

In this thesis experimental samples of multiple quantum wells in the InGaN/GaN structures will be compared using methods of laser spectroscopy. In particular, the optical properties of the samples will be investigated. The samples were prepared under different conditions; therefore one of the aims is to compare them. The knowledge of the influence of preparation enables utilization not only for fundamental research, but also for the construction of radiation sources or scintillation detectors.

Measurements of absorption and photoluminescence will be carried out and their dynamic properties will be measured as well. There will be examined the effect of different excitation power and different excitation wavelength on the intensity of photoluminescence. From dynamic properties there will be examined the effect of different excitation wavelength on the lifetime of the absorption and how does temperature influence the lifetime of the photoluminescence. Individual quantities will be compared amongst samples and their suitability for further applications will be discussed.