INTI plot - a new standard for the presentation of PALS results

B. Zgardzińska,[1*]

[1]*Institute of Physics, Maria Curie-Sklodowska University, Pl. M. Curie-Skłodowskiej 1, 20-031 Lublin, Poland*

The Ps is accepted as a convenient probe of structure – the lifetime of ortho-Ps substate depends on the size of free volume (void) where the o-Ps is trapped, while the o-Ps intensity is correlated with the concentration of free volumes. These two parameters, $\tau_{o\text{-}Ps}$ and $I_{o\text{-}Ps}$ are usually considered to be reliable quantities informing about the reaction of the system to influence of external factors. It was assumed to conclude about structural changes based on changes in ($\tau_{o\text{-}Ps}$, $I_{o\text{-}Ps}$) parameters occurring in the function of external factors (temperature, pressure) and present results as a function of these factors. As we have shown on the example of selected *n*-alkanes [1], on the INTI plot (the INtensity, lifeTIme plot, the results in the form of a curve in the ($\tau_{o\text{-}Ps}$, $I_{o\text{-}Ps}$) coordinates), we can draw new conclusions, including those independent of the length of the hydrocarbon chain, common for the whole group of compounds. Analyzes of experimental data for other compounds (including derivatives of alkanes, selected polymers) have shown that, similarly to alkanes, the presentation of results on the INTI plot allows us to look at the results from a different perspective and draw additional conclusions. The results obtained in the form of INTI plot for selected polymers and organic compounds will be presented.

References

[1] B. Zgardzińska, K. Standzikowski, Acta Phys. Polon. A 132, 1496 (2017).

[*]Corresponding author, Email: bozena.zgardzinska@poczta.umcs.lublin.pl