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Characterization of spectral broadening of femtosecond pulses in microstructured fiber

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Abstract content
 (Max 300 words)

Recently it has been shown that all normal dispersion photonic crystal fibre (PCF) can be used for efficient coherent supercontinuum generation. A brief summary of the theoretical basis of this PCF design is presented. The experimental setup is discussed and results are presented. The spectral broadening of femtosecond laser pulses ($\lambda = 800$ nm, 75 fs, 80 MHz rep. rate) in a microstructured fiber (core diameter of 2.3 ± 0.3 μm) as a function of input energy is presented and the results are discussed for two different lengths of PCF (15 cm and 20 cm). High coupling efficiencies were achieved and typically spectral broadband output (630 nm – 1000 nm) was observed. The effect of laser polarization and strain of the fiber on the polarization of the supercontinuum output was investigated. By laterally stressing the fibre with a load, polarization selection of the output was achieved. A brief outlook on future work and potential applications are presented.

Apply to be
 consider for a student
 award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
 PhD)?

PhD

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

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Would you like to
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Yes

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