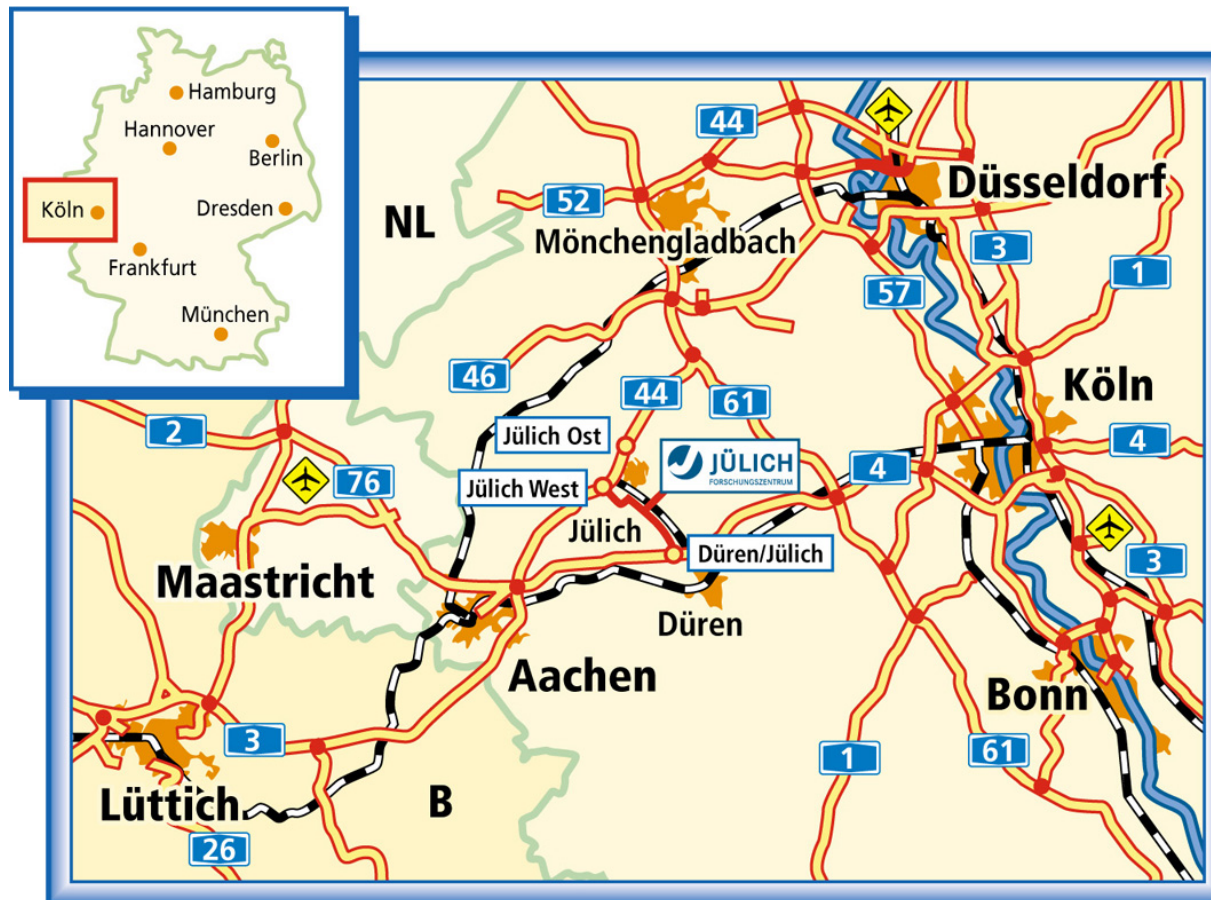


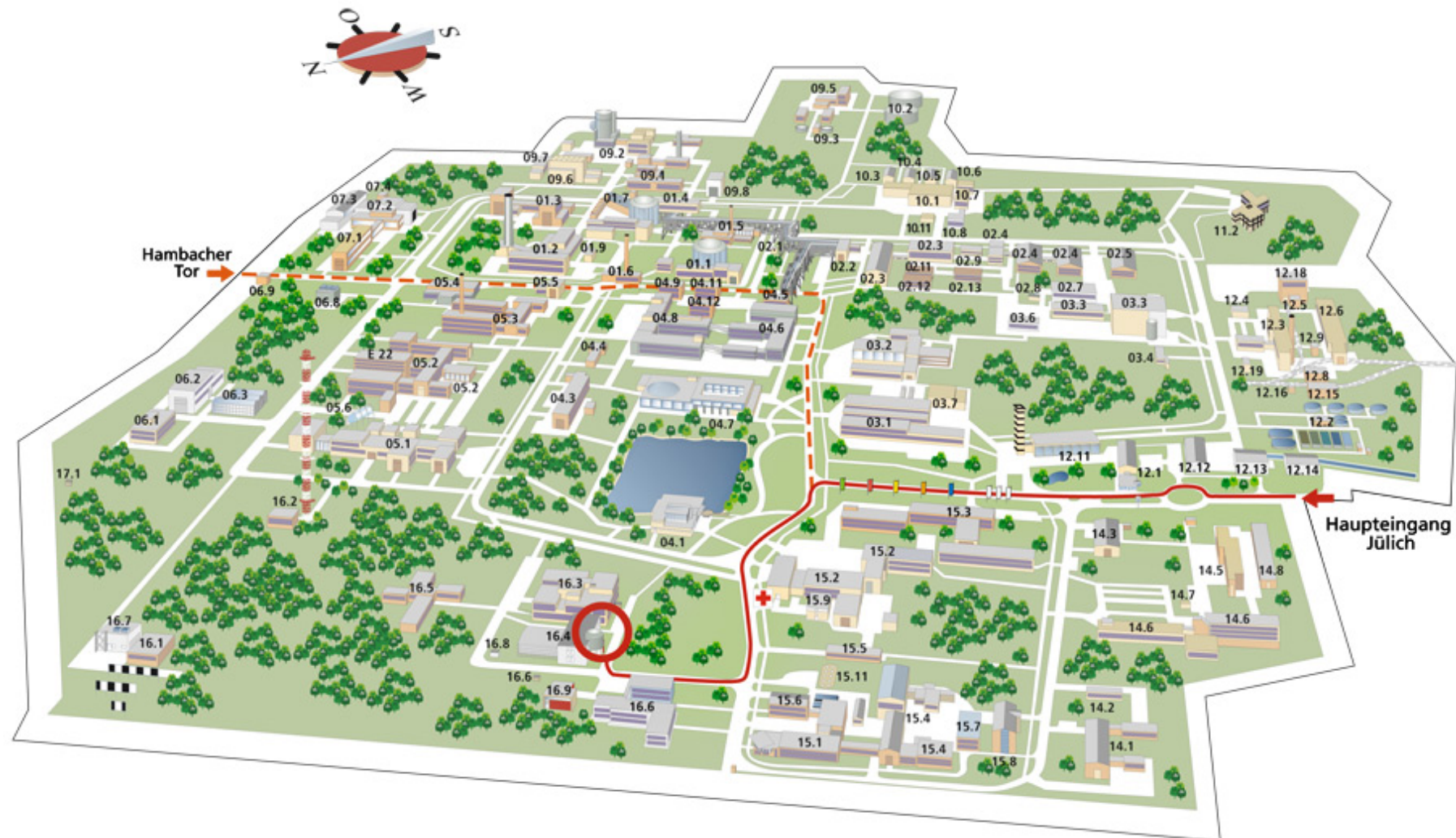
Summer School on Fire Dynamics Modeling 2017

07. – 11. August 2017 | Lukas Arnold

