

# 5<sup>th</sup> International Chemistry workshop of Clausthal-Zellerfeld

The chemistry workshop will be organized by the faculty of sciences and material sciences of the Clausthal University of Technology (TUC) as well as the Robert-Koch-Schule (RKS). We would like to invite English speaking students (age group 17 - 18) who are interested in chemistry and open for international communication.

## Program

### Sunday, 17th February 2019

Until 11:30 a.m.: RKS: arrival of the participants

**12:00 a.m. Welcome address to the participants of the chemistry workshop**, information about the 5th ICCW first meeting and snack at the canteen of Robert-Koch-Schule (RKS), Berliner Straße 16 (Mrs. Jutta Reusing, headmistress, Prof. Dr.-Ing Gunther Brenner, Vice President of TU Clausthal, Axel Franke, former teacher of chemistry at RKS).

**1:30 p.m.** for students interested: **Walk to the museum of mining**

In between, transport the luggage to the Academy of Sports

**2:00-4:00 p.m. Sightseeing: UNESCO-World heritage Oberharzer Wasserwirtschaft (visit at the mining museums and lakes of Zellerfeld).** Lecturer: Eberhard Paesler

Then **move into accommodation at the Academy of Sports**, Adolf-Ey-Str. 9

**7:00 p.m. Dinner at Ristorante Lucania**, Mönchstalweg 30, with all workshop participants as well as with persons responsible and sponsors of the 5th International Clausthal Chemistry Workshop

### Monday, 18. February 2019

**8:00 a.m.** Breakfast, Akademie des Sports.

**9:00 a.m. - 01:00 p.m.**

**Work experience at the Institute of Inorganic und Analytical Chemistry**, IAAC, Paul-Ernst-Straße 4.

(Prof. Dr. Ursula Fittschen, Chemical Technician Petra Lassen, Axel Franke)

**Chemical analysis of supermarket products** - make your choice out of:

- **Juices and tins, fruits and vegetables, soft drinks** (i.e. anthocyanine in fruits and vegetables, dextrine in beer, black color pigments in Coca Cola)
- **Sweets, Tea, coffee und cacao** (Indigo color in sugar, caffeine, iron in black tea)
- **over the counter medicine** (Iodine, effervescent tablets containing magnesium, medicine containing iron )

**1:15 - 1:45 p.m.** Lunch, Mensa, **Leibnizstraße 3.**

**2:00 p.m. - 4:30 p.m.**

Lectures at the Institute of polymer Materials and plastic Engineering, PuK, Agricolastraße 6

**“Composites and Plastic in a nutshell”** by Dr. sc. nat. Leif Steuernagel

**5:30 p.m. Dinner, Akademie des Sports.**

**6:30 p.m. Departure to Goslar**

**7:00 p.m. to 8:30 p.m. Bowling in Goslar.**

## **Tuesday, 19th February 2019**

**8:00 a.m.** Breakfast, Akademie des Sports.

**9:00 a.m. - 1:00 p.m.**

**Work experience at the Institute of polymer Materials and plastic Engineering,**  
Agricolastraße 6

- fiber composites (VARI and Prepreg)

**1:15 p.m.** Lunch, Mensa

**2:00 p.m. - 5:00 p.m. Work experience at the Institute of Technical Chemistry,** Arnold-Sommerfeld-Straße 4

**Production and properties of polymers** (safety instructions, some experiments on polymer chemistry), Prof. Dr. Sabine Beuermann

**6:00 p.m. PotLuck** (the participants have to prepare a typical menu from their home country with 3 courses), Grundschule Bremerhöhe.

## **Wednesday, 20th February 2019**

**8:00 a.m.** Breakfast, Akademie des Sports

**9:00 a.m. - 4:00 p.m.**

**Work experience at the Institute of Organic Chemistry,** Leibnizstraße 6, lecturer Prof. Dr. Andreas Schmidt, IOC.

- Introducing of the Institute of Organic Chemistry
- Safety training
- first work experience of organic chemistry
- natural medicine and its modification in the lab
- synthetic medicine
- getting alkaloids out of plants
- Chemistry of light: Synthesis of an optical switch
- natural and synthetic dyes

**1:15 p.m.** Lunch, Mensa, Leibnizstraße 3.

For students interested:

**4:00 p.m. - 5:30 p.m.**

- tour through the Institute of Organic Chemistry
- imposition to spectroscopy and analysis of structure of self-made synthesis products

