

Objectives of investigations:

- light diffraction on $\Delta n \sim \chi^{(3)}E^2$
- three-wave interactions on $\chi^{(2)} \sim \chi^{(3)}E$

The schematic diagram illustrates the experimental setup for studying light diffraction and three-wave interactions. A Yag:Nd-laser provides the light source, which is monitored by a photodetector (PD) and a system regulator (SYSTEM REG). The light passes through a crystal, where various frequency components (2ω , ω , $\omega+2\omega$) are generated and measured. The setup includes mirrors (M), filters (F), and a phase shifter (PM) to control the light path. The top graph shows the relationship between the lifetime of the interaction and the scattering cross-section σ . The bottom graph shows the dependence of the phase β and the length Λ on the angle α .

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