

In the presented thesis the topic of femtosecond pulse dispersion and methods of characterizing pulse profile are briefly introduced. Then, a functionality of a spatial light modulator is described. The spatial light modulator was used in an experimental scheme called the pulse shaper, which allowed independent amplitude and phase modulation of pulses. Duration and dispersion of pulses was measured by two methods called MIIPS and PICASO. MIIPS was also used for a reconstruction of a spectral phase of pulses. The autocorrelator was constructed on a design of the Mach-Zehnder interferometer. The duration of the shortest measured pulse ( $13.3 \pm 0.5$ ) fs was retrieved from measured interferometric autocorrelations by PICASO. Furthermore, theoretical dependence of pulse duration on the group delay dispersion was confirmed for pulses shorter than 120 fs. The group velocity dispersion was measured for fused silica windows and for a pair of diffraction gratings in the pulse shaper. Both values confirmed theoretical expectations.