

Application of Z-Scan Technique for the Study of Nonlinear Optical Properties of BCP/MEH-PPV

A. J. ALMUSAWE¹, M. A. RAHMA², E. A. MOHAMMED² AND H. L. SAADON²

¹*Basic Education College, University of Sumer, Thi-Qar, Iraq*

²*Laser Applications Research Group (LARG), Department of Physics, College of Science, University of Basrah, Basrah, Iraq*

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Nonlinear optical (NLO) properties of a pure BCP and BCP doped with MEH-PPV solutions, at different doping concentrations and different laser powers were, were studied by the Z-scan technique with a cw laser at 532 nm wavelength. It was found that they depend on the power of used laser. The measurements have shown also that the BCP/MEH-PPV complex exhibits the self-defocusing nonlinearity with large nonlinear refractive index as well as a significative nonlinear absorption. The BCP/MEH-PPV solutions exhibit also an interesting optical power limiting laser with a low threshold. These studies show that the NLO properties of BCP/MEH-PPV solutions may open new possibilities of using them in all-photonic switching elements and in optical power limiting.

Keywords: Organic materials, nonlinear optics, optical power limiting, z-scan, BCP/MEH-PPV

1. INTRODUCTION

Recently the organic nonlinear optical (NLO) materials with large NLO response a considerable attention owing to their great potential for application in various fields such as high speed optical switching devices, optical data storage, optical power limiting, all-optical switching, optical phase con-

Corresponding author's e-mail: ahmed85almusawe@gmail.com