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UV-Soft X-ray betatron radiation characterization from laser-plasma wakefield acceleration

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The spontaneous emission of radiation from relativistic electrons within a plasma channel is called betatron radiation and has great potential to become a compact x-ray source in the future. We present an analysis of the performance of a broad secondary radiation source based on a high-gradient laser-plasma wakefield electron accelerator. The purpose of this study is to assess the possibility of having a new source for a non-destructive X-ray phase contrast imaging and tomography of heterogeneous materials. We report studies of compact and UV-soft X ray generation via betatron oscillations in plasma channel and in particular measurement of the radiation spectrum emitted from electron beam is analyzed from a grazing incident monochromator at Centro de Laseres Pulsados Ultraintensos (CLPU).

Footnotes

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