SUPERCONTINUUM OPTIMIZATION FOR DUAL-SOLITON BASED LIGHT SOURCES USING GENETIC ALGORITHMS IN A GRID PLATFORM

F. R. Arteaga-Sierra, C. Milian, I. Torres-Gomez, M. Torres-Cisneros, G. Molto, and A. Ferrando

Abstract.

We present a numerical strategy to design fiber based dual pulse light sources exhibiting two predefined spectral peaks in the anomalous group velocity dispersion regime. The frequency conversion is based on the soliton fission and soliton self-frequency shift occurring during supercontinuum generation. The optimization process is carried out by a genetic algorithm that provides the optimum input pulse parameters: wavelength, temporal width and peak power. This algorithm is implemented in a Grid platform in order to take advantage of distributed computing. These results are useful for optical coherence tomography applications where bell-shaped pulses located in the second near-infrared window are needed.

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