



# Mr Nuclear joins the University of Pretoria

Undergraduate and postgraduate students in the University of Pretoria's School of Engineering who are interested in giving their qualification a nuclear flavour, now have the benefit of learning from the experience of Prof Johan Slabber, who joined the Department of Mechanical and Aeronautical Engineering in October 2010.

Before joining the University, Prof Slabber was Chief Technology Officer at the Pebble Bed Modular Reactor (PBMR) Company (Pty) Ltd. Prior to that, he held the positions of General Manager: Reactor Technology at the Atomic Energy Corporation of South Africa (now NECSA) and Chief Systems Engineer at Integrators of Systems Technology (IST), where he led a team that completed the first conceptual systems design of a small demonstration high-temperature reactor. In 1994, he joined the Safeguards Department of the International Atomic Energy Agency (IAEA) in Vienna, where he completed a contractual period of five years before joining the PBMR in 1999. He holds a doctorate in mechanical engineering from the University of Pretoria and also studied at the Oak Ridge School of Reactor Technology in the USA.

Following his years in industry, it is a pleasure for Prof Slabber to return to his Alma Mater and plough the extensive knowledge and experience he has acquired over the years into the training of the next generation of nuclear engineers. His particular focus is to add a nuclear engineering thrust to the Mechanical Engineering postgraduate academic and research programme, as well as the presentation of an elective in Nuclear Engineering in the undergraduate programme in Mechanical Engineering. This also gives the University of Pretoria a leading edge in terms of its product offering.

The application of nuclear technology in mechanical engineering provides graduates with a solid theoretical foundation from which to develop new innovations that will provide solutions to pressing global challenges.

The first master's project with nuclear engineering theme has just been registered. It examines the viability of using silicon carbide tubes for water-cooled reactor fuel elements and suggests replacing zircalloy nuclear cladding with silicon carbide. If this technology had been in use at Fukushima, the disaster that accompanied this event might have been averted. This project is being undertaken in collaboration with Westinghouse, a major international partner in the nuclear energy field, with the support of Eskom. A presentation has been made to the National Research Foundation (NRF) for funding from the Technology and Human Resources for Industry Programme (THRIP).

Prof Slabber is also involved in setting up the Nuclear Research Institute (NuRI) at the University of Pretoria, where he will provide technical guidance in the management of nuclear technology development projects.

Research initiatives in the Department of Mechanical and Aeronautical Engineering are linked to the newly established institutional research theme that focuses on energy. These initiatives are aimed at multidisciplinary and transdisciplinary research and will expand the network of expertise that was developed to conduct research and development work on the pebble bed modular reactor technology for the PBMR before the project was terminated by government.

Research themes include materials science and nuclear waste. Such initiatives present the University with the opportunity to expand its participation in nuclear energy research to include a wider range of themes related to energy production. ➔

← *Prof Johan Slabber presented a lecture on the Fukushima tragedy as part of the Graduate School of Technology Management (GSTM) Lecture Series.*