

OPTICAL PROPERTIES  
OF SILICON-NITRIDE-BASED  
CERAMICS WITH MOLYBDENUM  
AND ALUMINUM ADMIXTURES

*V.M. Prokopets, I.A. Shaykevich, L.Yo. Robur*

Taras Shevchenko Kyiv National University,  
Faculty of Physics  
(6, Academician Glushkov Prosp., Kyiv 03127, Ukraine;  
e-mail: [vadym\\_pr@univ.kiev.ua](mailto:vadym_pr@univ.kiev.ua))

S u m m a r y

The specimens of the  $\text{Si}_3\text{N}_4$ -based ceramics are investigated by X-ray diffractometry and spectroellipsometry. An influence of admixtures on the phase composition and optical properties of the ceramics has been studied. It has been found that the defects of the crystalline structure are responsible for the reduction of the band gap. It has been shown that, by analyzing the dispersion of the refractive index in the effective medium approximation, it is possible to estimate the amount of oxygen in the  $\text{Si}_3\text{N}_4$ -based ceramics.