

Abstract Submitted  
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**Reflection of Low Energy Positrons from the Surface of Highly Oriented Pyrolytic Graphite and Single Layer Graphene.**<sup>1</sup> S.K. IMAM, V. A. CHIRAYATH, M. D. CHRYSLER, A. J. FAIRCHILD, R. W. GLADEN, A.R. KOYMEN, A.H. WEISS, Univ of Texas, Arlington, UT ARLINGTON POSITRON SURFACE LABORATORY TEAM — A time of flight positron annihilation induced Auger electron spectrometer (TOF-PAES) was utilized to measure the reflection of positrons as a function of incident positron energy (0 to 10 eV) from the surface of highly oriented pyrolytic graphite (HOPG) and from a single layer graphene (SLG) on a Cu foil. A NaI scintillation detector was used to measure the annihilation gamma from the reflected positrons as a function of incident positron kinetic energy. The annihilation of the positrons on HOPG and SLG were simultaneously measured using another NaI detector near the sample. The Auger electrons emitted as a result of the annihilation of positrons from the surface of the sample were also measured concurrently. As the positron kinetic energy was increased, the number of reflected positrons calculated from the intensity under the annihilation gamma peak showed a steady decrease. The positronium formation measured at the sample using the gamma spectrum showed a peak at  $\sim 6$  eV. The intensity of the carbon KVV Auger peak showed a dip at the same energy. The correlation of the three signals, intensity of reflected positrons, positrons annihilating at the sample and the Auger intensity are discussed for both samples.

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