

Postdoctoral Research Fellowship: Pyrolysis conversion of biomass and wastes

Department of Process Engineering, Faculty of Engineering, University of Stellenbosch, Stellenbosch 7600, South Africa

Position:

An opportunity for a postdoctoral researcher focused on the experimental optimization of pyrolysis processes for the conversion of plant biomasses, waste plastics and waste tyres into fuels, chemicals, biochar and activated carbon, is currently available. The postdoctoral researcher will have considerable responsibility to coordinate research efforts in such pyrolysis process optimization, including the application of appropriate catalysts together with the associated chemical analyses and characterization of products. Of particular interest is the combination of steam-pretreatment of lignocelluloses, to improve the mechanical strengths of pellets/briquettes produced from these materials, with subsequent pyrolytic conversions. These approaches not only allow for co-production of valuable products, but also the conversion of pyrolysis chars into sorbent-materials. Multi-product facilities based on pyrolysis conversion of waste tyres, are also under development. The researcher will also undertake studies on the scale-up from bench-scale to pilot facilities at an appropriate industrial facility for pyrolysis conversion. The postdoc will work closely with the various researchers in the pyrolysis and separation group as well as industrial partners in these projects.

Candidates with experience in experimental optimization of (catalytic) pyrolysis conversion, fractionation of condensable products, extensive characterization of all of the pyrolysis products, and technology scale-up are particularly encouraged to apply. Experience with technology piloting or demonstration and advanced chemical analyses, will be considered an advantage.

The postdoctoral position will be integrated into a research program within the Department of Process Engineering, and will involve both own experimental work and the support of experimental projects by postgraduate students. The postdoctoral researcher will be expected to contribute significantly to:

- A. The publication of research outputs from current and previous projects
- B. Daily mentoring of postgraduate student projects and operators of the pyrolysis equipment
- C. Coordination of research activities between partners in the project
- D. Writing new funding proposals to sustain research activities
- E. Publication of research results in high quality international journals

The fellowship is available for a minimum period of one year, starting 1 September 2020, or shortly thereafter, and is renewable for a maximum duration of 3 years, depending on performance. A minimum scholarship of ZAR400 000 per annum has been granted for the position and, provided that the necessary procedures are put in place, the postdoctoral fellowships are awarded tax free. Please note that postdoctoral fellows are not appointed as employees and are therefore not eligible for employee benefits.

Requirements:

- A Ph.D. in Chemical Engineering, obtained within the past five years, with an undergraduate qualification in Chemical Engineering.
- Extensive research experience with pyrolysis technology development, scale-up and products characterization.

Applications:

A cover letter and curriculum vitae, including all research outputs, should be sent via email to Prof Johann Görgens (jgorgens@sun.ac.za).

The address for the cover letter is as follows: Department of Process Engineering, Faculty of Engineering, Stellenbosch University, Private Bag X1, Matieland, 7602, South Africa.

See <http://processengineering.sun.ac.za/> for more details on the department and Stellenbosch University.

Closing date for applications is 10 Augustus 2020. The university reserves the right not to fill the position.