# Iterative Solvers for Linear Systems

ONLINE | 5. – 7.9.2023

# Lecturer



- **Lecturer**

  - Prof. Dr. Andreas Meister (University of Kassel)
    https://www.mathematik.uni-kassel.de/~meister/forschung_meister.php

# Tentative Schedule: Day 1

09:00 - 10:00  Introduction, Basics and Practicals (Lecture + Practicals)
10:00 - 11:00  Consistency and Convergence (Lecture)

*11:00 - 11:30  Break*

11:30 - 12:15  Jacobi Method (Lecture)
12:15 - 13:00  Practicals

*13:00 - 14:00  Lunch*

14:00 - 14:30  Gauß-Seidel Method (Lecture)
14:30 - 15:00  Practicals
15:00 - 15:15  Q+A

# Tentative Schedule: Day 2

09:00 - 10:00  Relaxation Schemes (Lecture)
10:00 - 10:45  Practicals

*10:45 - 11:00  Break*

11:00 - 11:30  Method of Steepest Descent (Lecture)
11:30 - 12:00  Practicals

*12:00 - 13:00  Lunch*

13:00 - 14:00  Method of Conjugate Gradients (Lecture)
14:00 - 14:45  Practicals
14:45 - 15:00  Q+A

# Tentative Schedule: Day 3

09:00 - 10:00  Introduction to Multigrid Methods (Lecture)
10:00 - 10:30  Practicals

*10:30 - 10:45  Break*

10:45 - 11:45  GMRES and BICG (Lecture)
11:45 - 12:15  Practicals

*12:15 - 13:15  Lunch*

13:15 - 13:45  Variants of BICG (Lecture)
13:45 - 14:15  Practicals
14:15 - 15:15  Preconditioning
15:15 - 15:30  Q+A

# Hands-On

- Participants are expected to use their own machines or institute clusters.

- A recent version of

  - **MATLAB** https://de.mathworks.com/products/matlab.html
  - or **GNU Octave** https://www.gnu.org/software/octave/index (available for free)

  should be installed.

# Course Webpage

- All course material is available under:

- https://tinyurl.com/iter-lrz

- Further information on:

  - Agenda
  - Slides
  - Exercises
  - Literature

www.

# Connection

- We will use the **same link** for the complete course:
  https://lrz-de.zoom.us/j/68063989790?pwd=UEZNaIhPdUlWUmcxNC83WDNPVXJCZz09

  Meeting ID: 680 6398 9790
  Passcode: 179203

- **Do not share this link with others**.

- To ensure a pleasant experience with Zoom Meeting, we encourage participants to **download and install the latest Zoom application** via https://zoom.us/download.

- If you have problems with your computer audio, you can also **join by phone.**
  Find your local number: https://lrz-de.zoom.us/u/cp45z9teE

