

# Seminar

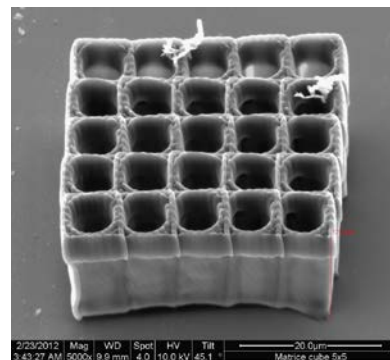
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### Molecular Engineering Strategies for the Development of Highly Efficient Two-Photon Activable Initiators

Since a decade, the field of multiphoton fabrication has developed rapidly so that it is no longer a rapid prototyping technology but a real manufacturing technique that is commercially available. Moreover, its impact is clearly growing in diverse applied domains such as nanotechnology, optics, photonic crystals, biochips, nano/micro-electromechanical systems (N/MEMS). Indeed, multiphoton fabrication constitutes a mature technology which can make possible the fabrication of intricate 3D structures with feature sizes as small as 100 nm. By tightly focusing a pulsed laser beam (ns to fs pulses) into a multi-photon absorbing material, it is possible to trigger a photoreaction (e.g. photopolymerization) inside a volume below the dimension of the voxel. Complex structures can then be generated by moving in the laser focus in the 3 dimensions inside the monomer substrate. Due to the nonlinear intensity dependence of the photoinitiating process, the spatial confinement of the reaction is guaranteed and is intrinsically dependent on two parameters: *i*) the nonlinear absorption ability of the material, *ii*) the reactivity of the excited species. In this context, important research efforts have been devoted to design new photoinitiators that both exhibit efficient two-photon absorption ability (i.e. high two-photon absorption cross-section) and high initiating reactivity. In the present lecture, we will present various several building strategies for the development of such advanced materials.



**Wednesday, May 23, 14h15**

**Hörsaal Makromolekulare Chemie, Stefan-Meier-Str. 31**

Invited by: Prof. Günter Reiter

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