



PRACE Course: OpenMP Programming Workshop

ONLINE | 8 – 10 February 2022



PRACE Training



LRZ as part of the Gauss Centre for Supercomputing (GCS) belongs to the 14 **PRACE Training Centres** that started in 2012-2017-2020:

- Barcelona Supercomputing Center (Spain)
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Mission: Serve as **European hubs and key drivers of advanced high-quality training** for researchers working in the computational sciences.

<http://www.training.prace-ri.eu/>

Presenters

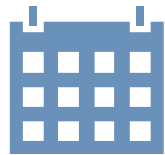


- **Presenters:**

- Dr.-Ing. Michael Klemm (OpenMP ARB, AMD)
- Dr. Christian Terboven (RWTH Aachen)



Tentative Schedule



	Day 1	Day 2	Day 3
09:00-10:30 CET	Introduction to OpenMP 1	Tasking 1 <ul style="list-style-type: none">• Tasking Intro• Lab 1	GPUs <ul style="list-style-type: none">• OpenMP for Compute Accelerators
10:45-12:15 CET	Hands-on: Introduction to OpenMP	Tasking 2 <ul style="list-style-type: none">• Taskloop• Dependencies• Cancellation• Lab 2	Tools for Perf. and Correctness <ul style="list-style-type: none">• VI-HPS Tools for Performance• VI-HPS Tools for Correctness
13:00-14:45 CET	Introduction to OpenMP 2	Host Perf.: SIMD <ul style="list-style-type: none">• Vectorisation• Lab 3	Misc. OpenMP 5.0 Features <ul style="list-style-type: none">• DOACROSS Loops
15:00-16:00 CET	Hands-on: Introduction to OpenMP	Host Perf.: NUMA <ul style="list-style-type: none">• Memory Access• Task Affinity• Memory Management• Lab 4	Roadmap / Outlook <ul style="list-style-type: none">• Open Discussion• OpenMP 5.1 and beyond <p>End: approx. 16:30 CET</p>

Course Webpage



- All slides and materials will be made available under:

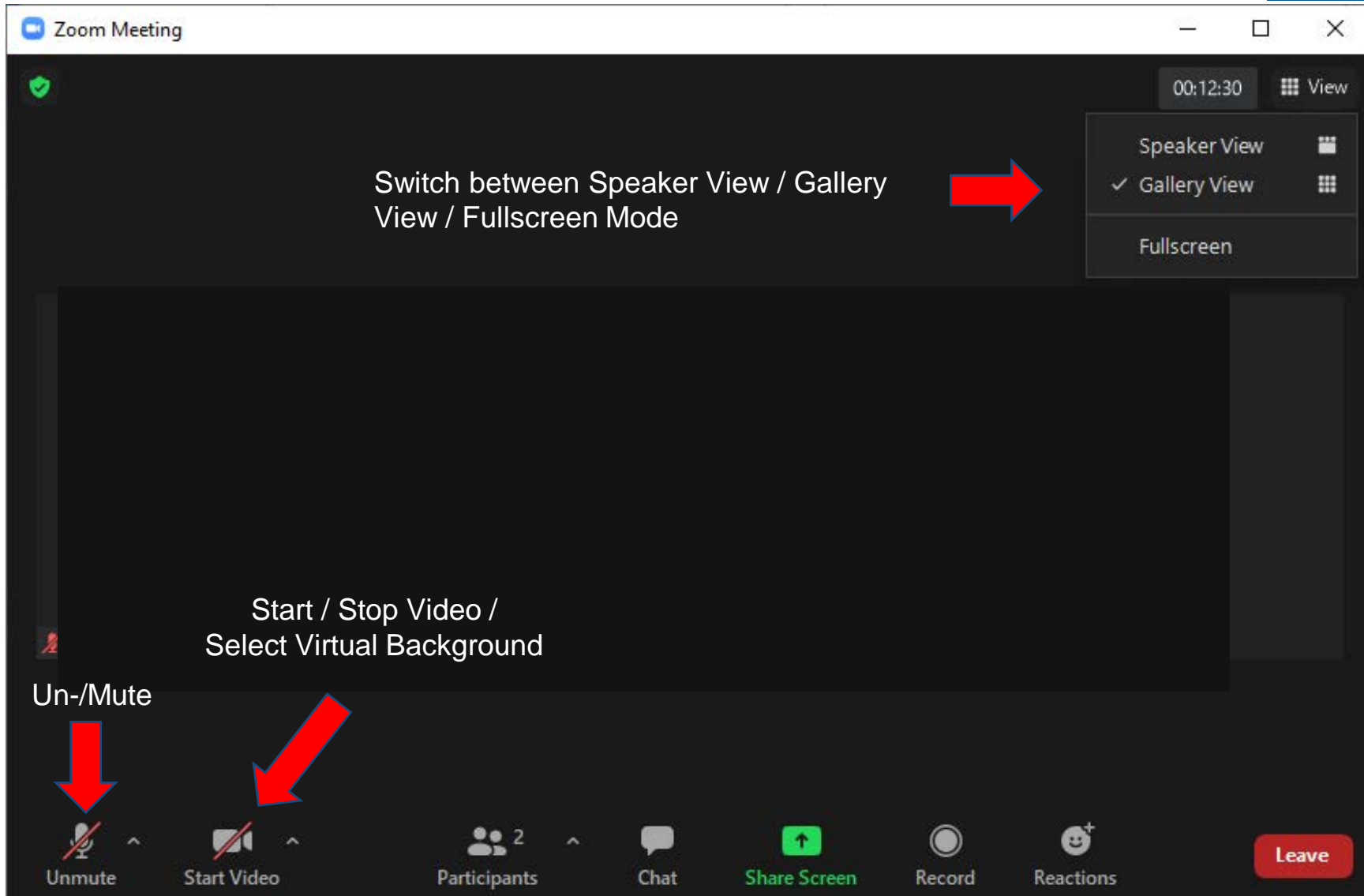
- <https://tinyurl.com/omp-workshop-2022>

