



EUROPEAN UNION
European Structural and Investment Funds
Operational Programme Research,
Development and Education



**VŠB - Technical University of Ostrava
is searching for suitable candidates for Junior Researcher positions
for work stays abroad.**

VŠB - Technical University of Ostrava is an institution of higher education offering education in technical and economic sciences based on free and internationally oriented research. It is an integral part of the higher education structure in the Czech Republic providing for the highest level of education in the area of its specialization. VŠB-TUO has the right of conferring academic and scientific degrees, as well as doctoral honorary degrees. The scientific and teaching staff collaborates with research and academic institutions and specialists at both national and international levels.

VŠB-TUO ranks among the top technical universities in the Czech Republic. Its research & technology development potential represents an important component of the innovative process in the region and throughout the entire Czech Republic. The latest results of its R&D activities confirm the strength of the human and research potential that the University has at its disposal.

The open call for the research positions is issued on behalf of IT4Innovations National Supercomputing Center based at VŠB-TUO. This centre is the leading operator of supercomputing technologies and major provider of computational resources in the Czech Republic as well as a research and development (R&D) centre focused on the fields of study which find the use of this computing infrastructure for computationally demanding modelling, simulation, and data analysis. All R&D activities of the centre are organized within research laboratories (for more details about IT4Innovations, see <http://www.it4i.cz/>).

We are currently offering 1 work stay for junior researcher in the IT4Innovations research-related areas, supported by the EU Operational Program Research, Development and Education and the Czech state budget.

Job position:	Participation in the mobility Nr.3 - Work-stays of Junior Researchers Abroad
Location:	Paris - France
Expected date of the mobility:	10/2020 – 3/2021
Workload:	100 %
Field of research:	Development of novel Terahertz spintronic sources, analysis of their polarization characteristics and their applications in wide-bandwidth Terahertz ellipsometry in time domain.
Detailed description of the research:	Current Terahertz sources excited by ultrafast infrared laser pulses exhibit problems with limited bandwidth or low power, which limits their application in spectroscopy. Recently demonstrated spintronic emitters consisting of magnetic and



	<p>nonmagnetic thin films exhibit excellent spectral properties (wide bandwidth up to 20 THz) without gaps influencing mid infrared spectral range, however, up to now with low power. Their advantage is possibility of polarization modulation of emitted Terahertz radiation as a function of presence of magnetic field. It makes them highly perspective sources applicable in terahertz ellipsometry. The stay will be focused on analysis of polarization response of terahertz emitter based on spintronic multilayers to obtain higher performance. Consequently, a new terahertz ellipsometric method based on spintronic emitter will be realized in time domain, which enables to measure both the light intensity and the phase for variable polarization states. Low price of spintronic emitters will increase availability for industrial application for measurement of material properties and thin films, for example, for production of semiconductor wafers and electronic devices.</p> <p>The main target of mobility is: to obtain new experiences with terahertz spectroscopy in time domain based on spintronic emitters and with development of novel methods of terahertz ellipsometry. Another goal is to establish collaboration with prestigious foreign institution. Obtained knowledge will be applied in research laboratories of IT4Innovations and for solution of the European project s-Nebula.</p>
<p>Basic information about the researcher's work (plan of research and development activities, job description and expected outputs):</p>	<p>In the frame of the mobility, new abilities of the researcher will be extended in experimental development of terahertz spectrometry and ellipsometry in time domain with possible extension to pump-probe measurement. It will be based on spintronic emitters and their spectral and polarization response will be tested.</p> <p>Expected outputs will be preparation of a contribution and presentation on international conference and extension of collaboration with foreign institution.</p>
<p>Length of the mobility:</p>	<p>6 months</p>
<p>Requirements for the candidate:</p>	<ul style="list-style-type: none"> • The candidate must be a Junior Researcher¹. If it is a Ph.D. student, he/she must have the status of a Ph.D. student (in an institution based in the Czech Republic)

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Junior Researcher

A Junior Researcher is a researcher, being a Ph.D. student or meeting the post-doc definition.

The said period may be extended for the maternity and paternity leave period, long-term sickness (more than 90 days), care for a family member (more than 90 days), pre-attestation preparation and military training.



	<ul style="list-style-type: none">• During the mobility implementation, the candidate must be an employee of the Beneficiary, working for at least 0.5 of the working time• The candidate must have a recommendation of the tutor (if it is a Ph.D student)• Good knowledge of English language
Conditions of the mobility:	<ul style="list-style-type: none">• The researcher must work for 6 months as an employee of VŠB - TU Ostrava without undue delay after returning from mobility. The return phase also includes dissemination of mobility results to employees/students of the VŠB-TU (at least one seminar, workshop, etc.)• The researcher must participate in a conference / seminar / workshop etc., on average at least once every 6 months of mobility started.• Any potential research output conceived during mobility performance must be published in an Open Access form.• The researcher will have a mentor in host institution who should tend to the researcher 4 hours a week in average.
Selection criteria:	<ul style="list-style-type: none">• The number and quality of publication outputs• The way and scope of involvement in the research projects• Language skills of the candidate for the mobility• Experiences and long-term foreign stays• Contribution of candidate's mobility to the institution of the applicant (VSB)• Expected results of the mobility and their future use for the institution of the applicant (VSB)• Potential of the mobility to increase the quality of research at the institution of the applicant (VSB)
Documents required from the candidate:	<ul style="list-style-type: none">• Professional CV• Diploma (or recognition, in the event of a Ph.D. Student, confirmation of studies.)• Referral of the tutor in the event of a Ph.D. student• A certificate proving level of knowledge of English language• List of scientific or professional publication and other documents certifying scientific qualification• Research plan with respect to the required field of research



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Salary conditions:	<ul style="list-style-type: none">• The salary conditions are set in accordance with the rules of the Operational Programme Research, Development and Education• Approx. 84 000 CZK / month / gross wage
Contact person:	Lenka Dulaiová, lenka.dulaiova@vsb.cz , 597 329 532 (IT4Innovations)

The process of mobility is subject to the Rules for Applicants and Beneficiaries, Specific Section, Call “International mobility of research, technical and administrative staff of research organizations” (Operational Programme Research, Development and Education No. 02_18_053). The researcher is required to submit Monthly report of activities for each performed activity unit and to fulfil the Attendance (during the mobility), and also after the end of the return phase he is required to draw up the Report in Return Phase.

The researchers must participate in a conference / seminar / workshop etc., on average at least once every 6 months of mobility started. It may be an event organized by other than host institution or if the event is organized by the host institution, it must be an international event.

The researchers must have a mentor in the host institution who should tend to the researcher 4 hours a week on average.

Interested candidates are requested to send the above mentioned documents in the Czech or English language to lenka.dulaiova@vsb.cz by no later than 20th August, 2020.

In Ostrava, 5th August, 2020