

Mid-IR supercontinuum generation beyond 7 μm using a silica-fluoride-chalcogenide fiber cascade - DTU Orbit (09/11/2017)

Mid-IR supercontinuum generation beyond 7 μm using a silica-fluoride-chalcogenide fiber cascade

We report on an experimental demonstration of mid-infrared cascaded supercontinuum generation in commercial silica, fluoride, and chalcogenide fibers as a potentially cheap and practical alternative to direct pumping schemes. A pump continuum up to 4.4 μm was generated in cascaded silica and fluoride fibers by an amplified 1.55 μm nanosecond diode laser. By pumping a commercial Ge₁₀As₂₂Se₆₈ single-material photonic crystal fiber with 135.7 mW of the pump continuum from 3.5- 4.4 μm , we obtained a continuum up to 7.2 μm with a total output power after the collimating lens of 54.5 mW, and 3.7 mW above 4.5 μm .

General information

State: Published

Organisations: Department of Photonics Engineering, Fiber Sensors and Supercontinuum Generation, NKT Photonics A/S

Authors: Petersen, C. R. (Intern), Moselund, P. M. (Ekstern), Petersen, C. (Ekstern), Møller, U. V. (Ekstern), Bang, O. (Intern)

Number of pages: 6

Publication date: 2016

Host publication information

Title of host publication: Proceedings of SPIE

Volume: 9703

Publisher: SPIE - International Society for Optical Engineering

Article number: 97030A

Main Research Area: Technical/natural sciences

Conference: Optical Biopsy XIV, San Francisco, United States, 15/02/2016 - 15/02/2016

Supercontinuum, Mid-infrared pulse, Infrared fibers, Fiber cascade, ZBLAN, Chalcogenide

DOIs:

10.1117/12.2209253

Source: PublicationPreSubmission

Source-ID: 123633383

Publication: Research - peer-review › Article in proceedings – Annual report year: 2016