



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL  
JOINT RESEARCH CENTRE  
Directorate R - Resources  
Human Resources

2017-IPR-E-000-8168

**Computational analysis of the human  
brain under extreme loading conditions  
(impact, blast)**

**Position for:**

**Short description of activity:**

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.

The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: <http://www.jrc.ec.europa.eu>

To date, the brain remains the most intriguing and unexplored organ in humans. Understanding its mechanical behaviour is crucial for the study of traumatic brain injury. Such kind of investigations are in particular important for blast loading of the brain which remains the most common cause of fatality in case of terrorist attacks.

Computational models are a fast and reliable tool to analyse mechanically the brain. Mechanical simulations of the brain, usually making use of Finite element methods, have been used for impact or blast analyses.

The training consists in (a) developing a model for human brain under blast loading and (b) making parameter studies in order to investigate the brain behaviour under different blast loading conditions under the supervision of the traineeship adviser. The explicit finite element software EUROPLEXUS will be used.

**Qualifications:**

**Essentials:**

Candidates must hold a University degree in civil/structural engineering and an MSc in a field relevant to the topic of the call.

	<p>Applications from students currently preparing a thesis for an MSc degree are eligible. According to the Trainees Rules, the thesis has to be closely related to the subject of the call.</p> <p>Good knowledge of the English language (level B2).</p> <p>Good analysing and problem-solving skills.</p> <p><b>Advantage:</b> Previous research or professional experience relevant to the topic of the call and experience in the use of explicit FEM software will be considered an advantage.</p> <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>Space, Security and Migration Safety and Security of Buildings</p> <p>Further information: <a href="https://ec.europa.eu/jrc/en">https://ec.europa.eu/jrc/en</a></p>
<b>Indicative duration</b>	5 months
<b>Preferred starting date</b>	as soon as possible
<b>JRC Site</b>	Ispra
<b>Country</b>	Italy
<b><u>JRC contact details</u></b>	<p><b>For any technical problems with your application, please contact:</b> <a href="mailto:JRC-ESRA@ec.europa.eu">JRC-ESRA@ec.europa.eu</a></p>