

We introduce fundamental nonlinear optical effects and various methods of their observation. Firstly we describe the essential theory of second-harmonic generation from a metallic boundary in detail. In the experiment, we observe this effect on silver and aluminium mirror. Then we introduce the Z-scan method, which allows us to determine the nonlinear refraction index and absorption coefficient from the measurement of the transmittance of the sample if this transmits light in the visible spectrum. A simple modification of this method permits the measurement of nonlinear optical parameters from the sample's reflectance also for materials that reflect light in the visible region. We focus on applying this method in the experiment for siliceous glass, silver, aluminium, dielectric and siliceous mirrors and optical filter OD 0,5.