

Silver PMMA Nanocomposite Thin Films Deposited on Glass Substrates by in-situ aerosol assisted plasma jet polymerization at atmospheric pressure and room temperature, from MMA monomer in the presence of 7wt% concentrations of Ag nanoparticles. The effects of argon gas flow rate on the linear and nonlinear optical properties of Ag/PMMA nanocomposite films are studied. It is shown that the changed in gas flow rate does not affect the linear properties while the nonlinear properties have an arbitrary changes with gas flow rate increase. The prepared thin films are characterized by UV-Visible, XRD, FT-IR, AFM, the nonlinear optical properties are measured by Z-scan technique using second harmonic of pulsed Nd:YAG laser 532nm and pulse duration of 30ns, the third order nonlinearity are determined the nonlinear refractive index n_2 , nonlinear absorption coefficient, as well as the real and imaginary parts of third order susceptibility χ_3 all are changed due to effect of plasma and gas flow