximum of 8 years full-time equivalent experience in research, measured from the date of award of the doctoral degree (exceptions that will not count towards the amount of research experience: career breaks, work outside research, research outside Europe for reintegrating researchers).</li> <li>✓ Hands-on experience with experimental work, instrumentation, motor vehicles and mobile machinery beneficial but not mandatory.</li> </ul> <p><b>Mobility rule:</b></p> <ul style="list-style-type: none"> <li>✓ researchers of any nationality</li> <li>✓ European Postdoctoral Fellowships - applicants must not have resided or carried out their main activity (work, studies, etc.) in the country of the beneficiary for more than 12 months in the 36 months immediately before the call deadline,</li> <li>✓ Global Postdoctoral Fellowships - applicants must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organisation for the outgoing phase for more than 12 months in the 36 months immediately before the call deadline.</li> <li>✓ Researchers reintegrating from a TC must either be based in a TC at the call deadline or have moved directly from a TC to an EU MS or HE AC within the last 12 months before the call deadline.</li> </ul>
<p><b>Additional Funding Opportunity</b></p>	<p><b>ERA Fellowships</b></p> <ul style="list-style-type: none"> <li>✓ It is open to researchers of any nationality who wish to engage in R&amp;I projects by either coming to Europe from any country in the world or moving within Europe to a Widening Country.</li> <li>✓ In order to apply for the ERA Fellowships call, applicants need to submit their proposal to the 2021 MSCA PF call.</li> <li>✓ To be eligible to this call the host organisation must be located in an eligible widening country.</li> <li>✓ The application to the MSCA PF call will be automatically resubmitted to this call-in case the proposal fails to reach an adequate place in the ranking to be funded.</li> </ul>