**6:15 p.m.** Dinner, Akademie des Sports.

**7:30 p.m. sports: soccer, volleyball, table tennis...**

## Thursday, 21st February 2019

7:15 a.m. Breakfast, Akademie des Sports

8:00 a.m. **Bus departure Academy of Sports**

8:30 a.m. – 10 a.m. **ELEKTROCYCLING GmbH** near Bad Harzburg

10:00 am **Bus departure ELEKTROCYCLING GmbH**

10:45 a.m. - 4:45 p.m. **Work experience at the Institute physical Chemistry, Arnold Sommerfeld Straße 4, PD Dr. Jörg Adams.**

There are 4 different experiments available, each of which is done by 2 students. The choice of the experiments will be done at the beginning of the lab-work:

- Decomposition voltage of hydrochloric acid electrolysis: electrolysis, polarization phenomena, current flow in electrolytes
- Inversion of saccharose: kinetics, determination of activation energy, polarimeter (polarization of light, optical rotation, chirality)
- Heat of combustion of chocolate:
- Reaction, combustion, formation enthalpy, thermal calorimetry
- Spectroscopic investigation of the dyes produced in the Institute of Organic Chemistry

Additional Mr. Adams will offer advising to all interested students about studying chemistry:

- Bachelor and Master of chemistry in Germany and especially at the TU Clausthal
- modular system

1:15 p.m. Lunch, Mensa, Leibnizstraße 3.

6:15 p.m. Dinner at the Akademie des Sports

7:30 p.m. for students interested: **Torch walk to and into the Ottilae mine as well as walk through a below ground mine**, by Thomas Gundermann, Robert-Koch-Schule

Alternate (if the weather is bad): Quiz and activity evening at the Akademie des Sports

## Friday, 22nd February 2019

7:30 a.m. Breakfast, Akademie des Sports.

The group of participants is shared:

8:15 a.m. - 9:45 a.m. **Visit at the glass blower H. Meißner at Windaus Labortechnik GmbH or**

8:45 a.m. - 9:45 a.m. **Visit at the glass blower H. Zain at Organic Institute,**

10:15 a.m. – 1.00 p.m. **Electrochemical experiments at the Institute of Chemical Process Engineering, Leibnizstraße 17, Prof. Dr.-Ing. Ulrich Kunz, Gregor Wehinger, Dr.-Ing. Andreas Lindermeir (CUTEC)**

- **Internship with Battery Boxes** (How Batteries Work - Model Batteries and Accumulators Construction and Performance Measurement and Performance Comparison)
- **Presentation of research results**
- **fuel cells**

1:15- 2:00 p.m. Lunch, Mensa, Leibnizstraße 3.

### **In the afternoon possibly**

**2:15 p.m.- 3:15 p.m. Green Voltage Racer** (presentation, demonstration if necessary)  
(Formula Student Team (Fabian Siegert))

for students interested:

**3:30 p.m. - 4:30 p.m. City tour (Clausthaler Marktkirche, mineral collection of the TU)**

**5:30-7:00 p.m. Chemistry Show at GCÜ of the Robert-Koch-Schule**

(Presented by DR. Gerd Bouchon, Axel Franke, Christiane Weinhold, students of the Chemistry Working Group)

afterwards

**Farewell evening (finger food buffet) with all participants of the ICCW as well as sponsors and organization team**

### **Saturday, 23rd February 2019**

After breakfast departure of the participants,

At 9 a.m. the rooms are to be left.

## **Notes on Booking - Further Information - Contact**

<https://www.we.tu-clausthal.de/en/schuelerseminare/chemistry-workshop/booking-form/>

**Please take into consideration that there are only 25 places in the program and that they will be distributed in the order of application.**

**The registration should be done until 15/12/2018**

Travel costs must be paid individually (please consider sponsoring). We will certainly help you with your travel arrangements.

The **proportional fee** for all the events including breakfast, lunch and accommodation is 135 €, without accommodation 50 €. You will receive information about the transfer of the fee after your online registration.

The following (confidential) data must be entered by the participant in the input mask:

- Christian name
- Surname
- Phone number
- email address
- Age
- Gender
- homeland
- Place of living
- school city
- student or teacher
- Arrival vehicle

At the following points please specify the desired:

- Accommodation in the Academy of Sports: yes / no
- Food: normal, vegetarian, vegan, ...
- Participation World Heritage tour: yes / no

- Participation torchlight hike and shaft inspection: yes / no
- Participation city tour: yes / no
- Consent for the creation of a list of participants: yes / no
- Consent for taking picture documents: yes / no

**Contact:**

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