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MATHEMATICS

Simulation of X-ray scattering patterns
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Over the past two months I have been involved with a vacation project associated with the department of mathematics situated at the University of Queensland, the Australian Mathematical Sciences Institute (AMSI) and the International Centre of Excellence for Education in Mathematics (ICE-EM). This project focused on the mathematics that underlies a chemical analysis technique known as Small angle X-ray scattering (SAXS). The main supervision of this project was undertaken by Dr. Tony Roberts of the mathematics department.

This project aimed to analyse the current literature on SAXS and gain an understanding of the mathematics that are needed to analyse the findings from a SAXS experiment. This project succeeded in developing a good understanding of the majority of maths behind SAXS and allowed for some interesting results. Some such results included the production of a number of numerical integral plots that were utilised to test whether another determined estimation was relevant or not.

I believe that this project gave me a good understanding of what to expect in my honours year and was also quite refreshing change to normal undergraduate life. No, I had already decided long before this project to undertake honours.