



Dependence of nonlinear refractive index of ZnSe on Be and Mg content

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Auteur	Derkowska-Zielinska, Beata [1], Firszt, F. [2], Marasek, A. [3], Sahraoui, Bouchta [4]
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Résumé en anglais	<p>The values of the nonlinear refractive index $n(2)$ and the two-photon absorption coefficient β of ternary and quaternary ZnSe-based mixed crystals were extracted from the standard backward degenerate four wave mixing (DFWM) and nonlinear transmission measurements at 532 nm, respectively. Studied crystals were grown by the modified high-pressure Bridgman method. We found that the value of the nonlinear refractive index $n(2)$ for Zn(0.79)Be(0.21)Se is higher than that for Zn(0.80)Mg(0.20)Se. However, the opposite behaviour was found in the case of two-photon absorption coefficient β for these compounds. We also found that the values of the nonlinear refractive index $n(2)$ and the two-photon absorption coefficient β for Zn(0.83)Be(0.04)Mg(0.13)Se are about five times lower and three times higher than that for Zn(0.80)Mg(0.13)Se, respectively. In the case of ternary ZnSe-based crystals we noticed that the value of the nonlinear refractive index $n(2)$ decreases with increasing Mg or Be content. However, the value of the two-photon absorption coefficient β increases with increasing Mg or Be content.</p>
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