Forschungszentrum Jülich (FZJ)



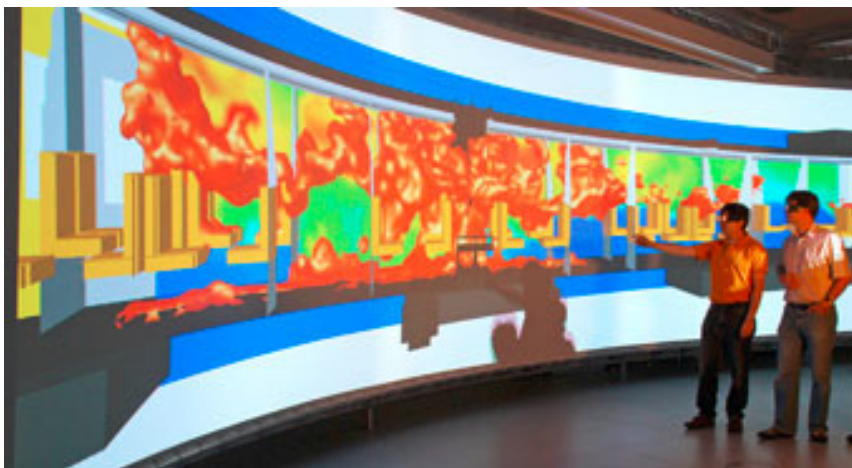
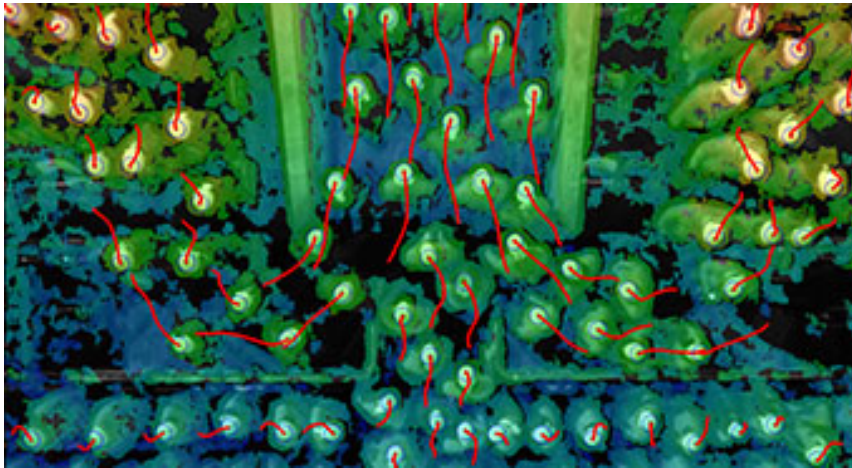
Forschungszentrum Jülich (FZJ)



