



Rebecca NAKATUDDE

Home Country
Uganda

Degree
MSc in Medical
Physics Expertise
Physics

Research Focus
3D Manual Missing
Tissue Compensator
Cutter

Host University
University of the
Witwatersrand,
South Africa

Fellowship Awarded
2007

Rebecca Nakatudde is Ugandan by birth and the third of seven children. During the 1979 - 1985 wars in Uganda her family fled the Luwero district where she was born and moved to the Mukono district, where she grew up. She is married with one girl and one boy.

Rebecca obtained her Bachelor of Science honors degree (second upper division) in 2000 in physics, mathematics and education at Makerere University in Kampala, Uganda, and in 2007 began work on her Master of Science degree in medical physics at the University of the Witwatersrand in Johannesburg, South Africa.

Medical physics is an applied branch of physics concerned with the application of concepts and methods of physics to the diagnosis and treatment of human disease. In her research, Rebecca is helping in the design and commissioning of a 3D manual missing tissue compensator cutter. Many cancer patients who require external beams in radiotherapy (such as breast cancer patients) present irregular surface topographies and tissue inhomogeneities during treatment, and this can lead to non-uniformity of the radiation dose in the treatment field. The use of missing tissue compensators during such treatments is therefore of great importance to achieve proper dose distribution. One-dimension and two-dimension missing tissue compensators can be used but they have limitations, while 3D compensators are the most effective but are currently fabricated using expensive automated systems. The objective of Rebecca's research is to commission a 3D manual missing tissue compensator cutter that can be used to cheaply and manually fabricate 3D missing tissue compensators that can be used during external beam radiotherapy to optimize radiation dosages in such irregular surface topographies.

When she obtains her master's degree, Rebecca intends to pursue a doctorate and eventually to return to Uganda to teach at Makerere University.