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PhD/MSc scholarships 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 two PhD and/or two MSc Scholarships 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 scholarships are tenable at the Computational Continuum Mechanics Group of the Department of Civil Engineering, University of Cape Town.

PhD scholarship:

The value of the scholarship is R130,000 per annum. The scholarship will start as from January 2017. Annual renewal will be subject to satisfactory progress and funding will be available for up to three years. Applicants should have a Masters degree in Engineering, Mathematics, Physics, Human Biology or related disciplines and an interest in (bio)mechanics/biomedical engineering.

MSc scholarship:

The value of the scholarship is R95,000 per annum. The scholarship will start as from January 2017. Annual renewal will be subject to satisfactory progress and funding will be available for up to two years. Applicants must be South African citizens and should have an Honours degree in Engineering, Mathematics, Physics, Human Biology or related disciplines and an interest in (bio)mechanics/biomedical engineering.

Further information can be obtained from, and applications submitted to, Dr Sebastian Skatulla (Email: sebastian.skatulla@uct.ac.za, Tel +27 21 650 2595) and Dr Ntobeko Ntusi (Email: N.Ntusi@uct.ac.za, Tel +27 21 406 6200). Applications need to include CV and contact details of three referees, and are accepted until the positions are filled.

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.