# zoom
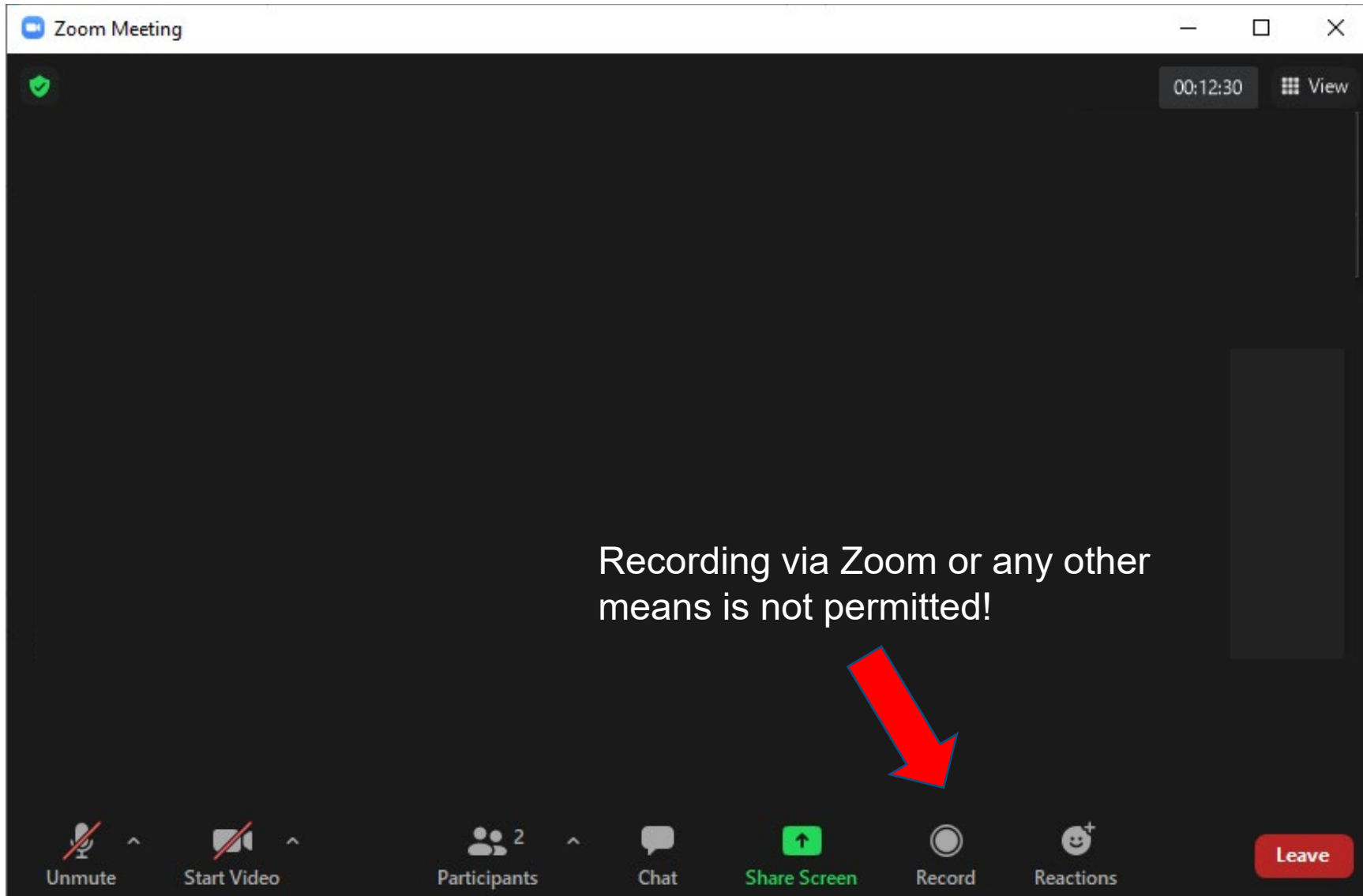## Audio, Video, View

# Participants List
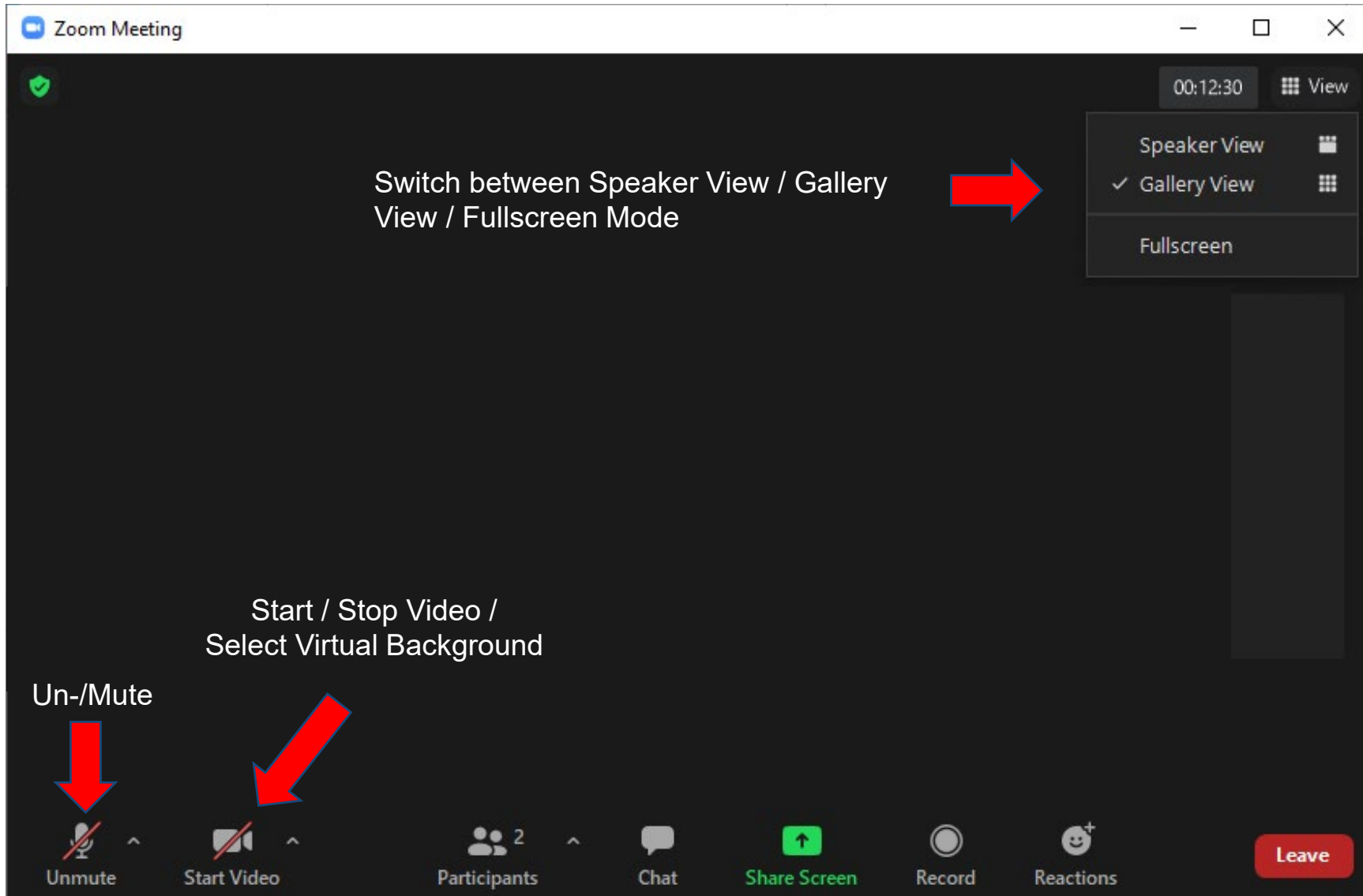
**Kindly use "<first name> <last name> (<institute>)" as your screenname.**
.
Otherwise you will not receive a certificate of attendance after the course.

