

Title: 3D Visualization of intra-operative X-Ray dose  
Supervisors: Dr. R Ellis, Dr. M Kunz

The increased accessibility and use of X-Ray imaging during a surgical procedure is an important factor in the improvement of surgical outcomes and the development of minimal invasive procedures. However, it also increased the risk of the exposure of clinical staff to radiation. The real-time visualization of an accurate estimation of the amount of radiation absorbed by operating room (OR) staff and clinicians can help to improve radioprotective procedures and OR radiation safety. It can identify safer OR layouts, steps in the surgical procedure that have an increased radiation exposure risk, and optimize work flow.

Goal of this project is to develop a method to simulate the propagation of radiation in the OR based on the position of surgical table, X-Ray device and clinician, and to develop a 3D visualization method to augment the simulated radiation risk to a model of the OR environment.

Required for this project is an interest in medical imaging, medical imaging physics, visualization and software development.

