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Simulating indirect IR femtosecond pulse shaping

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Abstract content
   (Max 300 words)

Ultrafast pulse shaping in the time domain can be done by using different methods as well as different shapers. Shaping a pulse in the infrared wavelength region can be done directly or indirectly. Direct pulse shaping is done by shaping the wavelength directly at the wanted wavelength; this is usually done using an acousto optic modulator or spatial light modulator. But in many cases the available shaping device can't function in the required wavelength region and indirect shaping has to be considered. Indirect shaping is done by mixing a shaped and unshaped (pump and signal) pulse in a nonlinear medium to produce a shaped pulse at a different wavelength. This is called difference frequency mixing. The nonlinear medium can be any number of nonlinear crystals, depending on the nonlinear properties. In this poster we will simulate and so investigate the accuracy and efficiency of the shape transfer through the nonlinear process by solving the coupled partial differential equations describing the process. We will also determine under which conditions the most accurate shape transfer will occur and compare different nonlinear crystals.

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Level for award
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PhD

Main supervisor (name and email)
and his / her institution

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No

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