LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

GCOE Symposium at the University of Tokyo
"Doctor's Brilliant Carrer Design"

Difference of Laboratory Life between Japan and Germany
– Impression and Experience at LMU

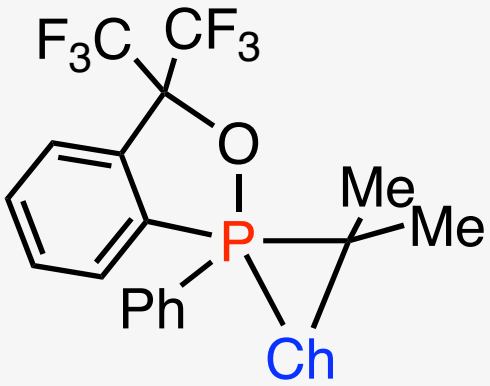
Shohei Sase (JSPS Postdoctoral Fellow)
15.02.2008

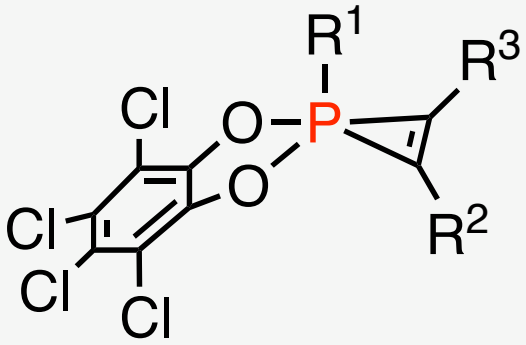
Contents

PhD work in UT

PhD work (Prof. Takayuki Kawashima, Department of Chemistry)

Syntheses, structure, and reactivity of three-membered ring compounds bearing a pentacoordinate phosphorus atom





- Main group chemistry (fundamental)

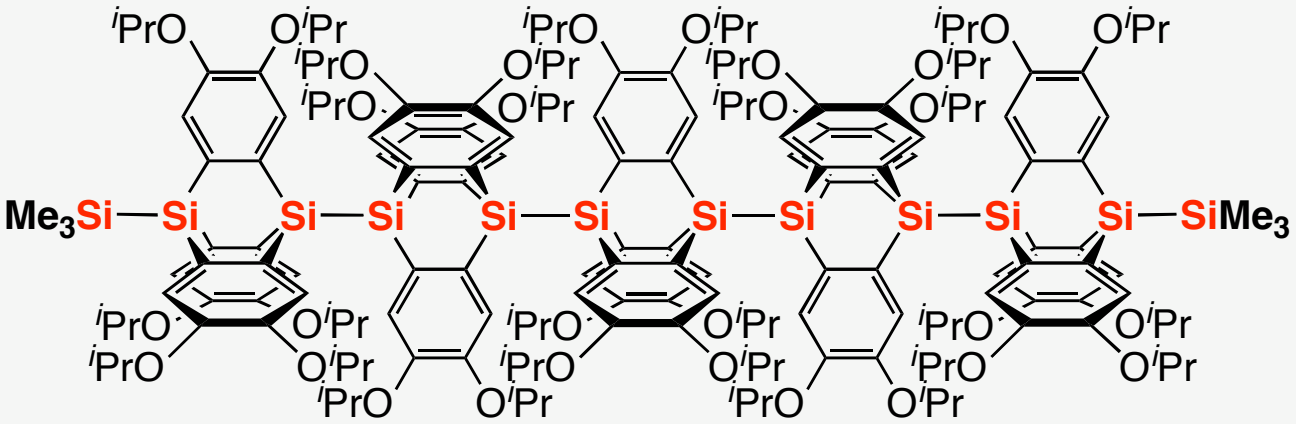
  Intermediate field between organic and inorganic chemistry

- Synthetic (organic, organometallic), structural (X-ray), and theoretical (Gaussian) chemistry

Posdoc Work at ICR, Kyoto Univ.

