## Abstract Submitted for the DPP12 Meeting of The American Physical Society

characterization  $\mathbf{of}$ high-quality laser-plasma-Single-shot accelerated electron bunches using transition-radiation-based techniques CHARLOTTE PALMER, TOBIAS KLEINWAECHTER, LUCAS SCHAPER, JENS OSTERHOFF, Universitaet Hamburg, NICOLAS BOURGEOIS, JAMES COWLEY, SIMON HOOKER, WOLF RITTERSHOFER, University of Oxford, SHAO-WEI CHOU, STEFAN KARSCH, KONSTANTIN KHRENNIKOV, AN-TONIA POPP, Ludwig-Maximilians-Universitaet Muenchen, MATTHIAS BURZA, MARTIN HANSSON, OLLE LUNDH, ANDERS PERSSON, LOVISA SENJE, CLAES-GORAN WAHLSTROM, Lund University — We report on the characterization of electron bunches, accelerated within a laser-driven plasma wakefield, using incoherent transition radiation (TR). TR is generated whenever a charged particle crosses an interface between different materials. Incoherent TR is often used within RF accelerators as a bunch diagnostic, although for short bunch-durations coherence effects restrict its usefulness. Usually this coherent TR has been used for the measurement of laser-plasma-accelerated bunch-durations. Instead incoherent TR allows simultaneous measurement of the transverse profile and charge of the bunch, as well as the bunch-duration by a different method than from coherent TR. Tailored gas targets were used with the high-power laser of the Lund Laser Centre (1J, 35fs) to generate electron bunches through ionization injection of electrons into a wakefield and their acceleration. Transition radiation diagnostics were employed for single-shot diagnosis of these bunches and the preliminary results are presented.

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