

## **Postdoctoral Research Fellowship Green Hydrogen Engineering Research**

The Green Hydrogen Engineering Research Platform at Stellenbosch University seeks applications for the appointment of up to four Postdoctoral Research Fellows within the departments of Process Engineering, Mechanical & Mechatronic Engineering, Industrial Engineering, and/or Electrical & Electronic Engineering.

The successful candidates will focus on conducting scientific research in fields related to green hydrogen engineering.

The environment for the hydrogen economy has shifted significantly:

- The role of green hydrogen in decarbonising the energy system has become widely recognised internationally in several hard to abate sectors
- Geographic regions that are short of renewable energy resources will need to supplement their energy needs by importing green hydrogen
- Geographic regions that are rich in both solar and wind energy resources will need to produce and export hydrogen to renewable lean geographies
- Significant research is needed for the technologies to produce, store, integrate, transport and use green hydrogen

The candidates will be expected to publish the results of the research at local and international conferences, and in high-impact journals. Limited mentoring and supervision of post-graduate students within the Green Hydrogen Engineering Platform will also be required. The successful candidates will play an active role in shaping the Green Hydrogen Engineering Platform research agenda, including the writing of research and grant proposals, and will collaborate with industry experts to ensure continued alignment with industry needs.

The fellowship is available for one year, renewable for up to three years, subject to satisfactory performance and availability of funding.

### **Hosts:**

- Prof Craig McGregor, Department of Mechanical and Mechatronic Engineering
- Prof Andre J Burger, Department of Process Engineering
- Prof Oliver FRA Damm, Department of Industrial Engineering
- Prof Bernard Bekker, Department of Electrical and Electronic Engineering

### **Requirements:**

- PhD in relevant field (must have graduated within the last five years)
- Excellent communication skills in English (both written and verbal)
- A proven publication record in high impact journals and a demonstrated capacity to conduct independent research (minimum one relevant published article in a Scimago Q1 or Q2 journal)
- A good understanding of the production or logistics or utilisation of green hydrogen or ammonia

### **Specific areas of potential research include:**

- Systems-level engineering of production, logistics and/or utilisation of green hydrogen and ammonia (technoeconomic assessment)
- Mechanical hydrogen storage design and prototyping
- Novel (electrochemical) routes to ammonia synthesis and decomposition
- Solid oxide cells or photochemical reactors
- Mass manufacturing of fuel and/or electrolytic cells
- Green hydrogen uses in biomass upgrading, green steel production, or hydrogen derivatives

- Integration of water production, water waste and brine upcycling technologies within water electrolysis plants

Please note that postdoctoral fellows are not appointed as employees and their fellowships are awarded tax free. They are therefore not eligible for employee benefits.

**Commencement of duties:** January 2023 or as soon as possible thereafter.

**Closing date:** 17h00 on 25 November 2022

**Application process:** Send a letter of application, accompanied by a comprehensive curriculum vitae, including list of publications, link to the candidate's PhD thesis, and the names and contact details of two referees, to Prof Craig McGregor, [craigm@sun.ac.za](mailto:craigm@sun.ac.za)