



Position Title	PhD Studentship - Industrial Mineral Ore Sorting by Selective Microwave Heating
Project Abstract	<p>The proposed PhD research project is part of SortOre, a research and development project currently underway in the Applied Physics Research Group in the TCD School of Physics and AMBER, PI Prof. Igor Shvets. SortOre aims to develop a commercial ore sorting solution as a mineral pre-concentration stage to be installed in production chains of various mineral ores in the mining industry. This is intended to address the perennial problem faced by mines that usable materials have to be extracted from orebodies of continually dropping grades and quality.</p> <p>In a stream of run-of-mine material, the SortOre solution identifies rocks of sufficient mineral content by way of an array of sensors that perform automated physical measurements. One such sensor, to be developed in the proposed project, subjects the stream of rocks to a high-power microwave field (of a frequency in one of the ISM bands). In this field, rocks will heat at different rates according to the dielectric parameters of the materials in each rock matrix. A thermal imaging system extracts the heating rates of each rock, on the basis of which a machine learning algorithm then performs an estimation of the mineral content.</p>
Experience	The PhD position is funded for 4 years, including a monthly stipend and materials and travel budget. Applicants should hold a minimum of an honours bachelor's degree at 2:1 level or equivalent in a relevant subject such as Physics/Engineering. Candidates should also have a strong interest in Energy & Sustainability.
Funding	The studentship will cover fees up to €5,500 pa and a stipend of €18,500 pa
Location	TCD
Closing Date	Friday 29 th June 2018
For more information contact	Prof. Igor Shvets; igor.chvets@tcd.ie

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