



2018-IPR-G-000-9947

SIGNAL DIGITIZER

<p>Position for:</p> <p>Trainee</p>	<p>As the science and knowledge service of the Commission, the mission of 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: http://www.jrc.ec.europa.eu</p> <p>Short description of activity:</p> <p>The trainee position is available at the Nuclear Security Unit. The unit focus is on state of the art enabling research, the use of specific technology, development of instruments and methods, delivering technical services and training in the domain of nuclear safeguards, non-proliferation and nuclear security. In this way, the unit supports the verification of international treaties and agreements related to nuclear safeguards and non-proliferation. The Nuclear Security Unit develops NDA methods and instrumentation applications in nuclear safeguards, security and waste characterization. A particular case concerns the use of scintillation detectors in pulsed neutron experiments. For this purpose we require a data acquisition system based on a signal digitizer connected to multiple scintillation detectors. The signal digitizer we intend to develop for this purpose has characteristics beyond those of commercially available instruments, including high sampling rate, multiple input lines, on-board signal processing, and high data transfer rate to the host computer.</p> <p>The main part of the work concerns development of a prototype signal digitizer including design and modeling of a circuitry based on modern FPGA and ADC components, design of prototype PCBs, hardware programming, testing and troubleshooting. Finally the prototype digitizer will be tested in an actual setup of radiation detectors. The trainee will be part of a small team of</p>
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	<p>specialists and will be guided through the various aspects of the project. The planned contributions of the trainee are suitable for presentation as a thesis project at MSc level.</p> <p><u>Qualifications:</u></p> <p><u>Essential:</u></p> <ul style="list-style-type: none"> - Electronics or electrical engineering. - Knowledge of electronic circuitry and their design. - Some knowledge of computer science is required. <p><u>Advantage:</u></p> <ul style="list-style-type: none"> - experience with VHDL and Modelsim or similar products. - experience with ADC technology. <p><u>For general eligibility requirements, please read the rules governing the traineeship scheme of the JRC:</u></p> <p>https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees</p>
Unit / Directorate	<p>Unit G.II.7 – Nuclear Security Directorate G – Nuclear Safety and Security</p> <p>Further information: https://ec.europa.eu/jrc/en/research-topic/nuclear-safeguards-and-security</p>
Indicative duration	5 months
Preferred starting date	As soon as possible
JRC Site	Ispra
Country	Italy
<u>JRC contact details</u>	<p>For any technical problems with your application, please contact: HR-AMC8-RECRUITMENT-TOOLS-SUPPORT@ec.europa.eu</p>