Jülich Supercomputing Centre (JSC)



Civil Safety and Traffic (CST)



Scientific Topics:

- Pedestrian dynamics
- Fire and smoke dynamics
- Traffic simulations

Local Support – Fire Dynamics Team

Marc

Lukas

Alex

Ashish



Anna

Anne

Leonie

Jana

Mobile phones: Lukas 0049 177 3221619 Alex 00 49 173 4960046

FZJ emergency number: 77

Seecasino



Agenda – Monday

| Monday, 07.08.2017, GRS Building, 2009 (Lecture Room) | | |
|---|--|-----------------|
| 11:00 – 12:30 | Arrival and Registration of Participants | |
| 12:30 – 13:30 | Joint Lunch | |
| 13:30 – 13:45 | Welcome | Lukas Arnold |
| 13:45 – 14:45 | History of Fire Modeling and FDS | Kevin McGrattan |
| 14:45 – 15:00 | Coffee Break | |
| 15:00 – 16:00 | Governing Equations | Kevin McGrattan |
| 16:00 – 17:00 | Getting Started with FDS and Python | Lukas Arnold |
| 17:15 | Bus to Aachen | |

Agenda – Tuesday

| Tuesday, 08.08.2017, JSC Building, Rotunda | | |
|--|------------------------------|----------------|
| 09:00 – 10:30 | Computational Fluid Dynamics | Lukas Arnold |
| 10:30 – 11:00 | Coffee Break | |
| 11:00 – 12:30 | Computational Fluid Dynamics | Lukas Arnold |
| 12:30 – 13:30 | Joint Lunch | |
| 13:30 – 15:00 | Pressure Coupling | Susanne Kilian |
| 15:00 – 15:30 | Coffee Break | |
| 15:30 – 17:00 | Pressure Coupling | Susanne Kilian |
| 17:15 | Bus to Aachen | |

Agenda – Wednesday

| Wednesday, 09.08.2017, JSC Building, Rotunda | | |
|--|-------------------------------------|-------------------|
| 09:00 – 10:30 | Turbulence | Bjarne Husted |
| 10:30 – 10:45 | Coffee Break | |
| 10:45 – 12:15 | Turbulence | Bjarne Husted |
| 12:15 – 13:15 | Joint Lunch | |
| 13:15 – 14:45 | Combustion | Randall McDermott |
| 14:45 – 15:00 | Coffee Break | |
| 15:00 – 16:30 | Combustion | Randall McDermott |
| 16:45 | Bus to Aachen | |
| 18:00 – 19:30 | City Tour Aachen | |
| 19:45 – 22:00 | Joint Dinner at “Aachener Brauhaus” | |

Agenda – Thursday

| Thursday, 10.08.2017, JSC Building, Rotunda | | |
|---|-------------------|-----------------|
| 09:00 – 10:30 | Thermal Radiation | Simo Hostikka |
| 10:30 – 11:00 | Coffee Break | |
| 11:00 – 12:30 | Thermal Radiation | Simo Hostikka |
| 12:30 – 13:30 | Joint Lunch | |
| 13:30 – 15:00 | Pyrolysis | Kevin McGrattan |
| 15:00 – 15:30 | Coffee Break | |
| 15:30 – 17:00 | Pyrolysis | Kevin McGrattan |
| 17:15 | Bus to Aachen | |

