UNIVERSITÄT LEIPZIG

BuildMoNa

SCIENTIFIC AND METHOD MODULES

Module name	Solid State Inclusion Compounds
Number	2011-M02
Aims	1. Link molecular sciences and materials science; 2. Understand how porous molecular-based materials with voids in the crystal lattice are obtained from molecules or molecular precursors; 3. Understand the properties and applications of these solids.
Basics	Principles of crystal lattice inclusion, crystal engineering, molecular precursors, clathrates, …..
Contents	– Absorption and Storage of Small Molecules in Molecular Crystals (Prof. Dr. N. B. McKeown, Cardiff, UK) – Supramolecular Networks (Prof. Dr. N. R. Champness, Nottingham, UK) – Organic Zeolithes (Prof. Dr. J. Hulliger, Bern, Switzerland) – Structure prediction and lattice dynamics in molecular crystals (Prof. Graeme Day, Cambridge, UK) – MOFs (Prof. Dr. S. Cohen, UCSD, San Diego, USA) – Clathrate Hydrates (Prof. Dr. R. Feile, TU Darmstadt, Germany) – Co-Crystallisation, Polymorphism (Prof. Dr. H. Krautscheid, Leipzig) – Storage of gases in marine sediments (Dr. M. Haeckel, Leibniz-Institut für Meereswissenschaften, Kiel) – Inclusion Chemistry of Container Molecules (Prof. Dr. B. Kersting, Leipzig, Germany)
Methods	Molecular Crystals, Clathrate formation, Synthesis, Synthesis of Designer Clathrates, Handling and Characterization of Solid State Inclusion Compounds
Type	Two-day block course
Date (month/year)	15-16 September 2011
Time	9 a.m. (Thursday) – 3 p.m. (Friday)
Work load	15 hours presence / 45 hours self-study
Examination	Written
Credit points	2
Responsible scientists	Prof. Dr. Harald Krautscheid, Prof. Dr. Berthold Kersting
Guest lecturers	Neil R. Champness (Nottingham, UK), Seth Cohen (San Diego, USA), Graeme Day (Cambridge, UK), Rudolf Feile (Darmstadt, Germany), Jürg Hulliger (Bern, Switzerland), Neil B. McKeown (Cardiff University), Matthias Haeckel (Kiel),
Industrial partners	None
Recommendations for literature	**Supramolecular Chemistry**, Wiley, 2nd Ed. 2009; **Chap. 7**

Schedule Wednesday, September 14th

– Arrival of Guest Lecturers, Pickup from Air-Port (or Leipzig Hbf, Main Station) and Transport to the Hotel (Hotel Am Bayrischen Platz, Paul-List-Straße 5, 04103 Leipzig, Tel. 0341 14086-0)

– 20:00 Welcome Dinner at Auerbachs Keller (Guest lecturers)

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Time	Lecturer	Program	Location
Day 1 (Thursday, September 15th)			
09:00 – 09:10	Prof. Dr. Harald Krautscheid Uni Leipzig	Welcoming address	Faculty of Chemistry and Mineralogy, Johannisallee 29 Seminar Room 101 (SR101)
09:15 – 10:15	Prof. Graeme Day, Cambridge, UK	Structure prediction,and applications to inclusion compounds	
10:15 – 10:35	*Coffee & Tea, Refreshments*		
10:35 – 11:35	Prof. Neil R. Champness, Nottingham, UK	Supramolecular Networks	SR101
11:35 – 12:20	Prof. Dr. Jürg Hulliger Bern, Switzerland	Property generation in channel inclusion compounds, including PHTP, TTP and Triazines	SR101
12:20 – 13:30	*Lunch break*		
13:30 – 14:15	Prof. Dr. Jürg Hulliger Bern, Switzerland	Property generation in channel inclusion compounds. Polarity formation by molecular recognition	SR101
14:15 – 15:15	Prof. Dr. Harald Krautscheid	Co-Crystallisation, Polymorphism	SR101
15:15 – 15:45	*Coffee & Tea, Refreshments*		
15:45 – 16:45	Prof. Dr. Berthold Kersting Leipzig, Germany	Inclusion Chemistry of Container Molecules	SR101
17:00 – 22:00	*Barbeque: Destille*		
Day 2 (Friday, September 16th)			
08:30 – 09:30	Prof. Dr. Neil B. McKeown Cardiff University	Absorption and Storage of Small Molecules in Molecular Crystals	SR101
09:30 – 10:30	Prof. Dr. Seth Cohen, UCSD, San Diego, USA	Inclusion Chemistry in Metal-Organic Frameworks	SR101
10:30 – 10:50	*Coffee & Tea, Refreshments*		
10:50 – 11:50	Prof. Dr. Rudolf Feile Darmstadt, Germany	Clathrate Hydrates	SR101
11:50 – 12:50	Dr. Haeckel, Leibniz-Institut für Meereswissenschaften, Kiel	Storage of Gases in Marine Sediments	SR101
12:50 – 14:00	Lunch break		
14:00 - 15:00	Examination		SR101
15:00 – 16:00	Mark of the examination (all lecturers)		SR101
16:00 – 16:30	Award Ceremony (for best student) and Closing Remarks		SR101

Didactic elements: Lecture, discussions, presentations.
Expected performance: Active participation in discussions
Departure: Friday September 16; or Saturday September 17