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Research note

## Nonlinear optical properties measurement of polypyrrole -carbon nanotubes prepared by an electrochemical polymerization method

E Shahriari<sup>\*1,2</sup> and M Ghasemi Varnamkhasti<sup>1,2</sup>

1. Department of Physics, Faculty of Science, Shahrekord University, Shahrekord, Iran
2. Nanotechnology Research Center, Shahrekord University, Shahrekord, Iran

E-mail: shahriari@sci.sku.ac.ir

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### Abstract

In this work, the optical properties dependence of Multi-Walled Carbon Nanotubes (MWNT) on concentration was discussed. MWNT samples were prepared in polypyrrole by an electrochemical polymerization of monomers, in the presence of different concentrations of MWNTs, using Sodium Dodecyl-Benzen-Sulfonate (SDBS) as surfactant at room temperature. The nonlinear refractive and nonlinear absorption indices were measured using a low power CW laser beam operated at 532 nm using z-scan method. The results show that nonlinear refractive and nonlinear absorption indices tend to be increased with increasing the concentration of carbon nanotubes. Optical properties of carbon nanotubes indicate that they are good candidates for nonlinear optical devices.

**Keywords:** carbon nanotubes, nonlinear refractive index, nonlinear absorption index, z-scan method

For full article, refer to the Persian section