



**Project sheet reference n°  
2018-KRU-G-000-9664**

**Laboratory characterisation of Chernobyl  
lavas**

<p><b>Position for:</b></p> <p>Trainee</p>	<p>As the science and knowledge service of the Commission, the mission of DG Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.</p> <p>The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: <a href="https://ec.europa.eu/jrc/en">https://ec.europa.eu/jrc/en</a></p> <p><b><u>Short description of activity:</u></b></p> <p>A traineeship is proposed to perform original analysis on real samples of radioactive glass originating from the Chernobyl core meltdown accident and explosion. These samples were shipped to JRC Karlsruhe within a research agreement between JRC and the Khlopin Radium Institute (KRI) in St. Petersburg (Russia). The material characterisation facilities available at JRC allow a detailed analysis of such highly radioactive samples. In particular, Electron Probe Micro Analysis (EPMA), Electron Microscopy, Raman Spectroscopy, and Thermal Analysis techniques will be employed for the characterisation of the so-called black and brown "lava" samples from the Chernobyl accident. The interpretation of the results will be an important part of the trainee's work, aimed at shedding some light on the formation of these complex glassy materials, which contain also ceramic inclusions stemming from the irradiated fuel assemblies. The interest of these results will be large in the international scientific community working on nuclear power plants severe accident analysis. The results will actually help understanding in a more detailed way the steps leading to corium formation and corium-concrete interaction in a meltdown event, and will therefore be essential in defining safety measures and possible remediation procedures. The characterization will also assist the future remediation and decommissioning of the Chernobyl site.</p> <p>These results will be used in light of broader severe accident research activities, involving also large international projects such as SAFEST, Pre-ADES and TCOFF, and a IAEA coordinated research project (CRP).</p>
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	<p><b><u>Qualifications:</u></b></p> <ul style="list-style-type: none"> <li>-The ideal candidate will be an undergraduate or graduate (B.Sc. or M.Sc.) student in Nuclear Engineering, Materials Engineering, Materials Science, Physics, Chemistry, Mineralogy or similar disciplines.</li> <li>- She/he will be ready to perform experimental work with radioactive samples in a hot laboratory.</li> <li>- She/he will be willing to work in an international environment (main language: English).</li> <li>- The candidate will summarise the results of the traineeship in a final report.</li> </ul> <p><b><u>For general eligibility requirements, please read the rules governing the traineeship scheme of the JRC:</u></b></p> <p><a href="https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees">https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees</a></p>
<b>Directorate Unit</b>	<p>Directorate for Nuclear Safety and Security (Karlsruhe) JRC.G.I.3 Nuclear Fuel Safety Unit</p> <p>Further information: <a href="https://ec.europa.eu/jrc/en/about/organisation">https://ec.europa.eu/jrc/en/about/organisation</a></p> <p><a href="https://ec.europa.eu/jrc/en/science-area/nuclear-safety-and-security">https://ec.europa.eu/jrc/en/science-area/nuclear-safety-and-security</a></p>
<b>Indicative duration</b>	5 months
<b>Preferred starting date</b>	May 2018
<b>JRC Site</b>	Karlsruhe
<b>Country</b>	Germany
<b><u>JRC contact details</u></b>	<p><b>For any technical problems with your application, please contact:</b> <a href="mailto:HR-AMC8-RECRUITMENT-TOOLS-SUPPORT@ec.europa.eu">HR-AMC8-RECRUITMENT-TOOLS-SUPPORT@ec.europa.eu</a></p>