

**SCIENTIFIC AND METHOD MODULES**

<b>Module name</b>	<b>From Molecules to Materials: Photocatalysis</b>
<b>Number</b>	2017-T4
<b>Aims</b>	This module links molecular sciences and materials science, teaches how materials with optimised photocatalytic activity are obtained, and provides an understanding of the properties and applications of these materials.
<b>Basics</b>	covered in basic modules B1–B3 (molecular precursors, supramolecular chemistry, polymers, organic and inorganic nanostructures).
<b>Contents</b>	Materials from “hard” (synthetic molecules, crystalline nanostructures) building blocks and/or “soft” (polymers, biomolecules, whole cells and organisms) building blocks; Properties of these materials (magnetic, electronic, and optical properties, photocatalytic properties); Applications (photocatalysis, immobilised catalysts, energy conversion [including solar energy]); Theory.
<b>Methods</b>	Synthesis, immobilisation techniques, characterisation, photocatalytic studies
<b>Type</b>	Two-day block course/ bi-yearly recurrence with modification
<b>Date (month/year)</b>	14-15 November 2017
<b>Time</b>	10.00-16.30; 9-15.45
<b>Work load</b>	15 hours presence/ 45 hours self-study
<b>Examination</b>	2-page report on a specific topic of the module (self-selected)
<b>Credit points</b>	2
<b>Responsible scientists</b>	Gläser, Hey-Hawkins
<b>Guest lecturers</b>	Prof. Kirsten Zeitler, Universität Leipzig; Dr. Roland Marschall, Justus-Liebig-University Giessen; Prof. Hartmut Herrmann, Universität Leipzig und IfT; Prof. Jennifer Strunk, Likat, Rostock; Prof. Detlef Bahnemann, Universität Hannover; Prof. Michael Wark, Universität Oldenburg; Prof. Christian Wilhelm, Universität Leipzig; Prof. Andreas Schmid, Universität Leipzig und UFZ
<b>Industrial partners</b>	-
<b>Recommendations for literature, e-learning</b>	See abstracts

**SCHEDULE for Module 2017-T4**  
**Location: Johannisallee 29, 04103 Leipzig**

Time	Lecturer	Programme	Room
<b>Tuesday, 14 November 2017</b>			
10.00-10.10		Welcome address	Johannisallee, SR 101
10.10-11.10	Prof. Kirsten Zeitler, Universität Leipzig	Photochemistry & photocatalysis – A very short introduction	Johannisallee, SR 101
11.10-11.30	<i>Coffee Break</i>		
11.30-12.30	Prof. Christian Wilhelm, Universität Leipzig	New green chemistry: An application of photocatalytic principles	Johannisallee, SR 101
12.30-14.00	<i>Lunch Break</i>		
14.00-15.00	Prof. Andreas Schmid, Universität Leipzig und UFZ	Linking photosynthesis and biotechnology via biocatalysis	Johannisallee, SR 101
15.00-15.30	<i>Coffee Break / photo shooting (in front of the main entrance)</i>		
15.30-16.30	Prof. Hartmut Herrmann, Universität Leipzig und IfT	Semiconductor photocatalysis for air quality improvement: Basics and project results	Johannisallee, SR 101
<b>Wednesday, 15 November 2017</b>			
9.00-10.00	Dr. Roland Marschall, Justus-Liebig-University Giessen	Mesostructured materials for solar energy conversion	Johannisallee, SR 101
10.00-10.30	<i>Coffee Break</i>		
10.30-11.30	Prof. Michael Wark, Carl von Ossietzky Universität Oldenburg	Mixed metal oxide photocatalyst nanocomposites for solar-driven hydrogen formation	Johannisallee, SR 101
11.30-13.00	<i>Lunch Break</i>		
13.00-14.00	Prof. Detlef Bahnemann, Leibniz Universität Hannover	Mechanism(s) of photocatalytic processes: revisited!	Johannisallee, SR 101
14.00-14.30	<i>Coffee Break</i>		
14.30-15.30	Prof. Jennifer Strunk, Leibniz-Institut für Katalyse, Rostock	Understanding the fundamental steps in photocatalytic CO <sub>2</sub> reduction	Johannisallee, SR 101
15.30-15.45		Closing remarks	Johannisallee, SR 101

**Didactic elements:**

Lecture, discussions, etc.

**Expected performance:**

Active participation in discussions during breaks etc.