Researcher / Postdoc Positions (2) in Renewable Hydrogen System Design and Digital Modelling

Stellenbosch University – H_2GEN Research Platform
Location: Stellenbosch, South Africa
Contract Type: Full-time, fixed-term (renewable based on performance and funding)
Start Date: As soon as available

About the H_2GEN Platform
The H_2GEN Research Platform at Stellenbosch University is a flagship initiative under the Centre for Renewable and Sustainable Energy Studies (CRSES). The platform focuses on the development, integration, and optimization of renewable hydrogen systems — from solar and wind energy generation, through electrolysis, purification, storage, and end-use applications such as refueling and household energy systems.
These positions form part of the industrial and research (local and international) collaborations, advancing hydrogen technology innovation through experimental validation, simulation, and digital modelling.

The Roles
Two full-time Researcher / Postdoc positions are available within the H_2GEN Platform:
1. Researcher / Postdoc in System Modelling and Digital Twin Development
Focus:
- Develop a digital model of the renewable hydrogen value chain – from renewable power input to hydrogen production, purification, compression, and storage.
- Apply simulation tools (MATLAB/Simulink, Python, TRNSYS, or equivalent) to optimize system performance.
- Support the creation of a digital twin for real-time monitoring and predictive system optimization.

2. Researcher / Postdoc in AI-driven Predictive Modelling and Techno-economic Assessment
Focus:
- Apply AI and machine learning tools to hydrogen system operation and optimization.
- Conduct techno-economic analyses of hydrogen microgrids, refueling systems, and household applications.
- Develop and implement predictive models for performance, reliability, and cost efficiency.

Both researchers / postdocs will collaborate closely with the researchers in H2GEN, technical partners, contribute to demonstrator testing, and engage in joint publications, presentations and proposals

Requirements (Essential):
- MSc or PhD in Mechanical, Chemical, Electrical, or Industrial Engineering, or a related discipline.
- Proven experience in hydrogen systems, renewable energy integration, or energy system modelling.
- Proficiency in simulation tools (MATLAB/Simulink, Python, etc).
- Strong analytical and problem-solving abilities.
- Excellent communication skills and teamwork orientated.

Recommended:
- Experience in AI/ML applications for energy systems.
- Experience with techno-economic analysis or digital twin frameworks.

- Understanding of microgrid systems and hydrogen refueling infrastructure.
- Evidence of research outputs (publications, reports, software tools).

H2GEN offers:

- Competitive remuneration based on qualifications and experience.
- Access to hydrogen and energy research facilities.
- Opportunities for international collaboration and exchange
- Professional development, mentorship, and support for further academic advancement.
- A dynamic, interdisciplinary environment at one of Africa's leading research universities.
- Contract can be renewed up to 3 years depending on performance

How to Apply

Please submit the following as a single PDF document to h2gen@sun.ac.za:

1. A cover letter (max 2 pages) indicating which position you are applying for.
2. A detailed CV, including a list of publications or relevant outputs.
3. Academic transcripts (MSc and/or PhD).
4. Proof of degree or supervisor letter (if PhD pending).
5. Contact details for three referees.

Closing date: Applications will be reviewed on a rolling basis until both positions are filled. Though final cut-off date is the 20 December 2025. Should you not hear back from us, kindly consider the application not successful.

Stellenbosch University reserves the right not to make an appointment and to withdraw or re-advertise the post at any time.

Enquiries:

Prof. Prathieka Naidoo – *prathiekan@sun.ac.za*
Mr. Paul Thiele – *h2gen@sun.ac.za*

About Stellenbosch University

Stellenbosch University is internationally recognized for excellence in research and innovation. The Centre for Renewable Sustainable Energy Studies (CRSES) works closely with the H2GEN research team in driving South Africa's transition to a low-carbon energy future, promoting sustainable and equitable access to energy technologies.

Join us in advancing the renewable hydrogen revolution through pioneering research, digital innovation, and sustainable impact.

Closing date: 20 December 2025.