

Multiple fan-beam optical tomography: Modelling techniques

This paper explains in detail the solution to the forward and inverse problem faced in this research. In the forward problem section, the projection geometry and the sensor modelling are discussed. The dimensions, distributions and arrangements of the optical fibre sensors are determined based on the real hardware constructed and these are explained in the projection geometry section. The general idea in sensor modelling is to simulate an artificial environment, but with similar system properties, to predict the actual sensor values for various flow models in the hardware system. The sensitivity maps produced from the solution of the forward problems are important in reconstructing the tomographic image.