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Measurement of lateral radiation from free-electrons in an intense laser focus MATTHEW ASHBY, JAMES FLETCHER, JUSTIN PEATROSS, MICHAEL WARE, Brigham Young Univ - Provo — We report the result from an experimental measurement of light scattered by individual free electrons in an intense laser focus. This system becomes particularly interesting when the electron wavepacket spreads to the scale of an optical wavelength, as naturally happens during the ionization process of helium in a high-intensity laser focus. As the different parts of the wavepacket oscillate out of phase, the question naturally arises whether the different parts of the wave packet can interfere with each other in the radiative process. If this interference were possible, radiation from an electron wavepacket would be strongly suppressed as it gets larger.

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