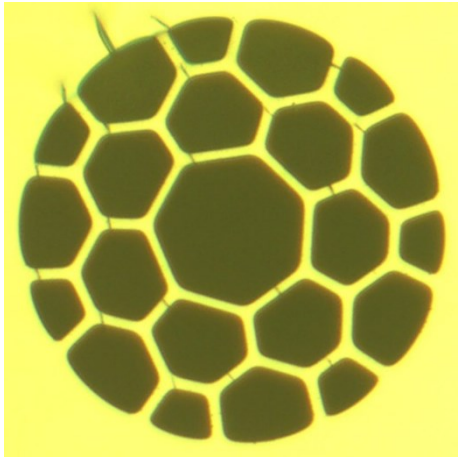
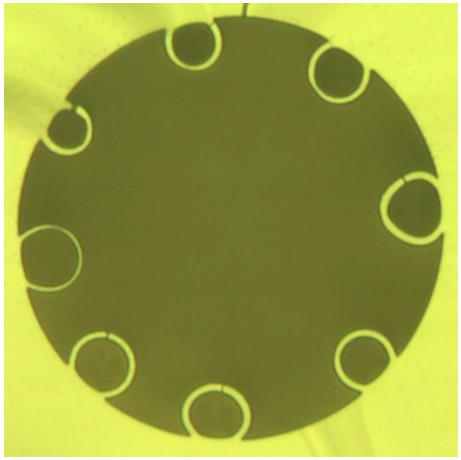
Master Thesis: **Design and production of hollow-core fibers for high brightness laser beam delivery**

Overview

Within recent years many ultra-short pulsed lasers with extremely high pulse energies as well as average powers were developed for laser materials processing. To flexibly guide the beam from the laser to the workpiece hollow-core photonic crystal fibers (HC-PCF) have shown to be the best and unique choice to deliver these high peak power pulses. The production of such fibers is still a challenging process in terms of reliability and reproducibility. Therefore a deeper understanding from the design all the way to the final fiber is needed as well as the implementation of new production methods.





Content

- Numerical simulations of hollow-core fibers
- Production of hollow-core fiber preforms and fibers
- Adaptation of new production methods
- Experimental analysis of produced fibers in terms of beam quality (M^2), modal content (S^2), losses etc.
- **Duration: 12 months**

Contact

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