

# DOCTORAL STUDENT POSITION

The Fibre and Particle Engineering research unit of the University of Oulu is opening two Doctoral Student positions. The research is related alkali activated materials (geopolymers) with one PhD project concentrating on the development of glassy precursor materials, and the other on the stabilization of heavy metals in the geopolymer structure.

The motivation behind our work on alkali activated materials is sustainable utilization of industrial side streams and minerals in advanced inorganic materials, as well as mitigation of CO<sub>2</sub> emissions. In alkali activation, alumina- and silica-rich materials are activated with alkali solution to yield ceramic materials, using room temperature processes. Alkali activated materials are highly tuneable with diverse applications ranging from sustainable cements to high temperature composites and even industrial catalysis. We strive to increase the scientific understanding of the basic phenomena related to alkali activated materials, as well as their industrial application. The work will be done as laboratory work and will consist of design and execution of research plan with the aid of the laboratory staff. The work is both academically challenging and has a large industrial relevance and interest.



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## Work description

We are looking for a motivated doctoral student for the whole duration of the thesis work (four years). Part of the thesis work is recommended to be completed as a brief international research exchange. The education requirements for a PhD degree studies are given by the University of Oulu graduate school UniOGS (<http://www.oulu.fi/uniogs/>). The position includes a maximum of 5% teaching requirement or other infra-structural responsibilities. Trial period: 3 months.

Starting date: possible to start immediately or as agreed.

## Eligibility

Master's degree in inorganic chemistry, mineralogy, process engineering, environmental engineering or equivalent. The applicant should be highly motivated, have good analytical and problem solving skills and fluent English. One or both of the openings will be filled, depending on the suitable candidates.

## Salary

Monthly starting salary is 2500 euros (before tax) depending on the qualifications, progressing to 2900 euros towards the end of your doctoral studies. Tuition is free, and a student can expect to require approximately 700-900 euros per month for room, board, and miscellaneous expenses.

## How to Apply

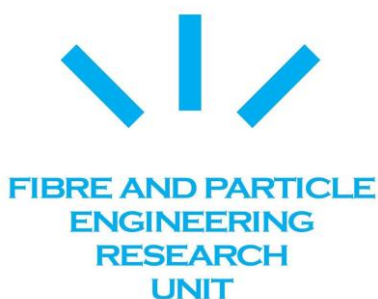
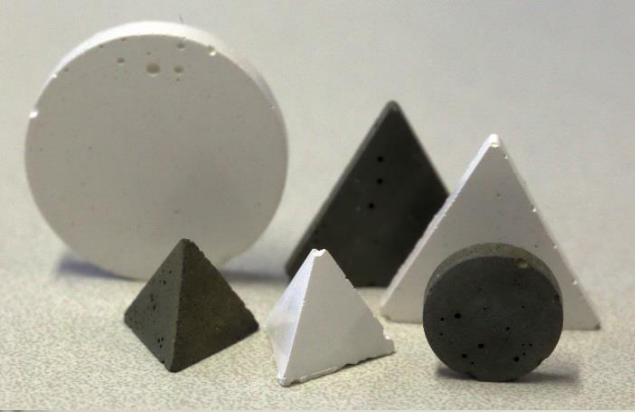
Please include the following attachments in the application:

- 1) CV, including education and relevant academic/work experience
- 2) Official record of transcripts and copy of degree certificate (and proof of language skill)
- 3) Cover letter (maximum 1 page) with a short description of interest in the scientific studies and the specific research field.

**Please fill out your application (using the link below) by Monday November 27<sup>th</sup>, 2017 at 6.00 (UTC). Expect to be invited to interview by skype or in person.**

[https://rekry.saima.fi/certiahome/application\\_edit\\_welcome.html?did=5600&lang=en&job\\_id=4490&jc=1](https://rekry.saima.fi/certiahome/application_edit_welcome.html?did=5600&lang=en&job_id=4490&jc=1)





## Organization

### Fibre and Particle Engineering Research Unit

carries out research in the field of **advanced inorganic materials in circular economy** as well as in biomaterials and biochemicals. We are a diverse group of highly motivated researchers; six nationalities around the globe, with diverse scientific background (in organic/inorganic chemistry, engineering, physics), and of which 30% are female. The research group of roughly 40 consists of 17 doctoral students, 15 postdoctoral researchers and three assisting personnel with several MSc and BSc thesis workers. In the area of inorganic materials and circular economy the emphasis of research is on processing of mine tailings, biomass fly ash, slag and other inorganic industrial residues and utilization of them in advanced inorganic materials and construction. Current projects within the alkali activation research include stabilization of harmful substances of ash and slag, geopolymerization of sulphidic mine tailings and mineral wool waste. A promotional video of the inorganics team can be found [here](https://youtu.be/kpR5lc0TPBc) (<https://youtu.be/kpR5lc0TPBc>).

University of Oulu has state-of-the-art facilities that are amongst the most up-to-date and best equipped in Europe, with recently updated TEM-EDX, FESEM-EDS, XRD, DSC-MS and XRF.

University of Oulu is an international science university, which creates innovation for the future, well-being, and knowledge through multidisciplinary research and education. Founded in 1958, our research and education community is 16 000 students and 3000 employees strong, and one of the biggest and the most multidisciplinary universities in Finland. In the Times Higher Education ranking University of Oulu was ranked within the best 300 universities globally. (<http://www.oulu.fi/english/>)

Finland is a global leader in eco-innovation and the development of novel cleantech solutions. There are 2,000 companies operating in the Finnish cleantech sector, generating up to 20% of Finland's total exports. (<http://www.studyinfinland.fi/>)

### Further information

For further information please contact:

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And do not hesitate to contact our current PhD students for reference: <http://www.oulu.fi/pyokuien/staff>

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