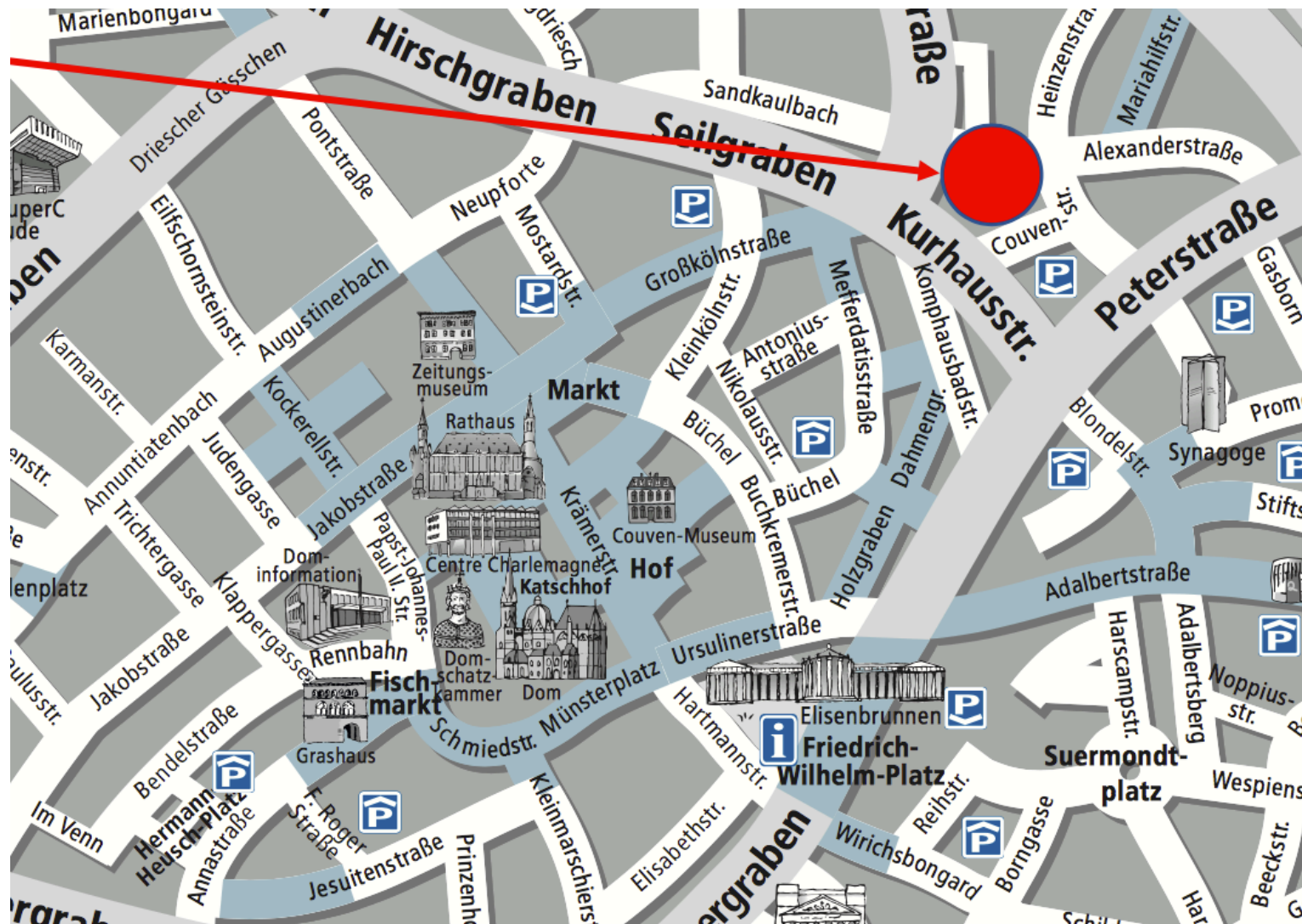
Agenda – Friday

| Friday, 11.08.2017, JSC Building, Rotunda | | |
|---|--------------|----------------|
| 09:00 – 10:30 | Tools | Susanne Kilian |
| 10:30 – 11:00 | Coffee Break | |
| 11:00 – 12:30 | Tools | Lukas Arnold |
| 12:30 – 13:30 | Joint Lunch | |
| 13:30 | Departure | |

Transfer Aachen – JSC

- Organized bus transfer to / from Aachen
- Meeting point in Aachen: 50.778638, 6.088743
- Scheduled departures, don't be late!
- Alternative: take local bus SB20 or 220, see link at webpage

