

DEMENTIEV, I.V., COVALI, A.V., NEDEOGLO, N.D. et al. Self-absorption of violet radiation in ZnO thin films produced on ZnSe crystal surfaces by isovalent substitution method. In: Journal of Luminescence. 2018, Vol.197, pp. 396-398. ISSN 0022-2313.

[Photoluminescence \(PL\) spectra](#) of ZnO [thin films](#) produced by isovalent substitution method by means of thermal treatment of zinc [selenide single crystal](#) substrates in air are studied in 350 – 750 nm range at room temperature. Irrespective of annealing temperature (500 – 870 °C) and annealing time (20 – 120 min), [PL spectra](#) consist of a short-wavelength violet radiation with maximum localized between 396 and 423 nm and a long-wavelength yellow-orange radiation with maximum localized between 575 and 600 nm. Both PL bands are attributed to donor-acceptor (DA) pairs. It is shown that the violet PL band intensity decreases and the yellow-orange PL band intensity increases with increasing ZnO [film thickness](#) that is caused by self-absorption of the short-wavelength radiation and energy transmission to DA-pair centres of the long-wavelength radiation.