UJ researcher first female physicist in her field in Africa

Buyisiwe Sondezi has become the first woman in Africa to be awarded a doctoral degree in the experimental Physics of highly correlated matter.

Dr Sondezi, a Physics lecturer at the University of Johannesburg (UJ), was awarded a PhD for her research on quantum criticality in matter, which is a quantum mechanical property that characterises the birth of collective behaviour in matter at extremely low temperatures. The new Physics study provides a better understand of fundamental properties of matter that have not been described yet. She graduated as a Doctor of Physics at a recent graduation ceremony at UJ, making her one of very few women in Africa to employ the technique of inelastic neutron scattering.

Her doctoral degree illustrates the University's commitment to improve the qualification profile of its academia through the *Staff Qualifications Programme*. The *Staff Qualifications Programme*, initially focused on enabling all permanent academic staff to hold at least a master's qualification, and is now focused on raising the percentage of staff with a doctoral qualification to nurture UJ as one of Africa's most prolific research institutions. The programme makes available a variety of support, including some research funding, an extensive and well-attended programme of research development workshops, writing support, and some teaching relief during the writing up phase of the research.

"The research direction for Dr Sondezi's thesis draws a great deal of attention worldwide, because it is widely recognised as a frontier in the Physics of highly correlated matter," says Prof Andre Strydom who supervised Dr Sondezi's doctoral studies. The title of her thesis is *'The physical properties of ferromagnetic CeTX compounds, where T is Copper and Gold and X is Silicon and Germanium.'*

In 2004, Dr Sondezi received an award for the Most Outstanding Oral Presentation in the field of Condensed Matter Physics and Material Science delivered at Annual SAIP Conference by a Master's Student and in 2008 for the Most Outstanding Poster Presentation in the field of Condensed Matter Physics and Material Science delivered at Annual SAIP Conference by a PhD Student. In 2009, the national Department of Science and Technology acknowledged Dr Sondezi's achievements in science, technology, innovation and research with a Woman in Science fellowship.

Says Dr Sondezi who was previously employed by the Nuclear Energy Corporation of South Africa as a scientist in the Radiation Utilisation Division: "It is hard to describe the research without becoming too technical. Simply put, the study is based on researching and finding new physics on rare-earth compounds at low temperatures. This fundamental study opens up new interesting physics and properties of materials at ultra-low temperatures."