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## The role of positronium decoherence in positron annihilation in matter

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A small difference between the energies of the para-positronium (p-Ps) and ortho-positronium (o-Ps) states suggests the possibility of the superposition of p-Ps and o-Ps during the formation of positronium (Ps) from pre-Ps. It is shown that such a superposition decoheres in the basis of p-Ps and o-Ps. The decoherence time scale estimated here motivates a correction in the precise analysis of the positron annihilation lifetime spectra.

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