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## Investigation of free o-Ps decay at near zero implantation energy at the SLOPE facility

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Depth resolved positron annihilation Doppler-broadening spectroscopy (DBS) at the top-most atomic layer of solid materials is a fundamental but largely unexplored field of research. This is because it requires monoenergetic positron beams with energies in the order of only a few of eV.

SLOPE (Setup for LOw-energy Positron Experiments) is specially designed for a low energy beam, enabling measurements down to implantation energies of around 1 eV.

Previous depth resolved DBS measurements at SLOPE revealed a significant increase in three gamma events at implantation energies below around 10 eV. This effect is related to the Ore gap, which is the energy between the threshold of Ps formation and the ionization energy of the target material.

We will present experimental results of this effect which showcase the state-of-the-art capabilities of SLOPE.

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