1st Posdoc work (Prof. Kohei Tamao, Assit. Prof. Hayato Tsuji)

Syntheses and Properties of One-Dimensional Arrays of Silicon Atoms using a Rigid Framework



- Main group chemistry

  oriented toward material chemistry

- Photophysical chemistry (MCD, Fluorescence)

The 2nd Posdoc at LMU

1. Why did I go to München, Germany?

- Need of experience in the field of synthetic chemistry
- Private affair

2. Prof. Paul Knochel (b. in Strasburg, France) at LMU

- One of the top organometallic chemists in Germany

Functionalized Mg, Zn, and Cu reagents

Cross-coupling using Co and Ir catalysts

Asymmetric synthesis

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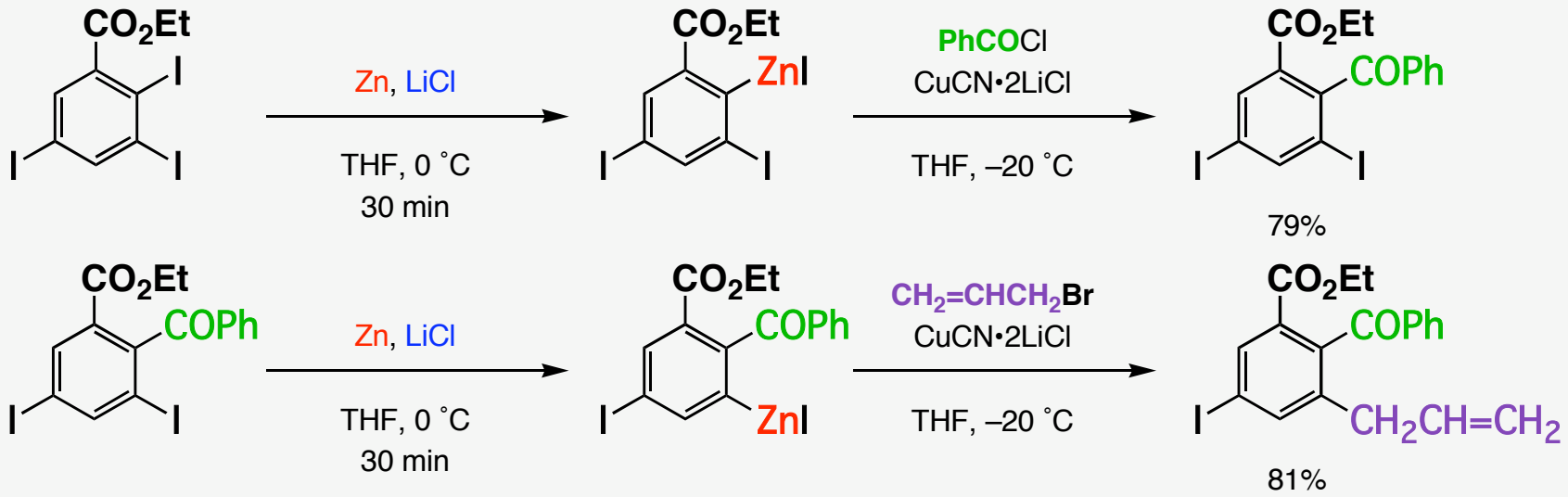
Posdoc Work at AK Knochel–1

Polyfunctionalized organozinc reagents



Functional group directed selective insertion to a C–X (X = Br, I) bond

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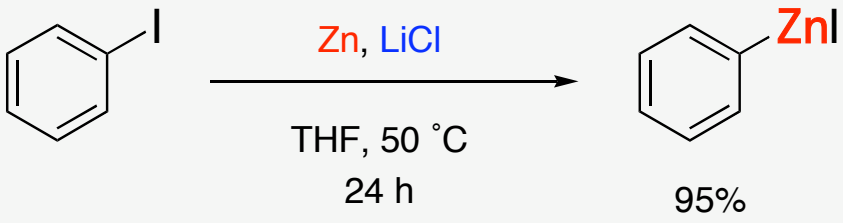
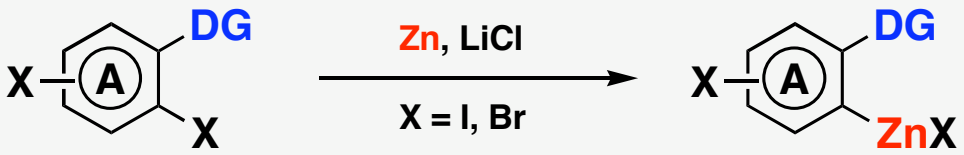


