Abstract

Nowadays the optical properties of nanoparticles are extensively studied. The predicted application of such materials requires preparation of useful film which could be deposited onto substrates. In our work polymer thin layers have been used as the matrices in which nanocrystals have been dispersed.

As polymer materials poly(vinyl alcohol) and poly(vinyl acetate) have been adopted while nanocrystals of bismuth borate and calcium lanthanum borate obtained by ultrasound milling have been used.[1] The mixtures of polymers and nanocrystals have been deposited from respective solutions. The composition of those solutions have been found experimentally to obtain the best mechanical properties of the films. The morphology of the films has been studied by electron microscopy.

The examples of nonlinear optical response of the obtained samples will be presented, moreover their nonlinear behavior will be compared to this one observed for the same nanocrystals in liquid crystal matrices.

Keywords: nanolinear properties, poly(vinyl alcohol), poly(vinyl acetate), nanocrystals