Transfer Aachen – JSC



WiFi

- Use “eduroam” if possible
- WiFi-tokens for “fzjguest” network
 - Handed out at registration
 - Contact Anne for more coupons
 - One token per device – you can have multiple tokens
- Works FZJ wide

Lunch / Coffee Breaks

- You're invited: we have vouchers for lunch for each participant
- Vouchers handed out each day by Anne, before leaving to lunch in the "Seecasino"
- Note: please use plates located at the chosen meal
- Reserved room: "Stetternich", number 226
- Please help us with the dishes during the coffee breaks, i.e. put back used dishes into provided containers

Social Event on Wednesday evening

- City tour in Aachen and joint dinner
- Accompanying guest are welcome, please let us know before
- Tight schedule:
 - Leave earlier from JSC
 - A short break after arrival in Aachen
 - Start of city tour at Elisenbrunnen at 18:00
 - Table in “Aachener Brauhaus” at 19:45
- Dinner:
 - Location: Kapuzinergraben 4, 52062 Aachen
 - Menu: make your choice till Wednesday morning on menu handed out to you at registration (cross meal and add name), give back to Alex
 - Everyone has to pay for himself

Elisenbrunnen / Aachener Brauhaus

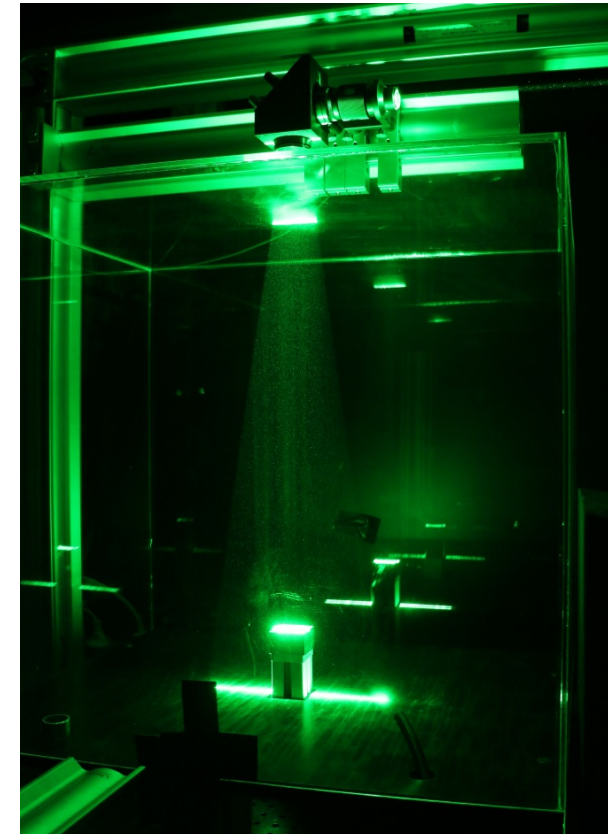


Elisenbrunnen

Aachener Brauhaus

Other Activities

- We can offer you two optional ad-hoc activities
 - Tour to our small-scale experiment
 - Tour to the our (HPC) machine halls



- Please get in touch with us and we arrange it
- We will take a group photo on Thursday morning outside of the Rotunda

School Evaluation

- PLEASE take part in the evaluation
- It is of course anonymous
- Honest answers and opinions help us to improve this activity
- Link will be send to you during on Thursday by Anne
- Deadline: 18.08.2017

Teaching Material

- Collection of slides and exercise files stored in a shared folder
- Download link for each day will be send out before the section
- Link will point to most recent versions
- Teaching material will be made publicly available after the school, please do not re-distribute intermediate versions
- Material can be easily downloaded on the provided virtual machine and the HPC cluster JURECA, script for Linux / macOS is available in the teaching material, section “02 – Setup”

Departure on Friday

- We try to provide options to get you to nearby train stations (Düren) and airports (Düsseldorf, Köln)
- Let us know till Wednesday
- We let you know on Thursday

Fire Simulation Summer School – Goals

Over the last decades, modeling of fires became very popular in fire safety engineering and science. As the models evolve, they become more complex and therefore make it harder to understand the **underlying principles** as well as their **application limits**. This summer school is intended to educate students and researchers on the **underlying theory and algorithms of fire modeling**. The **theoretical part** is accompanied by **practical exercises** (mostly with FDS) with focus on the discussed models. Besides the presentation of models, scientific **pre- and post-processing as well as validation** methods are part of the agenda.

This school not only targets learning more about the **underlying numerical models** in common fire simulation software, like FDS, but also enables the participants to **get in touch with model developers** one on one. Since special emphasis is put on **scientific work**, the participants should have at least a Master's degree in a suitable topic and a sound background in mathematics.

Let's get started!