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## Postdoctoral fellowship in Patient-Specific Simulation of Ventricular Remodelling in Inflammatory Heart Diseases

The Computational Continuum Mechanics Group of the University of Cape Town together with the Department of Human Biology and the Cape Universities Body Imaging Centre (CUBIC) have an opportunity for a Postdoctoral fellowship part of the collaborative project "Patient-Specific Simulation of Ventricular Remodelling in Inflammatory Heart Diseases" funded by the NRF Blue Skies Programme.

The ultimate goal of this project is to combine computational cardiac mechanics with medical imaging techniques and non-invasive procedures to gain insight into the chronology of inflammatory heart diseases from the biomechanics perspective and to guide decision making in finding patient-specific treatment options most suitable to these kinds of pathological conditions of the heart. The core outcome is therefore the development and implementation of a comprehensive computational cardiac mechanics software package which serves as an open-source platform for development of novel approaches, training of students, application as an advanced diagnostic and as a research tool in cardiology. Another objective is the development of novel mathematical models which allow for the description of the biomechanics and physiology of diseased heart tissue on cellular level. The development will be guided by clinical studies which are required to characterize the mechanobiology of myocardial tissue from a medical and biomechanical point of view.

This project is a multidisciplinary collaboration comprising the Departments of Civil Engineering, Mechanical Engineering, Medicine, Surgery and Human Biology at UCT, the Cape Universities Body Imaging Centre, the Department of Civil Engineering at the University of Duisburg-Essen (Germany), the Institute of Mechanics Statics Dynamics at the University of Dortmund (Germany), and the Auckland Bioengineering Institute at the University of Auckland (New Zealand). Parts of the research work may therefore be conducted by studies abroad.

The postdoctoral fellowship is tenable at the Computational Continuum Mechanics Group, University of Cape Town.

### Conditions of Award:

- (i) The successful candidate must be in possession of a PhD or equivalent degree in a relevant area (Engineering, Mathematics, Physics, Human Biology or related disciplines) and have an interest in (bio)mechanics/biomedical engineering.
- (ii) Only individuals who have achieved the doctoral degree within the past 5 years are eligible to apply.
- (iii) Applicants may not previously have held full-time professional or academic positions.
- (iv) The successful candidate may, as part of their professional development, be required to participate in departmental activities such as limited teaching and supervision and duties incidental thereto.
- (v) The successful incumbent will be required to comply with the University's approved policies, procedures and practises for the postdoctoral sector.

### Value and tenure:

The value of the fellowship is ZAR 220,000 per annum. No benefits or travel allowances are included in the value of the fellowship. The fellowship is tenable for 1 year with the possibility for renewal for a second year, dependent on performance.

### Application process:

Applicants should provide the following:

- A letter of application describing their academic interests, as stated above in "Conditions of Award" item (i);
- Certified copies of academic transcripts and evidence of having graduated with the PhD degree;
- A CV including any publications or research output;
- The names and contact details of 3 academics/referees.

Further information can be obtained from, and applications submitted to, Dr Sebastian Skatulla (Email: [sebastian.skatulla@uct.ac.za](mailto:sebastian.skatulla@uct.ac.za), Tel +27 21 650 2595) and Dr Ntobeko Ntusi (Email: [N.Ntusi@uct.ac.za](mailto:N.Ntusi@uct.ac.za), Tel +27 21 406 6200).

Applications will be accepted until the fellowship has been awarded.

Only shortlisted candidates will be contacted.

The University of Cape Town reserves the right to cancel incomplete applications, to effect changes to the conditions of the Fellowship and/or to make no awards at all.