

## To the positronium formation in liquids

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We describe the e<sup>+</sup> fate since its injection into a molecular liquid until its annihilation. Several stages are discussed [1-3]:

1) track structure of fast positrons: time and range of ionization slowing down, number of produced ion-electron pairs, thermalization, solvation, chemical interactions between e<sup>+</sup> and its blob reactants, e<sup>+</sup> escape from the blob; influence of electric field

2) effect of local heating of the e<sup>+</sup> blob;

3) positronium formation in liquids. Precursors of the Ps atom (e<sub>qf</sub>, e<sub>loc</sub>, e<sub>solv</sub>). Quasifree Ps state. Can Ps dissociate into e<sup>+</sup> and e<sup>-</sup> ?

4) Ps bubble models. Internal energy of e<sup>+</sup>e<sup>-</sup> pair as a driving force of Ps formation ("non-point" positronium).

5) intratrack diffusion-controlled reactions: Ps oxidation by chemically active radiolytic products.

[1] S.V. Stepanov, V.M. Byakov, D.S. Zvezhinskiy et al., *Advances in Physical Chemistry*, 2012, Article ID 431962, (2012)

[2] S.V. Stepanov, V.M. Byakov, G. Duplatre, D.S. Zvezhinskiy, P.S. Stepanov, A.G. Zaluzhnyi *Journal of Physics: Conference Series*, 618, 012003, (2015)

[3] S.V. Stepanov, V.M. Byakov, D.S. Zvezhinskiy, G. Duplatre *Defect and Diffusion Forum*, 373, pp.17-22, (2017)