- Further information on:

- Agenda
- Slides
- Exercises
- Supplementary material



- 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/j/aLMvQOJB>



Zoom Meeting

00:12:30 View

Switch between Speaker View / Gallery View / Fullscreen Mode

Speaker View

✓ Gallery View

Fullscreen

Start / Stop Video / Select Virtual Background

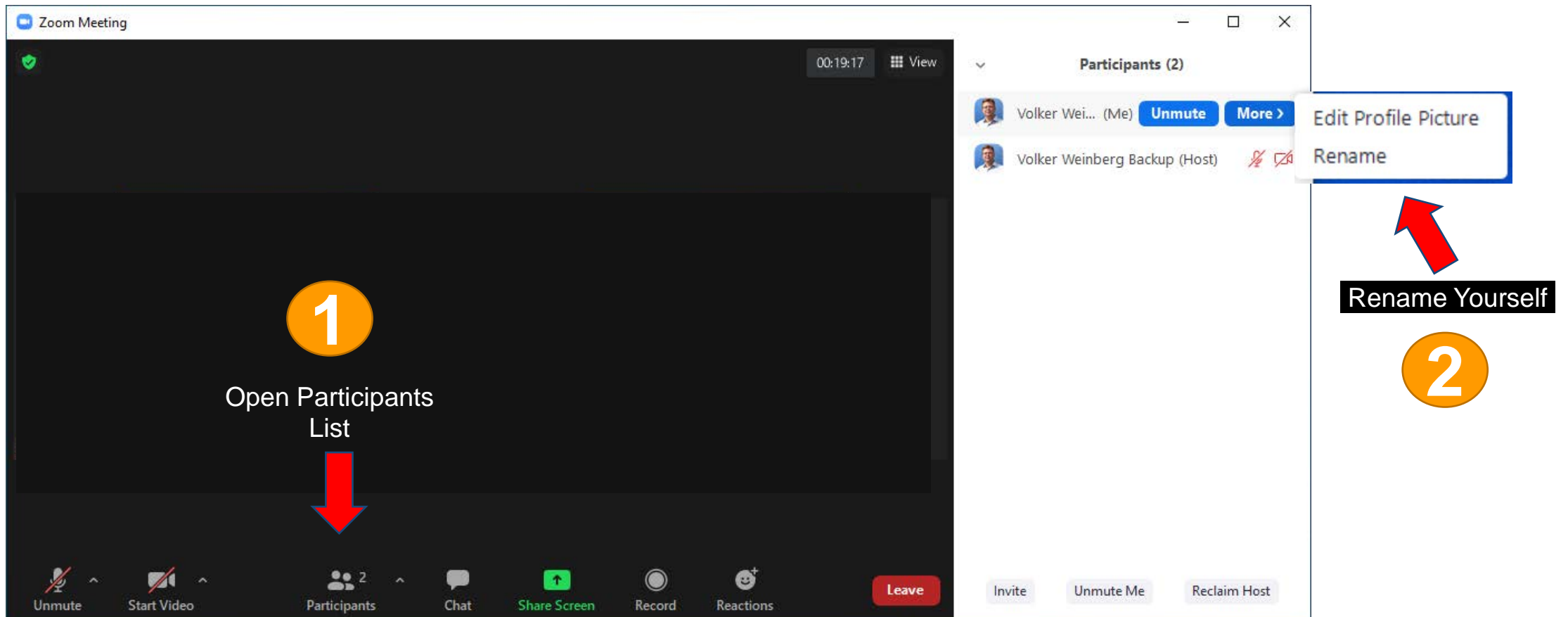
Un-/Mute

Unmute Start Video Participants Chat Share Screen Record Reactions Leave

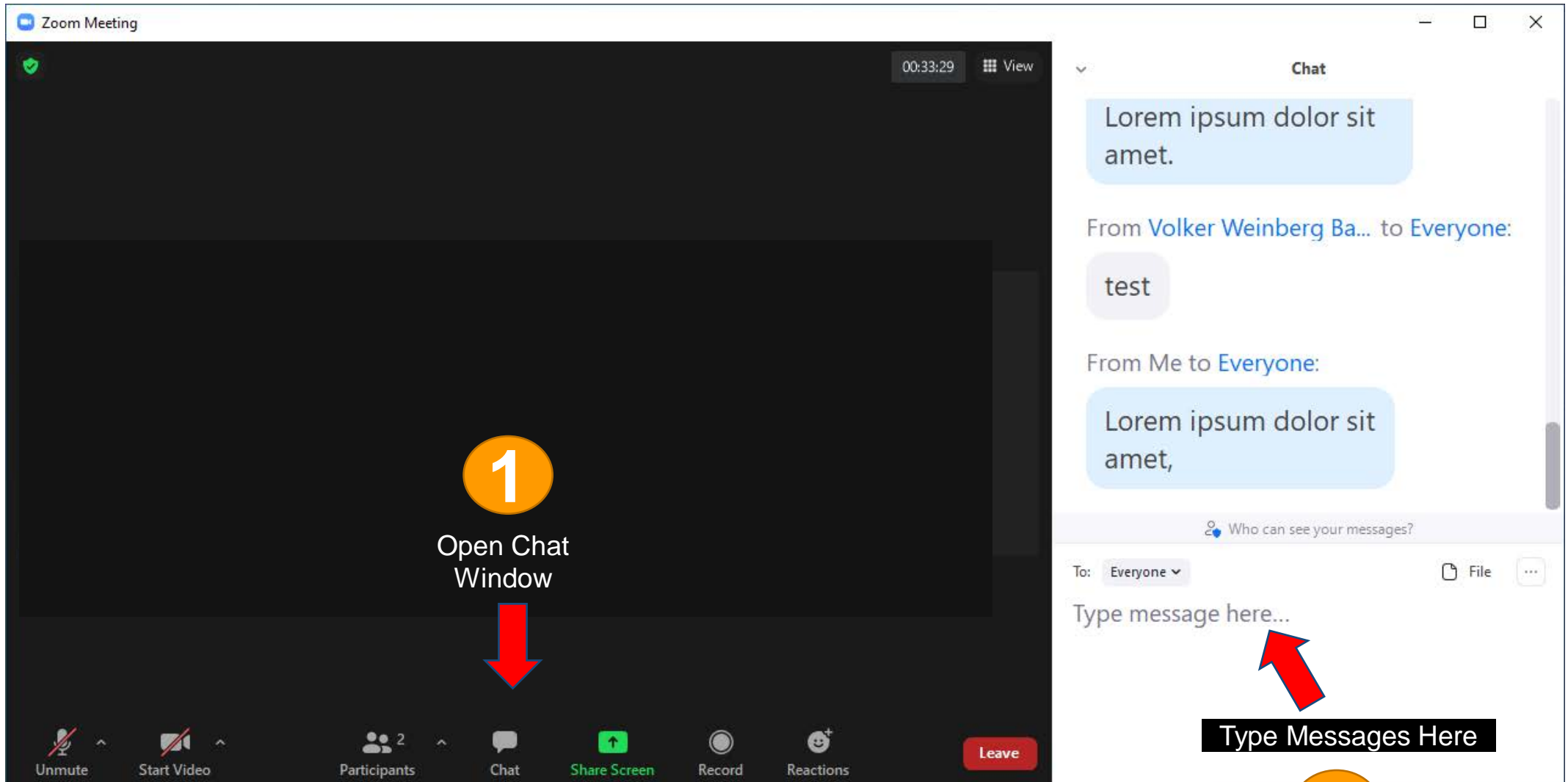
The screenshot shows the Zoom meeting interface with several annotations. A red arrow points from the text 'Switch between Speaker View / Gallery View / Fullscreen Mode' to the 'View' dropdown menu, which is open and shows 'Speaker View', 'Gallery View' (selected), and 'Fullscreen'. Another red arrow points from the text 'Start / Stop Video / Select Virtual Background' to the 'Start Video' button in the bottom toolbar. A third red arrow points from the text 'Un-/Mute' to the 'Unmute' button in the bottom toolbar. The bottom toolbar also includes 'Participants', 'Chat', 'Share Screen', 'Record', 'Reactions', and 'Leave' buttons.

