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Role of fluctuation voids in positronics of chalcogenide glasses

T. Kavetskyy[1,2], V. Tsmots[1], J. Borc[3], P. Petkov[4], T. Petkova[5], A.L. Stepanov[6]

[1] *Drohobych Ivan Franko State Pedagogical University, I. Franko Str., 24, Drohobych-82100, Ukraine.*
E-mail: kavetskyy@yahoo.com

[2] *The John Paul II Catholic University of Lublin,* Al. Racławickie*14, Lublin-20950, Poland.*

[3] *Lublin University of Technology, Nadbystrzycka Str., 38, Lublin-20618, Poland.*

[4] *University of Chemical Technology and Metallurgy, Kl. Ohridsky blvd., 8, Sofia-1756, Bulgaria.*

[5] *Institute of Electrochemistry and Energy Systems, Bulgarian Academy of Sciences, Acad. G. Bonchev Str., Bl.10, Sofia-1113, Bulgaria.*

[6] *Kazan Physical-Technical Institute, Russian Academy of Sciences, Sibirskiy trakt, 10/7, Kazan-420029, Russian Federation.*

The origin of trapping voids in positronics of chalcogenide glasses is still under debate and discussion [1]. In the present work, the role of fluctuation voids for positron trapping in chalcogenide glasses is reported. Assuming the fluctuation origin of free-volume trapping voids (i.e., exited delocalized atoms or "voids" can be effective positron traps), a newly modified ($_2$-R) correlation equation within defect-related positron lifetime $_2$ (ns) versus radius of voids R (Å), initially discovered by Liao et al. [2] for polymeric materials, is considered on the example of $As_2S(Se)_3$ glasses.

1. *Kavetskyy T., Borc J., Petkov P., Kolev K., Petkova T., Tsmots V.* Reply on the "critical comments on speculations with ... free-volume defects ... in ion-conducting Ag/AgI-As_2S_3 glasses..." // Solid State Ionics.-2013.-**233**.-P. 107-109.

2. *Liao K.-S., Chen H., Awad S., Yuan J.-P., Hung W.-S., Lee K.-R., Lai J.-Y., Hu C.-C., Jean Y. C.* Determination of free-volume properties in polymers without orthopositronium components in positron annihilation lifetime spectroscopy // Macromolecules.-2011.-**44**.-P. 6818-6826.