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## Compact X-ray sources

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X-ray sources are used in radiography in order to scan cargo coming through ports around the world in much the same way as x-ray machines in hospitals. Additionally, knowledge of nuclear physics allows not just the shape, but the material properties of the objects to be determined by such scanners. All such scanners involve generating x-rays using electron beams which could potentially be generated using a laser instead of conventional technology. Due to the ultrafast and highly focusable nature of a pulsed laser it could be possible to produce a shorter bunch of x-rays with improved imaging capability using this new laser-based accelerator technology.

This project studied one such scheme of using laser generated electrons to produce highly penetrating x-rays for imaging applications. It was found that careful control of laser and target parameters allows an x-ray source to be produced capable of imaging details down to  $5\ \mu\text{m}$  – around one tenth the width of a human hair.

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**Session Classification:** Session 4: Poster session and drinks reception

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