

Abstract Submitted
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Comparison of VVV Auger electron spectra from single and multilayer graphene and graphite.¹ V A CHIRAYATH, The University of Texas at Arlington, V CALLEWAERT, Universiteit Antwerpen, Belgium, A J FAIRCHILD, M D CHRYSLER, R W GLADEN, S K IMAM, A R KOYMEN, R SANIZ, The University of Texas at Arlington, B BARBIELLINI, Northeastern University, Boston, USA, K RAJESHWAR, The University of Texas at Arlington, B PARTOENS, Universiteit Antwerpen, Belgium, A H WEISS, The University of Texas at Arlington — A direct observation of a low energy electron peak in the positron annihilation induced Auger electron spectra (PAES) from a single layer of graphene was made recently. A low energy positron beam (<1.25 eV) was used to deposit the positron on single layer graphene on a Cu substrate and the low energy peak was designated as VVV following the X-ray notation. The PAES signal is almost entirely from the top graphene layer due to the trapping of positrons in the image potential well on the surface of graphene. We utilize this monolayer sensitivity of PAES to compare the shape of the VVV Auger peak from the single layer graphene to the shapes of the VVV Auger peak obtained from multilayer graphene on Cu and from highly oriented pyrolytic graphite (HOPG). The VVV Auger peak from multilayer graphene on Cu and HOPG shows a systematic shift towards lower energies relative to the VVV Auger peak from the single layer graphene. The influence of the hole-hole interaction in distorting and shifting the VVV Auger spectra are discussed in relation to this observed shift.

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