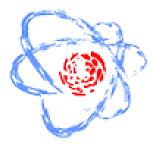
## JINR Association of Young Scientists and Specialists Conference "Alushta-2025"



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## Time-correlated single photon counting technique in optical spectroscopy of MgAl2O4

Saturday 14 June 2025 11:10 (10 minutes)

Time- correlated single photon counting (TCSPC) technique as a powerful analysis tool be used in fluorescence spectroscopy and imaging to measure the fluorescence lifetime of sample. In this report, by analyzing the decay curve of Al2O3 and MgAl2O4 single crystals irradiated by high energy Xe and Bi ions to several fluences. The measurements of the photoluminescence decay curves indicated lifetime increases with emission wavelength increasing in spectral range of 480-660 nm and decreases with ion fluence increasing. It is suggested that reduction of the decay time with ion fluence is due to growing contribution of nonradiative processes that quench the luminescence yield. The dependence of characteristic lifetimes on registration wavelength is explained by the peculiarities of the charge-transfer processes between defects or defect impurity sites in radiative de-excitation.

## Summary

Presenter: LE THI, Phuong Thao

Session Classification: Section Talks

Track Classification: Sectional talks: FLNR