**The University of KwaZulu-Natal (UKZN) is committed to Employment Equity with the intention to promote representivity within the Institution. Preference will be given to South African applicants from the designated groups.**

**COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE**

**PHD STUDY IN BIOREFINERY PROCESSING OF BIOMASS**

**01 January 2023 – 31 December 2025**

**SCHOOL OF ENGINEERING**

**HOWARD COLLEGE CAMPUS**

**Ref: BIDF/FBIC/JA/2023**

The University of KwaZulu-Natal (UKZN) invites applications from suitably qualified candidates to undertake a Doctoral Degree in the discipline of Chemical Engineering. The position is located at the Biorefinery Industry Development Facility (BIDF), a CSIR entity based in Durban. Candidates with proven track record and research interest in biorefinery technologies, beneficiation of organic waste, the circular economy, or green chemistry are desired.

The bursary is awarded on a competitive basis, considering the applicants' academic achievements, publication outputs and research potential, as well as the relevance of prior experience and expertise. The bursary is available for a period of three years, renewable in year two and three subject to satisfactory performance.

1. **Project Overview:**

The Biorefinery Industry Development Facility (BIDF) is an initiative of the Department of Science and Innovation (DSI) housed at the Council for Scientific and Industrial Research (CSIR) on their Durban Campus. The primary focus of the BIDF is support local industries (both large scale and SMMEs) to improve their competitiveness by providing access to specialised analytical and pilot scale facilities and skills that enable the more efficient use of biomass resources, overcome significant organic waste challenges and develop new products for markets.

The objective of this PhD study is to investigate the production of transparent wood for application as window panes for use in building construction. Traditional window panes are produced from glass. However, single-pane glass windows suffer from several limitations such as high intrinsic thermal conductivity leading to increased energy consumption for internal heating. Glass is also fragile and may break upon sudden impact if not toughened, making it a safety hazard. Moreover, large amounts of carbon dioxide are emitted during glass production. Therefore, exploring energy efficient window materials is highly desirable to address heating costs, energy shortages, and the global impact of climate change associated with increased carbon emissions.

Application is open to all South African and foreign nationals for full-time research at the University of KwaZulu Natal.

1. **Qualifications, Experience and Skills Criteria:**

* A Master’s degree in Chemical Engineering/Chemistry/Materials Science
* Excellent written and verbal skills in English
* Demonstrable experience and proficiency in statistical design of experiments and analysis of data using software such as Statistica, Origin, etc.
* Excellent organisational capability, work ethic, ability to work independently, and strong interpersonal skills.
* Experience in publishing research findings (at least one publication in a reputable journal)

1. **Value and Tenure**

* A stipend of R120 000 per annum,
* The position is for 3 years, with renewal in the second and third years subject to satisfactory progress being made in the previous year,
* The position is based at the CSIR in Durban and the applicant will be required to register at the University of KwaZulu Natal for the degree
* UKZN fees are waived for PhD study

1. **Application Process**

* A complete CV including a publication list and contact details of at least two references who have been directly involved in the applicant’s Masters and/or previous work,
* Copies of academic transcripts and certificates (Honours, Masters) and any awards or additional courses attended that the applicant deems relevant,
* A copy of ID document or copy of passport in the case of foreign applicants
* Applications must be submitted electronically to Dr. Jerome Andrew ([jandrew@csir.co.za](mailto:jandrew@csir.co.za)) by no later than 10 December 2022.

1. **Selection Process**

* The closing date for applications is 10 December 2022
* Only eligible and complete applications will be considered,
* Receipt of applications will be acknowledged, but any further feedback will only be given to shortlisted candidates
* Interviews will be conducted with shortlisted candidates and the successful candidate is expected to start on 1 January 2023

**Late applications will not be considered. UKZN reserves the right not to make an appointment to this advert.**