

Compact X-ray sources: X-ray from self-reflection

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Abstract

X-ray has been an important scientific tool ever since its discovery in the 1890s. X-ray used to be generated by synchrotron machines, which are large and expensive devices. However, laser-based particle acceleration offers a way to reduce the size and cost of hard-X-ray sources. Scientists have now developed a simple scheme that produces a bright flash of hard-X-rays by using a single laser pulse both to generate and scatter an electron beam. In my lecture I will explain how the laser-based particle acceleration works and introduce some related experiments with results analysis.