

Luminescence of dye-doped KAP and KDP nanorods

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Rods of potassium acid phthalate (KAP) and potassium dihydrogen phosphate (KDP) doped with rhodamine 6G (Rh 6G) were grown using the template approach. Pores of hundreds of nanometers in diameter were obtained in polycarbonate (PC) foils after heavy ions irradiation and subsequent chemical etching. Crystallization from solution was used for filling the pores and the nanostructures were characterized using scanning electron microscopy and photoluminescence spectroscopy studies. SEM images of micro- and nano-rods (300 nm and 2.5 μm diameter) indicate a crystalline growth tendency. When exciting the PC foils containing rods of 100 nm diameter emission bands appear at 581 nm for Rh 6G doped KAP and at 602 nm for Rh 6G doped KDP. A shift of the emission bands towards red was observed when the luminescent properties of the rods with diameters of 100 nm were compared with the luminescent properties of the bulk crystals and of the micrometrical sized rods.