Diploma thesis of the 6th year student
U. I. Alekseeva

Spectral soliton compression of ultrashort light pulses in microstructured fibers

In this diploma work, the results of numerical modeling of ultrashort (7-30 fs) pulse propagation in microstructured fiber waveguide are presented. They were obtained by solving the generalized nonlinear Schrödinger equation including dispersion up to the fifth grade, phase self-modulation and stimulated raman scattering.

The main accent was made on studying spectral soliton compression, and optimal conditions for effective spectral compression were revealed.

The maximal compression ratio achieved was 25 (for a 40m long fiber), the energy of the pulse at the end of the fiber was 75% of the original pulse energy.

Scientific advisor:

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Prof. A.M. Zheltikov