



EMUG

The 11th Meeting of the
„European MELCOR User Group“

Organised by Paul-Scherrer-Institute (PSI), Switzerland

In Support of the Cooperative Severe Accident Research Programme (CSARP)

will be held in
Brugg-Windisch, Switzerland
3rd – 5th April, 2019



With special thanks to EMUG's permanent stake holders:

United States Nuclear Regulatory Commission (US NRC)
Sandia National Laboratories (SNL)



Announcement and Call for Presentations

Deadline for registration to the meeting
(including indication of presentation(s) title(s) and duration)

25th March 2019

Presentation(s) in Power Point or in PDF format

At the day of the
meeting

On-line information is available at
<http://www.psi.ch/emug/>

1. ORGANIZATION AND HOST

The 11th Meeting of the European MELCOR User Group will be held at the Fachhochschule Nordwestschweiz, Klosterzelgstrasse 2, 5210 Brugg-Windisch, Building 1 room Audimax on 3rd to 5th April 2019.

The meeting will start in the morning on the 3rd with a one-day workshop and continue with the two days meeting that should finish before 18:00 on the 5th. Final details and a draft agenda will be sent to registered participants before the meeting.

2. BACKGROUND OF THE MEETING

The MELCOR severe accident integral code is developed by Sandia National Laboratories (SNL) for the U.S. Nuclear Regulatory Commission (NRC) in the USA, and is provided to various European organizations through bilateral agreements under the 'Cooperative Severe Accident Research Program' "CSARP" between US-NRC and the European organizations. The code has been used for many reactor safety applications by these organizations. Some of these organizations also continuously assess the code with data available from Severe Accident Research programs. A few organizations have also developed models for certain critical issues, which appear in local versions of MELCOR for testing and with the goal of implementation in future releases from SNL.

The main interests in establishing the user group are to foster experience and information exchanges among the European organizations through organized annual meetings and to establish common needs on further model and correctional development of MELCOR. The first meeting of the EMUG hosted by PSI was held in December 2008. PSI is acting as coordinator of the group.

AIMS OF EUROPEAN MELCOR USER GROUP

- To provide a forum for the presentation and discussion of the experience gained by:
 - MELCOR assessment using integral and separate-effect tests leading to presentation of performance of models and related issues, including sensitivity to selected model parameters and model uncertainties,
 - Model development efforts,
 - Application of MELCOR for plant safety studies, including Level 2 PSA, which demonstrates strengths and weaknesses of MELCOR models in reproducing the individual severe accident phenomena, and interactions between them occurring in the nuclear part and balance of plant systems, and the effect of operator actions on the accident progression through user input as introduced in the code input models,
 - Use of code with different compilers and operating systems.
- Prioritization of user error correction and model development needs, to be transmitted to the code developers and the US NRC,
- To minimize the efforts required to obtain an adequate knowledge of optimum use of MELCOR, through sharing of experience,
- To support the gaining of MELCOR knowledge and experience, particularly concerning the younger and less experienced users.

3. SCOPE, CONTENT AND OUTLINE OF THE MEETING

The two days meeting is divided into three sections:

1. NRC and SNL Presentations

About half a day will be devoted to presentations from NRC/MELCOR developers. Each of the following four topics could be given by one presentation.

- NRC MELCOR Activities
 - Code applications
 - Code perspectives, possibility of distribution to international partners, status and future areas of CSARP program
 - New considerations of code development
- MELCOR input
 - New features of input conversion
 - New input capabilities in M1.8.6 and M2.1/2.2
- Current MELCOR development thrust areas
 - Quality assurance
 - Code assessment work and regression testing
 - Code distribution and issue management
 - New MELCOR Models – discussion of new modelling and experience using new models
 - Current code development
- Applications
 - MELCOR best practices
 - Guidance for plant applications

2. User Presentations

About one day will be devoted to presentations from all of the European organizations. For those who would like to present their experience in plant applications of MELCOR 1.8.6 and MELCOR 2.1/2.2, the organizers of the meeting express their wish to see presentations not only on specific aspects of the plant applications evaluating safety aspects of the plants in interest but also the experience in use of the MELCOR models, input parameters, nodalization aspects which have certain bearing on the performance of the code, as well as the quality of the code estimates.

Presentations will be roughly grouped into the following 4 sessions:

- Group 1: User experience with nodalization regarding simulation of different issues with preference to focus on RCS, core and RN inventory and release modeling,
- Group 2: Modelling features (early and late phase core degradation, corium pool formation, lower head behavior, RN release, SFP, etc), new modelling efforts and nuclear fusion application,
- Group 3: Model development and assessment, integral assessment, sensitivity studies, code to code comparison (different MELCOR versions or comparison to other codes), plant applications (link to uncertainty analysis, PSA Level 2 and PSA Level 3, etc.),
- Group 4: Post-processing of results (including possibility of sharing of tools developed by users), run time performance, and input conversion from MELCOR 1.8.6 → 2.1/2.2.

