Programme and registration details (updated 3 July 2017)

Summer School on

Chiral Crystallization, Resolution & Deracemization

Organized in collaboration with ITN CORE, EFCE Working Party on Crystallisation and COST Action CM 1402

open for participants from academia and industry

3 – 6 July 2017
Radboud University, Nijmegen, The Netherlands

Registration deadline: 16 June 2017

Organizers: Prof. Elias Vlieg and Dr. Hugo Meekes
This goal of this summer school is to outline the basics of chirality and chiral purification in the context of crystallisation. In 1848 Louis Pasteur discovered that biological molecules can be chiral, i.e., occur in both a left-handed and a right-handed form. Such molecules are each other’s (non-superimposable) mirror image, but identical otherwise. In a normal chemical synthesis the two enantiomers will be produced in equal amounts. Life on earth, however, is found to be predominantly homochiral, with only one type of handedness present of a specific biomolecule. On the one hand this raises the fundamental question how this single-handedness occurred. On the other hand this has practical consequences since the human body can respond very differently to the two enantiomers and thus for pharmaceutical applications it is often necessary to produce a chirally pure product.

This summer school will teach the participants the current state of the art in different routes to produce chirally pure material. The focus is on methods involving crystallisation, and thus the school starts with the fundamentals of crystal growth and the crystallography of chiral compounds. Subsequently the most important chiral purification methods will be presented.

We encourage active participation of the students by (1) having a discussion/exercise session after each lecture series and (2) organizing a poster session in which each participant has the opportunity to discuss his/her current research with the other participants.

Elias Vlieg & Hugo Meekes
Venue

Directions to the Radboud University and a map of the campus are located at the end of this document. The school will be held in Room HG00.062 of the Huygens Building, which is number 15 on the map.
Lectures

Introduction to Chirality, Prof Elias Vlieg, Radboud University, Netherlands

Thermodynamics and Phase Diagrams, Prof Gerard Coquerel, University of Rouen, France

Crystal nucleation, Prof Joop ter Horst, University of Strathclyde, UK

Crystallography of Chiral Compounds, Dr. René de Gelder, Radboud University, Netherlands

Growth Mechanisms, Dr. Willem van Enckevort, Radboud University, Netherlands

Preferential crystallisation & Process Modelling, Prof Joop ter Horst, University of Strathclyde, UK

Diastereomeric Resolution, Dr. Ton Vries (Syncom BV, Netherlands)

Processes to separate enantiomers, Prof. Andreas Seidel-Morgenstern, Otto-von-Guericke-Universitaet, Germany

Viedma ripening - experimental, Dr. Hugo Meekes, Radboud University, Netherlands

Viedma ripening - theory, Prof Elias Vlieg, Radboud University, Netherlands

The school will include a poster session for participants, plus an excursion and a Summer School dinner.
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<th>Time</th>
<th>Monday</th>
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Excursion and dinner on Wednesday, 5 July 2017

On Wednesday afternoon, we have a break from the school schedule and have a chance to relax, socialize and visit one of the nicest museums in The Netherlands, the Kröller-Müller museum (krollermuller.nl/visit) that is beautifully located in the National Park De Hoge Veluwe. The museum is famous for its collection of Van Gogh paintings and its sculpture garden. In order to have sufficient time to enjoy the museum and park, we have a tight and strict time schedule. Lunch will be served on the bus.

13:50 assemble in front of the Huygens building
14:00 bus leaves for Kröller-Müller museum
15:00 time to explore the museum and sculpture garden by yourself. The garden closes at 16:30, the museum at 17:00.
17:20 assemble at parking lot
17:30 bus leaves for Nijmegen
19:00 dinner in Humphrey’s Restaurant, Vismarkt 7, Nijmegen
Accommodation

You will have to make hotel arrangements yourself, but we recommend the following hotels:

**Mercure Hotel Nijmegen Centre**
Stationplein 29
6512 AB NIJMEGEN - NETHERLANDS
Telefoon: (+31)24/3238888 - Fax: (+31)24/3242090
Price: 1 adult room about € 90 excl. breakfast

**Apollo Hotel Nijmegen**
Bisschop Hamerstraat 14
6511 NB Nijmegen
TEL: 0031 (0) 24 322 35 94
FAX: 0031 (0) 24 323 31 76
WWW.APOLLOHOTEL.NL
Price: 1 adult room about € 85,- excl. breakfast

**Hotel Restaurant Rozenhof**
Nijmeegsebaan 114
6564 CK Heilig Landstichting
Telefoon: 024 323 0359
www.rozenhof.nl
Price: 1 adult room about €66,- incl. breakfast buffet

**Hotel van der Valk Nijmegen-Lent**
Hertog Eduardplein 4
6663 AN Nijmegen
Telefoon:024 792 0200
www.valknijmegen.nl
Price: 1 adult room about €89,-
Price breakfast: €13,50
Registration

Deadline: 16 June 2017

Participants from academia, industry and alike are invited to join. The fee covers the lectures, daily coffee and lunch breaks and the excursion plus school dinner; accommodation is not included. There is no reduced fee for participants who will only partly attend the school.

This school is supported by COST Action CM 1402 Crystallize. Participants from groups that are part of this COST action (check with your supervisor!) will have to follow the normal registration procedure, but can have their expenses reimbursed using the standard COST procedures.

There is room for approximately 50 participants, so we advise you to register as early as possible.

If you want to join the school, please complete the following two steps:

(1) send an e-mail to e.salem@science.ru.nl with the following information:
   • subject: ITN CORE summer school
   • your name and affiliation
   • whether you are a member of a group participating in the COST Action CM 1402 Crystallize and want to have your costs reimbursed through this action.
   • the title of your poster
(2) pay the registration fee of € 350 using the following steps:
   • name: St. KU Radboud Universiteit
   • address: Nijmegen, The Netherlands
   • IBAN: NL08 ABNA 023124 7834
   • BIC: ABNANL2A
   • important: state ‘budgetnr 6201038’ with your payment

Once we have received your registration and payment, you will receive notification of your acceptance.
How to get to the Radboud University?

Train
Trains call at Nijmegen Central train station and Nijmegen Heyendaal train station. Heyendaal train station is within walking distance of the university.

Bus
Direct busses run every five minutes during rush hour from Nijmegen Central train station to Radboud University. Bus 10 (Heyendaal Shuttle) calls at all bus stops. An OV chip card top-up machine is found near the main entrance of the University Library.

Plan your journey via www.ns.nl or www.9292.nl (or use the corresponding phone apps).

Car
Radboud University is indicated on the ANWB road signs on all access roads in Nijmegen.

Parking
Paid parking is available from Monday to Friday (except on official holidays) from 7.00 to 18.00 (€2 per hour, maximum €10 per day). Parking up to a half hour is free.

Opening hours and accessibility
Radboud University does not have uniform opening hours across the campus; they vary per building. Visit the website www.ru.nl/howtogetthere for the most current information.

Bicycle
Radboud University has different indoor and outdoor bicycle parking facilities. These facilities are found in or near each building on campus.