

Abstract Submitted
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Angular distribution of high-harmonic emission in laser-solid interactions P.A. NORREYS, STFC Rutherford Appleton Laboratory, Didcot, UK and University of Oxford, Oxford, UK, W. BOEKEE-WEST, University of Warwick, Warwick, UK, R. TRINES, A.G. MACHACEK, STFC Rutherford Appleton Laboratory, Didcot, UK — High harmonic generation in laser-solid interactions is important for the generation of sub-fs pulses having ultrahigh intensity [Baeva et al., Phys. Plasmas (2011)]. In order to maximise the efficiency of this process, a precise characterisation of the angular distribution of the emitted harmonic spectrum is indispensable. The results of particle-in-cell simulations indicate that the maximum intensity of the harmonics is found at angles close to the target surface, rather than close to the incident or reflected laser beam, for preformed plasma. This appears closely related to the deformation of the critical surface by the impact of the laser beam and laser-plasma instabilities in the area of impact. The effect of density gradient scale length, laser angle of impact and laser pulse intensity and duration on the angular distribution of the harmonics will be discussed.

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