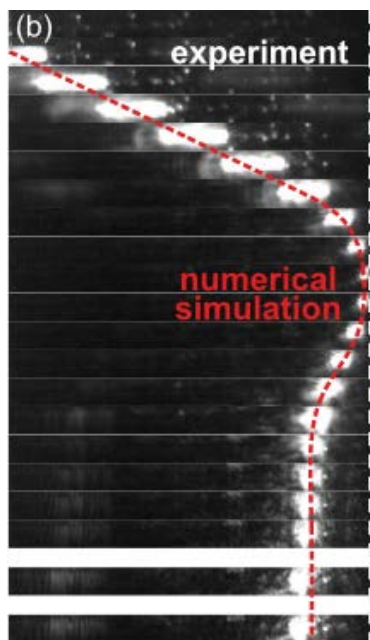
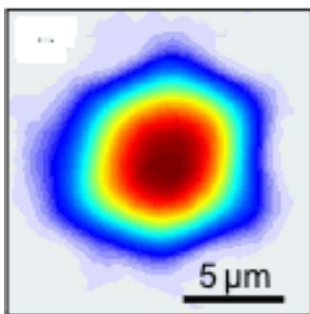
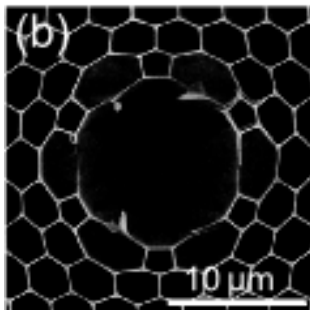


SEMINAR:

“Particle propulsion and photochemistry in hollow core photonic crystal fiber”

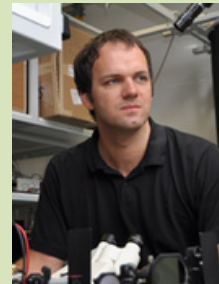


Dr. Tijman Euser

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Dr. Tijman Euser

Tijmen Euser received his M.Sc. and PhD degrees in Applied Physics from the University of Twente, Netherlands in 2002 and 2007. His PhD work investigated “Ultrafast optical switching of photonic crystals” and was carried out both in the COPS group in the MESA+ Institute for Nanotechnology at the University of Twente and at the FOM Institute for Atomic and Molecular Physics (AMOLF) in Amsterdam, the Netherlands. In April 2007, he joined the Russell division of the Max-Planck Institute for the Science of Light as a postdoctoral scientist.



Thursday

April 11, 2013

1:00-2:00

Baskin Engineering Room #330

Abstract

Hollow-core photonic crystal fibre (HC-PCF) allows single-mode propagation of light in a tiny optofluidic channel. The unique combination of tight light confinement and long interaction length offers exciting opportunities for light-matter interactions. Three recent applications will be discussed: Firstly, HC-PCF can be used as highly-efficient (photo)chemical microreactors in which reactions can be monitored in real-time via absorption spectroscopy. The required sample volume and laser power are reduced by many orders or magnitude, compared to conventional methods. Secondly, optical forces provided by the waveguide mode can be used to launch and propel microparticles and cells in liquid-filled HC-PCF. The particle dynamics are monitored within in-fibre non-imaging Doppler velocimetry, offering a unique way to study viscous forces in microfluidic channels. Finally, we will discuss recent particle propulsion measurements in air-filled PCFs. These measurements have led to the discovery of a novel optothermal trapping mechanism, which has potential applications in lab-on-a-chip devices.



**Presented by the
W. M. Keck Center for
Nanoscale Optofluidics**

Host: Professor Holger Schmidt