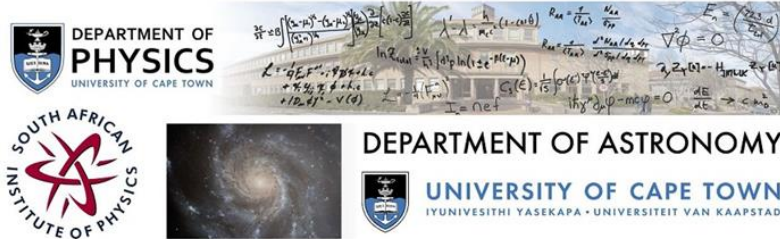


SAIP2016



Contribution ID : 401

Supercontinuum characterisation and compression

Tuesday 05 Jul 2016 at 15:00 (00h20')

Abstract :

Working towards non-linear microscopy we set out to build a dynamic pulse compressor that produce the ultra short laser pulses needed for such experiments. Increasing the bandwidth from an already transform limited laser oscillator is essential in creating shorter pulses. This is done by implementing an all-normal dispersion photonic crystal fibre (PCF) pumped by an fs oscillator to produce white light (supercontinuum). Dispersion from the PCF lengthens the pulses in time, which in turn needs to be compensated for to create near transform limited pulses. A 4f-shaper in combination with a 1D Spatial Light Modulator (SLM) is used to characterise the pulses as well as correct for dispersion, and in doing so compress the pulse. This presentation will focus on the optimisation algorithm investigated to compensate for the dispersion of the supercontinuum pulses. The algorithm yields the phase and amplitude of the compressed pulse. This is compared to other pulse characterisation techniques. The characteristics of the successfully compressed pulses will be presented and the potential application of these pulses in non-linear microscopy will be discussed.

Award :

Yes

Level :

MSc

Supervisor :

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Paper :

No

Permission :

Yes

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