# zoom
# Recording



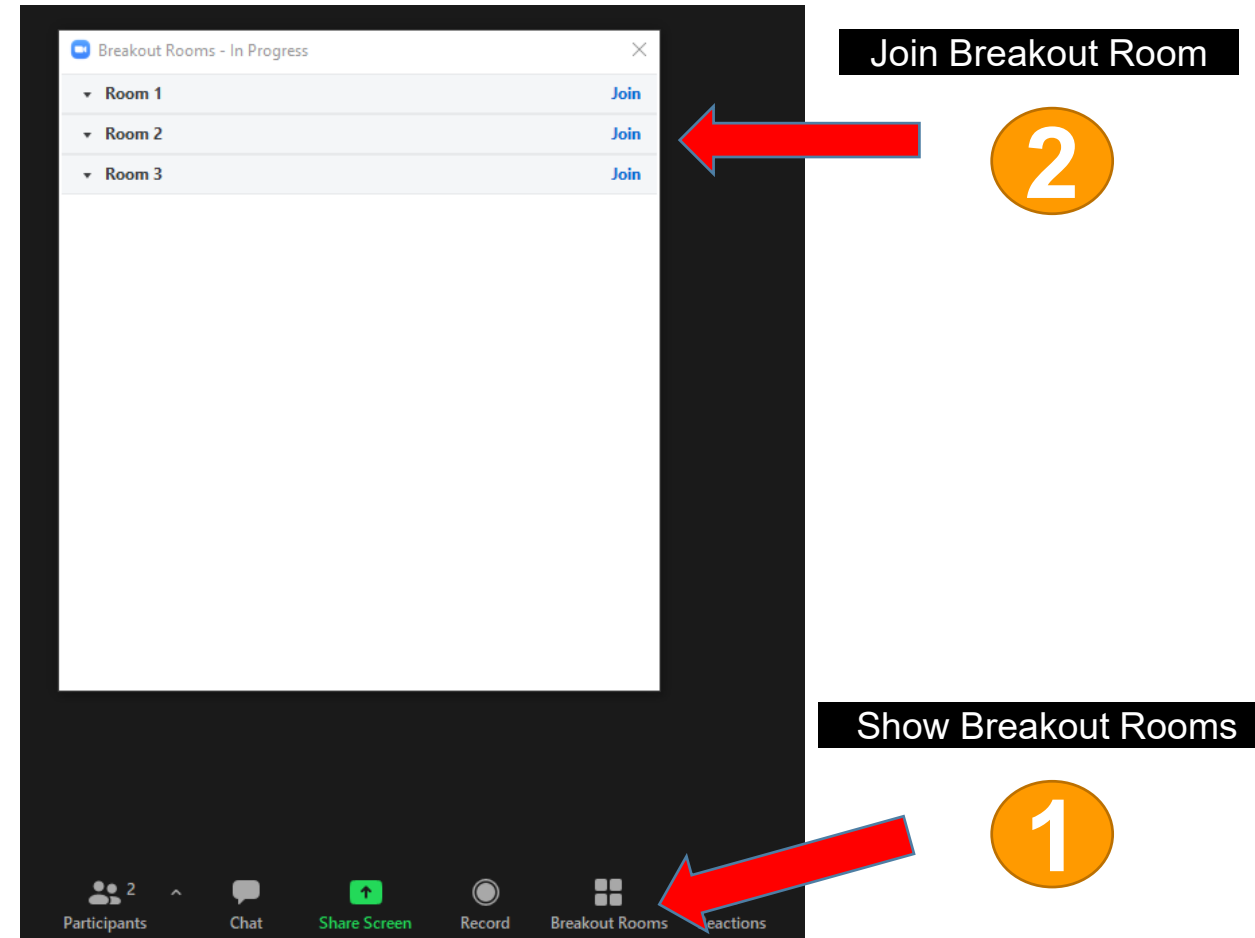Recording via Zoom or any other means is not permitted!

# ZOOM
## Q&A

- Please **raise your hand** if you have questions (of general interest).
- You can also use **chat window** to ask questions.
- If you do not mind, please **show your video when asking questions** to make this course as interactive as possible.
- **Push to Talk:** The Push to Talk feature allows you to remain muted throughout the Zoom meeting and only if you hold down the spacebar you will be unmuted.

- **Instant Feedback:**
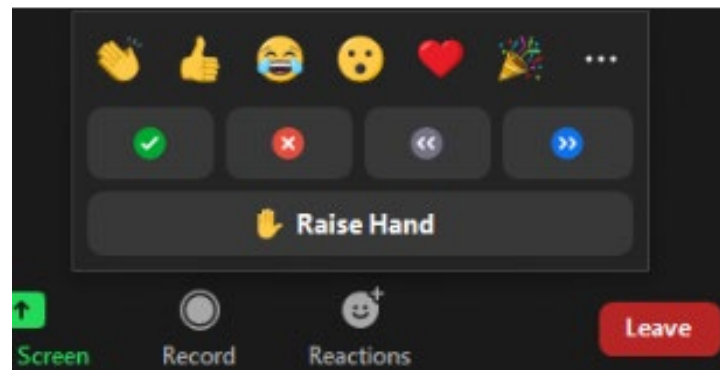
# Breakout Rooms

- We have set up the following breakout rooms for the hands-on sessions:

  - Room A-B
  - Room C-H
  - Room I-M
  - Room N-Z

- Please select the room based on the first letter of your surname.

**Join Breakout Room**

**2**

**Show Breakout Rooms**

**1**

# And now …

**Enjoy the course!**