LiCl *accerelates direct Zn insertion to a C–X (X = Br, I) bond*

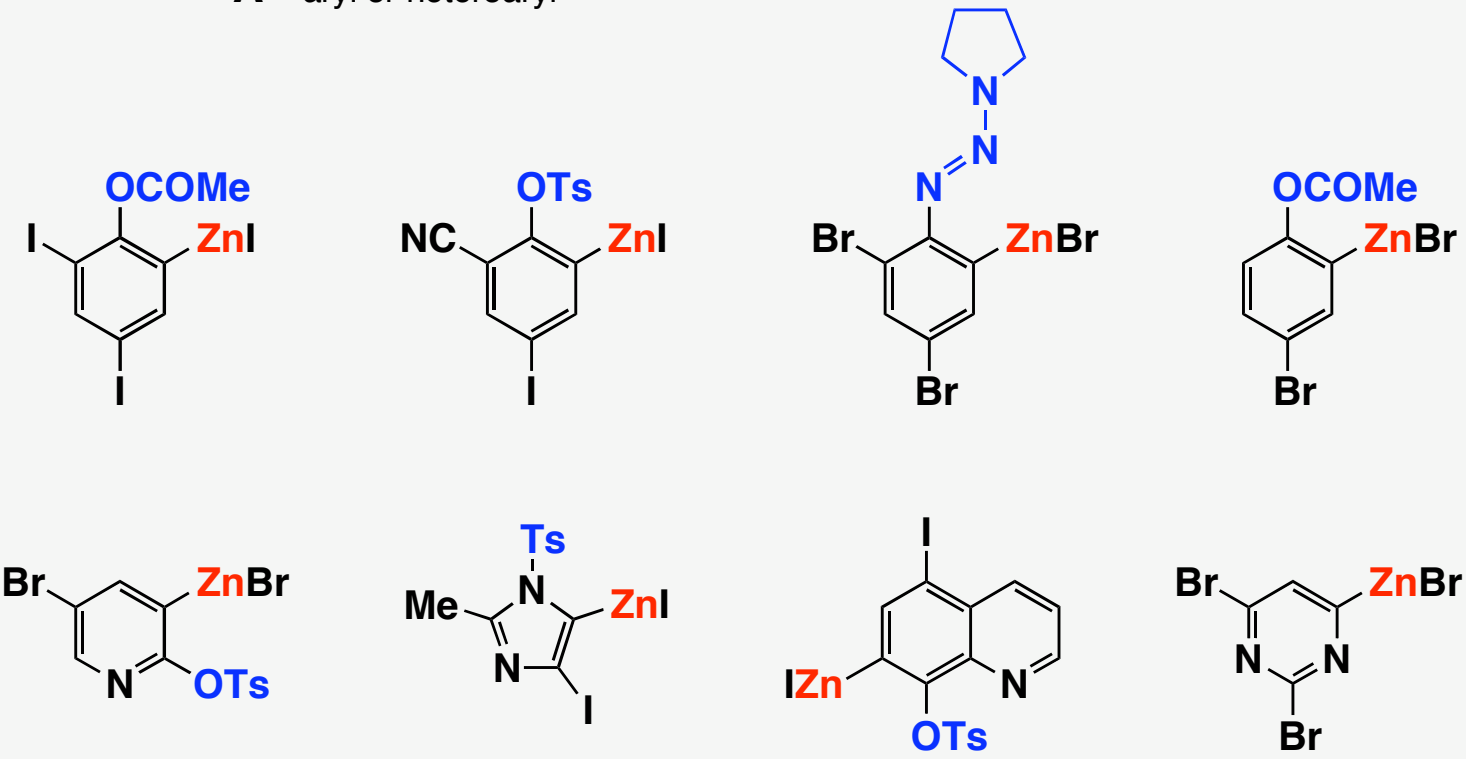
P. Knochel et al, *Angew. Chem. Int. Ed.*, **2006**, *45*, 6040

Posdoc Work at AK Knochel–2

Selective Direct *Ortho* Insertion on poly halogenated aromatics



A = aryl or heteroaryl



P. Knochel et al, *J. Am. Chem. Soc.* **2007**, *129*, 12358.

About München and LMU

2. Ludwig-M

- Origin: Fo
- Moved to
- Named "L
- ca. 42,00

About the Knochel Group

1. Big and international group

- 36 members (1. Feb. 2008)

  1 Professor, 1 Secretary, 3 Technicians, 5 Posdocs

  19 PhD, 5 Master, and 2 Exchange students

- Where do they come from? –more than 10 nations!

