

## **Design of New Nonlinear Optical Materials Based on Porous III–V Compounds**

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### **Abstract**

Bulk and porous membranes of gallium phosphide have been characterized by optical second harmonic generation (SHG) technique using a 1064 nm pump beam. The porous membranes prove to exhibit an enhanced SHG in comparison with the bulk material. Taking into account the porosity-induced anisotropy we show analytically that the phase matching conditions can be fulfilled for membranes possessing a degree of porosity higher than 30%.

*Keywords: bulk membranes, porous membranes, gallium phosphide membranes, optical harmonic generation*

### **Citing Literature**

1. Farid H. Bayramov, Gert Irmer, Vladimir V. Toporov, Bakhysh H. Bairamov, Structural, Optical, and Electrical Properties of Semiconductor Compounds Studied by Means of Inelastic Light Scattering from Phonon, Electron, and Coupled Electron–Phonon Excitations: From Bulk to Nanoscale Structures, *Japanese Journal of Applied Physics*, 10.7567/JJAP.50.05FE06, **50**, 5S2, (05FE06), (2013).

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