A special session will be offered for the European MACCS users to exchange knowledge with their colleagues from other institutes. The MACCS presentations will be scheduled on 5th of April.

3. Discussion of all participants

- Feedback from the participants – user suggestions to further code development (it could be included in presentation)
- Organizational aspects: next meeting(s)

4. PRACTICAL ARRANGEMENTS

Participants:

Participation at the meeting is open to experts of the European organizations actively using the MELCOR or MACCS code in any of its versions or planning to joint CSARP*. The success of the meeting is very much dependent on the active participation of those present, especially by presentations on their own experience with the code.

**If you are not sure about your participation, please feel free to ask for further information. All the requests from non-CSARP members will be evaluated on a case-by-case basis.*

Registration:

All the participants should fill in the Meeting Registration Form that is attached to this document, including the title(s) of presentation(s), and send it before the 25th March, 2019 to:

E-mail: bernd.jaeckel@psi.ch

A registration fee will not be required. The participants bear the cost of travel and accommodation. The **Conference Dinner** will be organized in the evening on **Thursday 4th** and it will be sponsored by organizers.

Lunch will be provided in CAMPUS restaurant.

Passport and Visa:

Non-EU participants will need to have a valid passport to enter Switzerland.

The Participants coming from all countries that require Swiss entry visa in which there is an Embassy or Consular Office of Switzerland do need to apply for visas there. The Participants are advised to check for the Embassy or Consular Office of Switzerland which covers their country.

Regarding request for an invitation letter for your Visa, you can send your request directly to our admin andrea.mohr@psi.ch. She will take care.

Arriving in Brugg:

By plane

Zürich has an international airport nearby, just **40 km** from the city of Brugg.

Once you have reached the airport, you can take a train to Zürich main station and from there to Brugg or every hour a direct train, always 00:56 to the full hour. Same train can be used for destination Baden.

Airport bus fare is 22,80 CHF (20 EUR). More information to find <https://www.sbb.ch/en/timetable.html>.

From Brugg train station the hotels and the meeting room as well are in walking distance (5-10 minutes).

By rail

If travelling by rail, Brugg and also Baden can be reached easily via Zürich or Basel.

Transport:

If you are located in Baden easiest way to Brugg is by train, one way CHF 7.20, every 10 min., meeting location is 5 min. from the train station in Brugg to walk

When entering a vehicle, the passengers are obliged to validate their single or daily ticket.

Taxi service

Brugger Taxi AG:, <https://bruggertaxi.ch/> (+41 56 441 41 00)

Badener Taxi <https://badenertaxi.ch/> (+41 56 222 55 55)

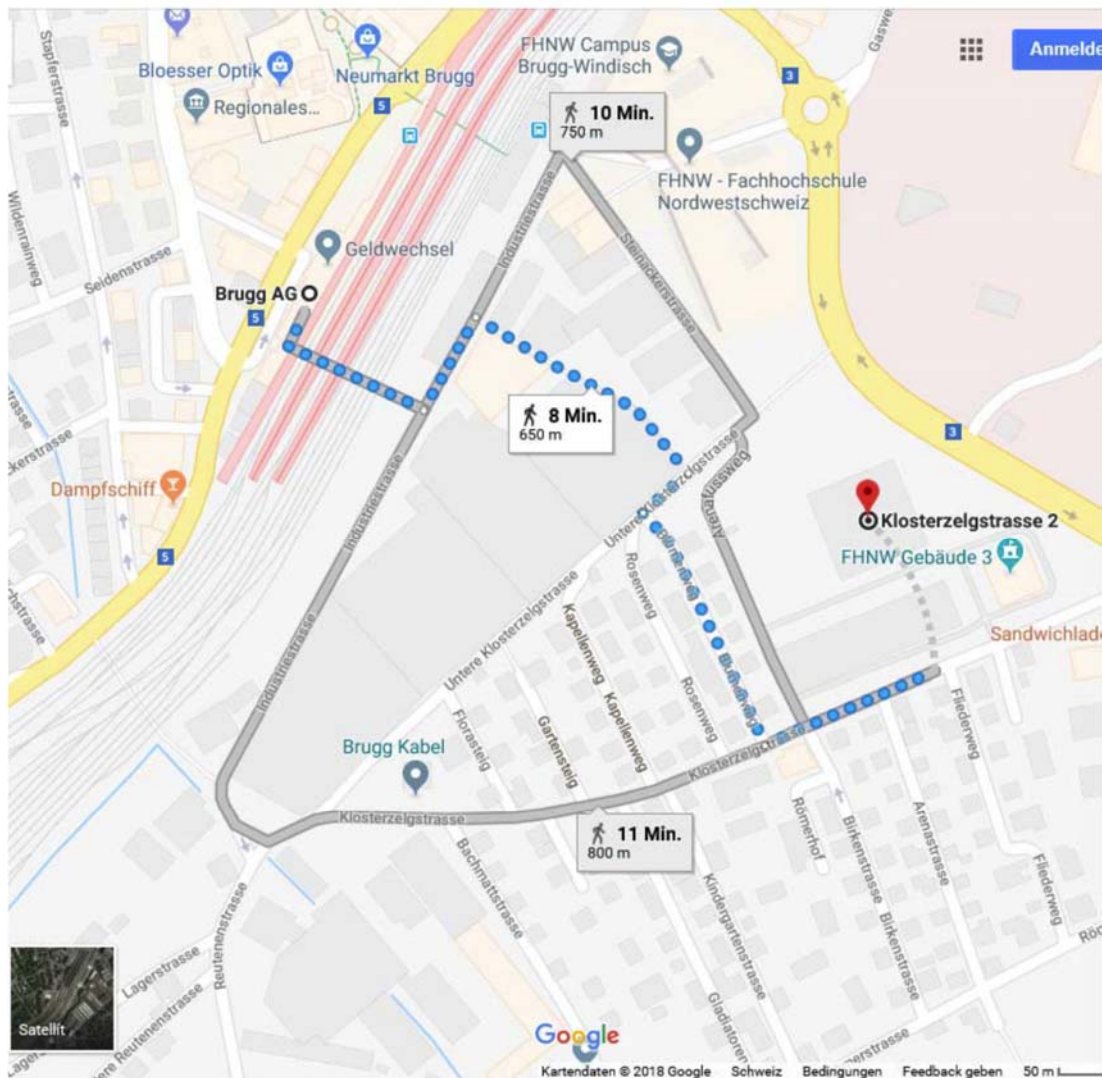
The Conference Venue:

University of Applied Sciences Northwestern Switzerland
Address: Klosterzelgstrasse 2, 5210 Windisch, Switzerland

The **workshop and the meeting** will take place in the **Audimax** of building 1 of the Fachhochschule Nordwestschweiz.

Accommodation:

Participants are responsible for booking their accommodation in Brugg, Baden or Zürich.



Hotel information – The hotel a.m. are nearby the conference location, walking distance 10 min

Hotel Terminus, Bahnhofplatz 1-5, 5200 Brugg/Switzerland
Tel. +41 56 460 25 25 Ms Rosemarie Lang
<http://www.terminus-brugg.ch/>

Hotel Rotes Haus, Hauptstrasse 7, 5200 Brugg/ Switzerland
Tel. +41 56 441 54 44
<http://roteshausbrugg.ch/>

Other possibilities are in Baden – Baden to Brugg by train ca. 10 min, walking distance to the conference location 5 min.

Hotel Du Parc, Römerstrasse 24, 5400 Baden/Switzerland
Tel: +41 56 203 1515 Front Office
<http://www.duparc.ch/>

Trafo Hotel, Bruggerstrasse 56, 5400 Baden/Switzerland
Tel. +41 56 203 8080 Front office
<http://www.trafohotel.ch/de/home>

We recommend to book the hotels via booking.com, because often the prices are better than directly booking.

Currency exchange:

At the airport there are several ATMs' outside international arrivals.

Swiss national monetary unit is **Swiss Franc (CHF) (1 EUR is approx. 1.15 CHF)**.

General information:

| | |
|-------------------------|--|
| Time zone: | GMT + 1:00 hour |
| Daily mean temperature: | Average High / Low Temperature 15 / 4 °C (April) |
| Currency: | Swiss Franc (CHF) |
| Electricity supply: | 220 V AC, 50 Hz |
| Water: | Tap water is drinkable throughout the country |
| Internet/wi-fi: | Wi-fi access will be provided free of charge in the meeting room for all participants. |

Language:

All presentations and discussions will be in English.

Meeting organization

Dr. Bernd Jäckel
Tel: +41 56 310 2658
Email: bernd.jaeckel@psi.ch

PSI Secretariat

Andrea Mohr
Tel: +41 56 310 2685
Email: andrea.mohr@psi.ch



EMUG

**The 11th Meeting of the
“European MELCOR User Group”
Paul-Scherrer-Institut
Switzerland
3rd-5th April, 2019**

Meeting Registration Form

Surname (Family name)¹:

Given Name (s):

Title or Function:

Institution:

E-mail address:

Title (s) of the presentation (s):

Time needed for presentation²
(including 5 min for discussion):

Vegetarian food/other requirements on food (please specify):

Participation at the social event: YES / NO

Please indicate whether your presentation is for MELCOR or MACCS session.

To be sent by e-mail as soon as possible and in any case before 25th March, 2019 to:

E-mail: bernd.jaeckel@psi.ch

¹ (Please indicate whether Prof., Dr., Mr., Miss, Mrs.)

² If the time for presentation will have to be amended due to the schedule, the author will be informed.