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Post-compression of ultrashort high intensity pulses using Self Phase Modulation

Since the inception of laser science, one fundamental goal has always been increasing the intensity of laser pulses. One of the techniques used for achieving this goal is Self Phase Modulation (SPM), consisting of pulse propagation through nonlinear media and using nonlinear effects to broaden the spectrum, enabling better compression and shorter pulse lengths. In this presentation, I outline my current progress in implementing SPM at ELI-NP, from a separate experiment conducted at CLPU, where the spectra was broadened by approximately 2 times, enabling pulse compression down to 13fs, wavefront measurement and control at GSI and ELI-NP, and SPM simulations.

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