Abstract Submitted
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Seeing and counting graphene layers by elastic light scattering C. CASIRAGHI, Cambridge University, UK, A. HARTSCHUH, LMU Munich, Germany, E. LIDORIKIS, Ioannina University, Greece, H. QIAN, H. HARUTYUNYAN, T. GOKUS, LMU Munich, Germany, K. S. NOVOSELOV, Manchester University, UK, A. C. FERRARI, Cambridge University, UK — Raman scattering has recently emerged as a viable and nondestructive technique for the identification of graphene, its doping, edges and amount of defects [1-3]. However, the Raman scattered photons are a minority compared to those elastically scattered. Here we show that large graphene layers can be mapped and identified in a few minutes by elastic scattering. We report an extensive investigation of graphene on silicon/silicon oxide substrate by monochromatic and white-light elastic scattering and the theoretical understanding of the experimental data [4]. Maps of the scattered light are obtained by raster scanning the sample with a piezoelectric stage. We show that the image contrast depends sensitively on the dielectric properties of the sample as well as the substrate geometry and can be described quantitatively using the complex refractive index of bulk graphite. [1] A. C. Ferrari et al., PRL 97, 187401 (2006) [2] S. Pisana et al., Nature Materials 6, 198 (2007) [3] C. Casiraghi et al., APL 91, 233108 (2007) [4] C. Casiraghi et al., Nano Letters 7, 2711 (2007)

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