  Germany, France, Spain, England, Italia, Swiss, Bosnia, Greece,

  Russia, Brazil, India, Thailand, China, Taiwan, and Japan

2. Language

- English, German etc.

3. Equipments

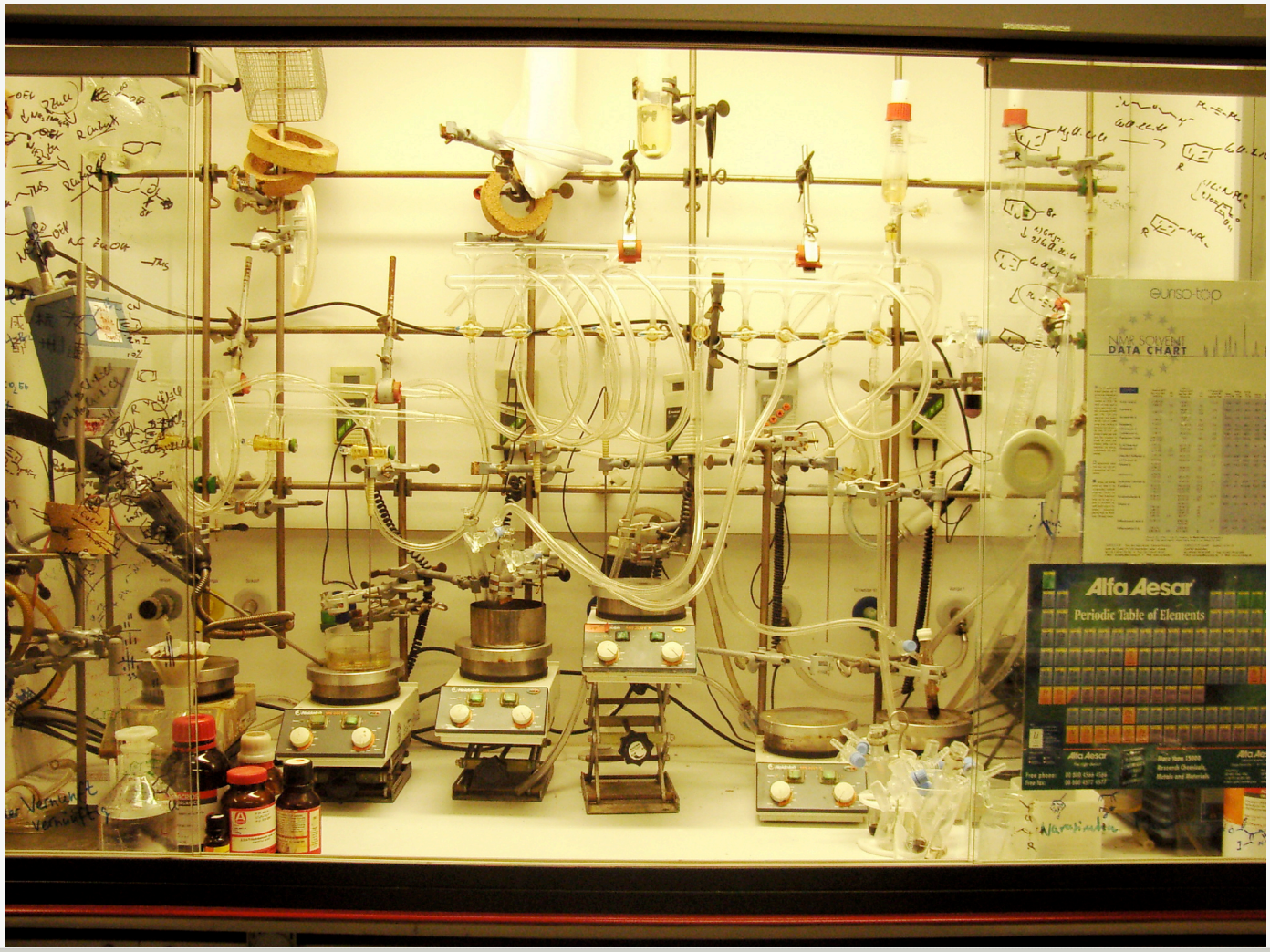
- 6 Laboratories, 3 Rooms for GC, GC-MS, LC
- One draft and one bench for each student

