

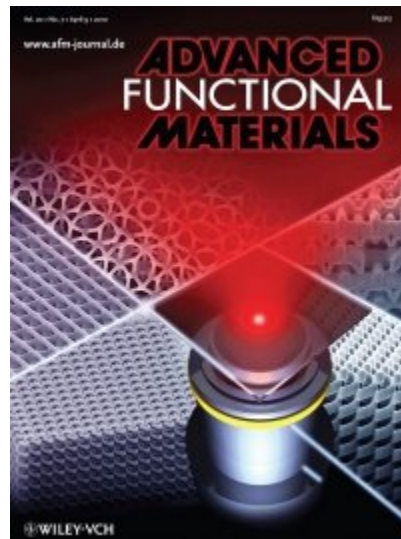
### Webpage of Prof. Dr. Martin Wegener's group at the Institute of Applied Physics

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#### Review: Three-Dimensional Nanostructures for Photonics

Recent progress in direct laser writing of three-dimensional (3D) polymer nanostructures for photonics is reviewed. This technology has reached a level of maturity at which it can be considered as the 3D analogue of planar electron-beam lithography. Combined with atomic-layer deposition and/or chemical-vapor deposition of dielectrics - the 3D analogues of planar evaporation technologies, the 3D polymer templates can be converted or inverted into 3D high-refractive-index-contrast nanostructures. Examples discussed in this review include positive and inverse 3D silicon-based woodpile photonic crystals possessing complete photonic bandgaps, novel optical resonator designs within these structures, ... [\[more\]](#)

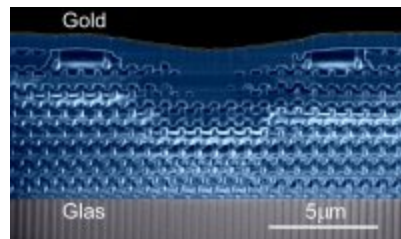
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#### Three-Dimensional Invisibility Cloak at Optical Wavelengths

A three-dimensional invisibility-cloaking structure operating at optical wavelengths based on transformation optics has been designed and realized. Our blueprint uses a woodpile photonic crystal with tailored polymer filling fraction to hide a bump in a gold reflector. Structures and controls are fabricated by direct laser writing and characterized by simultaneous high-numerical-aperture far-field optical microscopy and spectroscopy. Cloaking operation with large bandwidth of unpolarized light from 1.4- to 2.7- $\mu\text{m}$  wavelength is demonstrated for viewing angles up to 60 degrees. Reference: Three-Dimensional Invisibility Cloak at Optical Wavelengths. Tolga Ergin, Nicolas Stenger, Patrice ... [\[more\]](#)

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#### METAMATERIALS 2010 Conference

Fourth International Congress on Advanced  
Electromagnetic Materials in Microwaves



and Optics. Where? Universität Karlsruhe  
(TH), Karlsruhe, Germany. When? Conference: 13-16 September 2010. Doctoral  
School: 17-18 September 2010. Paper submission deadline: 29 March 2010.  
Please visit also the official website ... The Congress will address a wide area of  
research in artificial electromagnetic materials and surfaces and their applications  
from RF to optical frequencies. The conference topics encompassing theory, design,  
applications, fabrication and measurements include but are not limited to: Physics  
of complex electromagnetic materials Micro- and nano-fabrication of metamaterials  
Experimental techniques for characterization of metamaterials ... [[more](#)]

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