Kindly use “<first name> <last name> (<institute>)” as your screenname.

Otherwise you will not receive a certificate of attendance after the course.



The screenshot shows a Zoom Meeting window with a dark background. In the bottom center, there is a red arrow pointing to the 'Participants' icon in the toolbar, which is labeled with a large orange circle containing the number '1' and the text 'Open Participants List'. To the right, a 'Participants (2)' panel is open, showing two participants: 'Volker Wei... (Me)' and 'Volker Weinberg Backup (Host)'. A blue box highlights the 'More >' button next to the first participant, and a red arrow points to the 'Rename' option in the dropdown menu. Below this, a black box with the text 'Rename Yourself' and a large orange circle containing the number '2' is shown.



Zoom Meeting

00:33:29 View

Chat

Lorem ipsum dolor sit amet.

From Volker Weinberg Ba... to Everyone:

test

From Me to Everyone:

Lorem ipsum dolor sit amet,

Who can see your messages?

To: Everyone

Type message here...

File

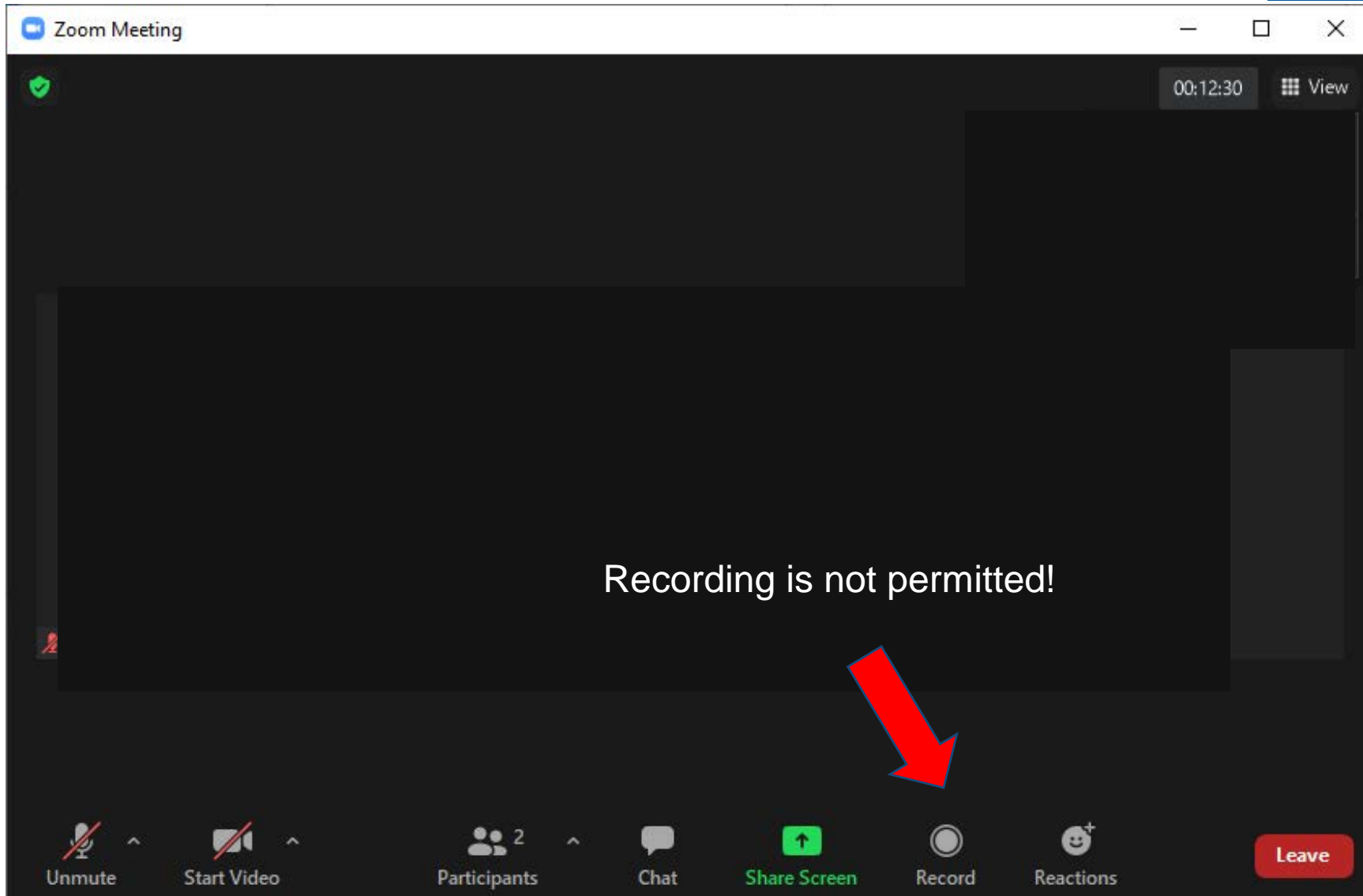
Unmute Start Video Participants Chat Share Screen Record Reactions Leave

1

Open Chat Window

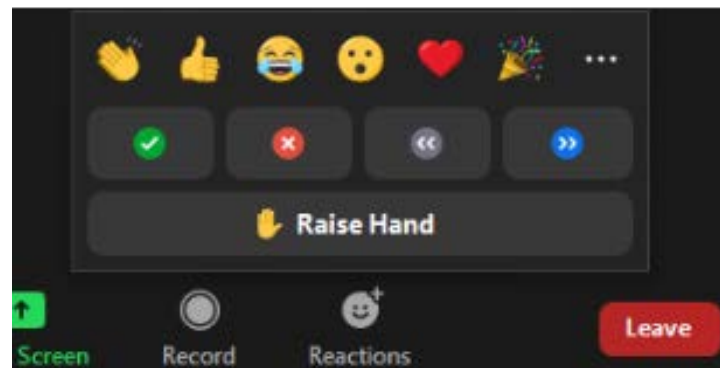
2

Type Messages Here



- Use **chat window** to ask questions **during the presentations**.
- In **Q&A sessions**:
 - You can also **raise your hand** if you have questions.
 - If you do not mind, please **show your video when asking questions** to make this workshop 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:**



And now ...



Enjoy the workshop!