

Influence of $e^+ - e^-$ pair interaction with matter in the vicinity of free volume of condensed medium on the formation of positronium atom

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It is often assumed in the positron techniques the single-body model of positronium in the potential well. However, in both the blob and the free volume, the distance from the positron and electron may be comparable to the distance to other electrons. In this case, the strength of the interaction producing the $e^+ - e^-$ pair formation can be compared in magnitude to the strength of the interaction with surrounding matter.

In this talk, some selected examples based on my research are indicated (e.g.: electron trapping, Ps formation energy excess in molecular media, Ps decoherence) where the third body changes the properties of the $e^+ - e^-$ pair and, possibly, influences the results of the experiments. Both the theoretical and experimental issues are presented.