327

Accession number:20122915246003

Title:Generation of tunable octave-spanning mid-infrared pulses by filamentation in gas media Authors:Cheng, Mark (1); Reynolds, Anthony (1); Widgren, Heather (1); Khalil, Munira (1) Author affiliation:(1) Department of Chemistry, University of Washington, Seattle, WA 98195, United States

Corresponding author:Khalil, M.(mkhalil@chem.washington.edu)

Source title:Optics Letters

Abbreviated source title:Opt. Lett.

Volume:37

Issue:11

Issue date:June 1, 2012

Publication year:2012

Pages:1787-1789

Language:English

ISSN:01469592

E-ISSN:15394794

CODEN:OPLEDP

Document type:Journal article (JA)

Publisher:Optical Society of America, 2010 Massachusetts Avenue NW, Washington, DC 20036-1023, United States

Abstract:The continued development of femtosecond mid-infrared (IR) sources with ultrabroad spectral width is critical for probing and controlling complex molecular structural dynamics on an ultrafast timescale. We report on a sub-20 fs, coherent mid-IR source with an octave-spanning spectral bandwidth (>2000 cm⁻¹) tunable from 2-8 micrometers (37.5-150 THz), with energy >0.4 μJ/pulse at 1 kHz. The mid-IR pulses are generated by four-wave mixing during the filamentation of intense 800 nm and 400 nm pulses in various gas media. Spectral tunability is achieved by the choice of gas, pressure and input 800 nm pulse energy. © 2012 Optical Society of America.

Number of references:16

Main heading:Infrared devices

Controlled terms:Structural dynamics

Uncontrolled terms:Femtoseconds - Filamentation - Mid-infrared pulse - Midinfrared - Pulse energies - Spectral bandwidth - Spectral tunability - Spectral widths - Time-scales - Ultra-fast Classification code:408 Structural Design - 741.3 Optical Devices and Systems

Classification code:408 Structural Design - 741.3 Optical Devices and

DOI:10.1364/OL.37.001787

Database:Compendex

Compilation and indexing terms, Copyright 2012 Elsevier Inc.