

Postdoctoral position for 2024/2025

Rock bed thermal energy storage research

Introduction:

Solar thermal energy is an important research topic at the Department of Mechanical and Mechatronic Engineering at the University of Stellenbosch. Our Solar Thermal Energy Research Group (<https://sterg.sun.ac.za/research/>), which was founded in 2010, is a multi-disciplinary research group comprising researchers from our Mechanical & Mechatronic, Electrical & Electronic, and Chemical Engineering departments. We currently have a position open for a postdoctoral researcher in heat transfer and pressure drop in rock bed thermal energy storage systems. The research is led by Prof. Jaap Hoffmann (<https://www.mecheng.sun.ac.za/about-us/academic/thermo-fluid-dynamics/>) and uses techniques such as particle characterization, discrete element modeling, computational fluid dynamics, and laboratory experiments.

Description:

It is expected of the candidate to consolidate research on pressure drop through anisotropic packed beds done over the last decade in the department. The candidate should extend current research that was limited to ellipsoidal, monodispersed particles to irregular particle shapes and/or polydisperse packings. The aim is to develop correlations for the heat transfer coefficient in a packed bed based on flow, bed, and particle parameters. The candidate should collaborate with researchers and postgraduate students in the Mechanical & Mechatronic Engineering Department, and the Solar Thermal Energy Research Group in particular. It might be required that the candidate supervise master and undergraduate students in Mechanical Engineering.

Minimum requirements

Ph.D. in Mechanical Engineering (must have graduated within the last three years). Sound computational fluid dynamics and/or discrete element modelling skills will be advantageous.

Closing date:

27 October 2023

Start date:

15 January 2024

Duration:

The appointment is for two years, but continuation into the second year is subject to satisfactory performance.

Bursary value:

ZAR 240 000 (tax free)

Postdoctoral fellows are not appointed as employees of the university, and are not eligible for employee benefits.

Applications:

Please send a single pdf file to Prof Jaap Hoffmann before the closing date, containing:

- Your CV and publication record
- Degree certificates
- A two-page statement describing your current research experience
- The names and email addresses of two referees.

Enquiries:

Prof. Jaap Hoffmann

Email: hoffmaj@sun.ac.za