About the Knochel Group

Department Chemie und Biochemie, LMU

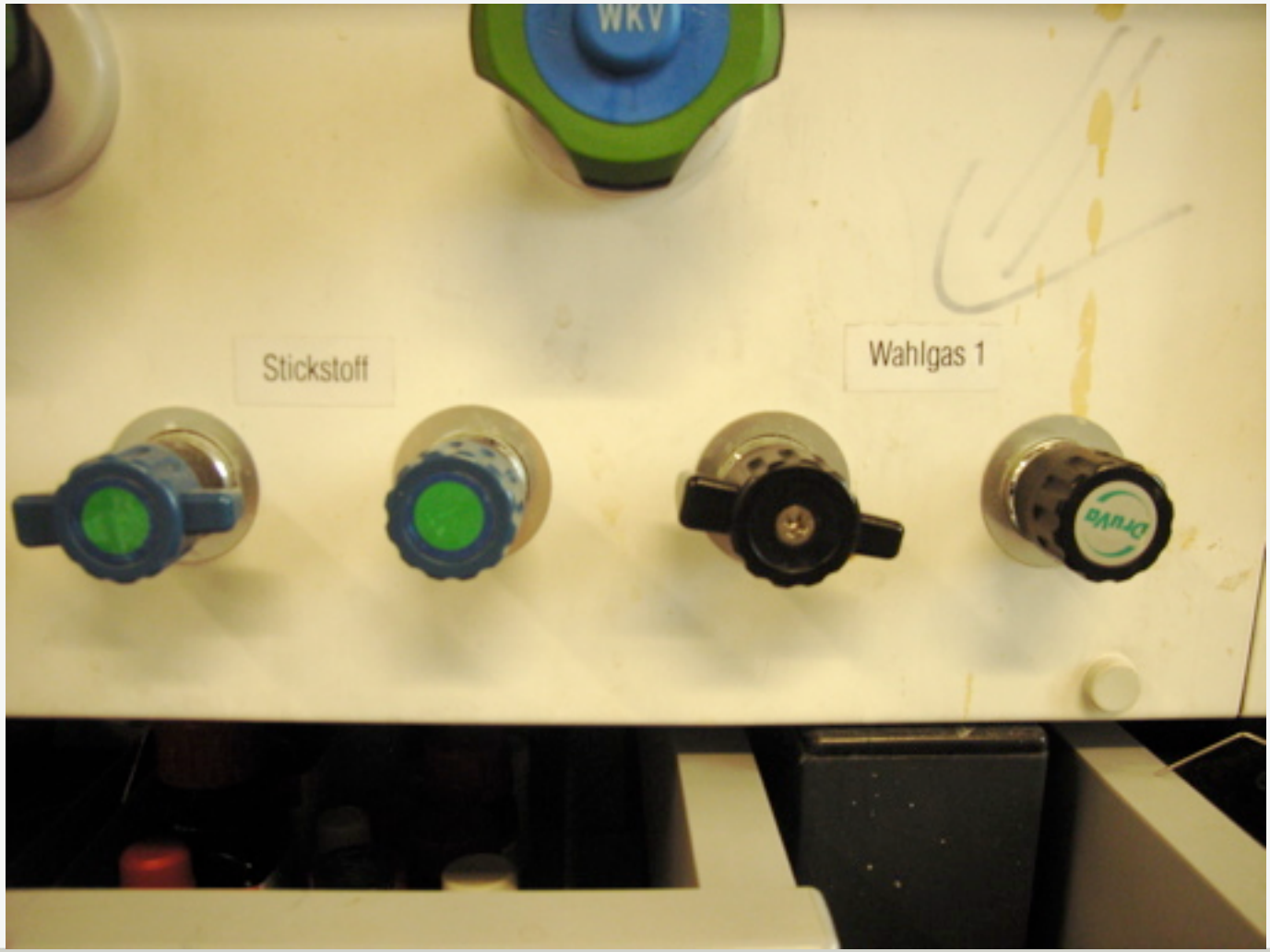
Pictures of Knochel Group

My hood



Pictures of Knochel Group

Valves for N_2 and Ar



Pictures of Knochel Group

My bench

Pictures of Knochel Group

