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Laser Plasma Wiggler S. KNEIP, S.P.D. MANGLES, C.A.J. PALMER, S.R. NAGEL, C. BELLEI, J. SCHREIBER, Z. NAJMUDIN, Imperial College London, UK, C. MCGUFFEY, V. CHVYKOV, F. DOLLAR, C. HUNTINGTON, G. KALINTCHENKO, G. MAKSIMCHUK, T. MATSUOKA, A.G.R. THOMAS, V. YANOVSKY, K. KRUSHELNICK, University of Michigan, USA, J. MARTINS, S.F. MARTINS, R. FONSECA, S.O. SILVA, Instituto Superior Tecnico, Portugal, K. TA PHUOC, Laboratoire Optique Appliquee, France — A high quality beam of X-rays is measured when electrons perform transverse oscillations in a Laser-Wakefield Accelerator. The radiation is spatially coherent, originates from a micron-sized source, has mrad divergence, 10 to 100 keV energy range and a peak brightness comparable to 3rd generation conventional light sources. Radiation post-processing of electron trajectories obtained from PIC modeling is in excellent agreement with the experimental results. Electron trajectories resemble the scenario of an electron in a wiggler-type insertion device. This is an important step on a route to realize a single stage table-top all optical x-ray source with unique characteristics and interests over the whole spectrum of scientific studies.

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