Sodium-22 Source Contribution Determination in Positron Annihilation Measurements Using GEANT4

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Abstract. Positron annihilation spectroscopy (PAS) is a strong material inspection technique, which provides information not only from the surface, but also from the bulk of the material. Most facilities use unmoderated sodium-22 positron source for purposes of various PAS measurements. Getting precise information from measurements does not depend only on the measured spectrum but the characterization of source and sample is equally important when evaluating PAS data. Source contribution calculation is necessary not only with regards to the evaluation of experimental data but also for reproducibility of the measurement. In this article, a summary of simulations on Kapton influence on positron spectrum is discussed. Simulations have been realized using GEANT4 simulation kit.