GC Room

Pictures of Knochel Group

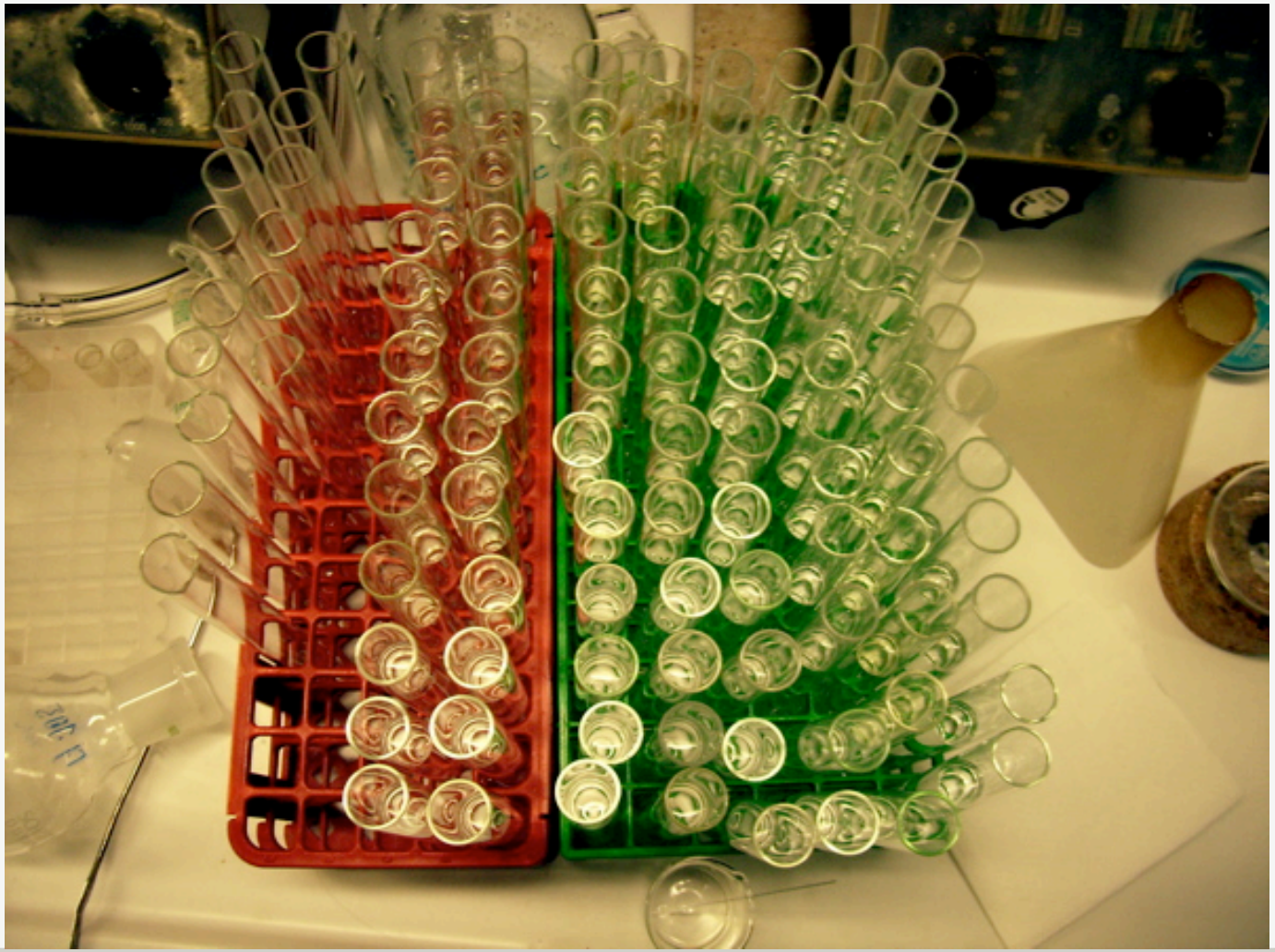
H_2 Generator

Pictures of Knochel Group

Auto Sampler for every GCs

Pictures of Knochel Group

Washing Machine: You do not need to wash glasswares by yourself!



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Lab. Life in AK Knochel

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Differences of dairy life between Germany and Japan

1. **Restaurant in University (Mensa)**
   - Open from 8:00 to 15:00 on Mon. to Fri.
   - You have to buy something to eat outside on Sat. and Sun.
2. **Supermarkets, Department store etc.**
   - No convinient store!
   - Open from 8:00 to 20:00 (regulated by law)
   - closed on Sun.
3. **Restaurants**
   - Open until around 23:00 even on Sun.
   - More expensive than Japan…
4. **Necessity of speaking German (unfortunately….)**

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Education System in LMU –from bachelor to Master

1. **Bachelor course for 3 years (from 1st to 6th term)**
   - Lectures on organic, inorganic, physical, and biochemistry
   - Fundamental lab. trainings (Grund Praktikum) on each field for a whole term

     examples in OC

     purification of solvent, distillation, silicagel column, etc.
   - Oral examination on lectures in the end of 4th term
   - Practical lab. trainings in several groups (Literature Praktikum)
   - Bachelor work in one group for 6 weeks (thesis)
2. **Master course for 2 years (from 7th to 10th term)**
   - Select two fields
   - Lectures and advanced lab. trainings on two fields for 6–8 weeks
   - Oral examination on lectures for ca. 1 h
   - Master work in one group for 6 months (thesis)
3. **Less university fee (400–500 euro per term)**

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Education System in LMU –doctor course

Armin Stoll

Future Plan of Ph.D. Students

Most of German students make posdoc research, then go to industry

- Posdoc work in United States, Great Britain, Swiss, etc.
- Companies prefer posdoc experience in another country
- Few student going to academia

Habilitation system– only way to become professor

- Need to find a professor (taking care of equipments etc.)
- Working independently for 5 years
- Open oral examination with professors–lecture on the related topic
- Necessity to find a position in another university

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Summary –What is different?

1. Lab life in Germany

Practical system based on division of labor

2. Dairy life in Germany

Less possibility to get livingwares and foods

More convinient in Japan

3. Education system

Many possibilities for practical training in various groups

4. Future plan of German PhD students

Preference for going industry

Hablitation system for becoming professor

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Acknowledgement

- **JSPS**
- **Prof. Paul Knochel**
- **Group members of AK Knochel**

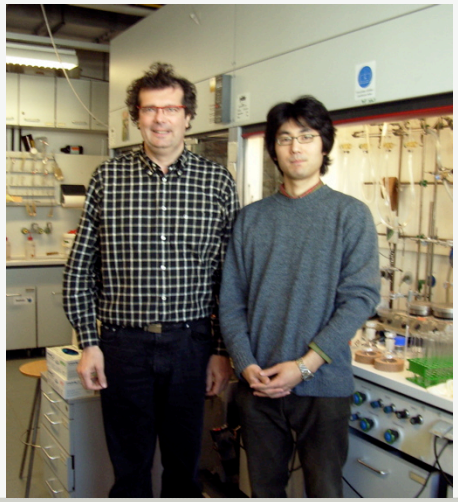
  Expecially Labmates in F2.001B

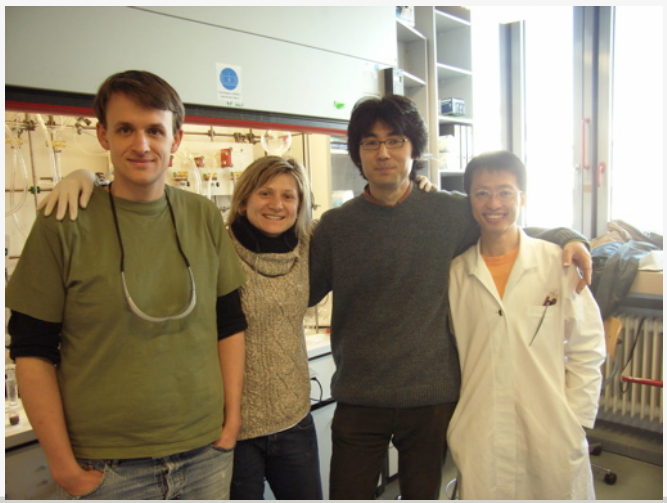
  Dr. Felix Kopp (New York), Dr. Muthy N. Cheemala (Dallas)

  Dr. Yi-Hung Chen (Alexander von Humboldt Fellow)

  Dipl. Albrcht Metzger

  Dipl. Milica Jalic




Thank you for your
kind attention!