

MFEM Community Workshop

September 10-11, 2025



Portland State
Fariborz Maseeh Department of
Mathematics & Statistics

Welcome to the fifth annual MFEM Community Workshop!

Thank you to our organizing committee!



Aaron Fisher



Tzanio Kolev



Qi Tang



Ketan Mittal



Holly Auten



Justin Laughlin



Sohail Reddy

Thank You to Our Sponsors



Agenda

Full agenda available at <https://mfem.org/workshop/#agenda>

Day 1 (Wed. Sept. 10)		Day 2 (Thu. Sept. 11)	
Sponsored by LLNL		Sponsored by AWS	
8:30	Welcome	8:30	Vis. Contest
8:50	MFEM Session	8:50	Technical Session
9:40	Coffee Break & Photo	9:50	Coffee Break
10:10	Technical Session	10:20	Technical Session
12:00	Lunch	11:50	Lunch
1:00	Student Session	12:50	Technical Session
3:10	Coffee Break	2:50	Coffee Break
3:40	Technical Session	3:20	Technical Session
5:00	Wrap-up	5:20	Wrap-up
6:00	Dinner		

Logistics

► Discussions

- Join the Slack Workspace (link on the website)

► Speakers

- Send your slides to me at pazner@pdx.edu
- If you want to use your own laptop via HDMI, connect to the Zoom and mute yourself
- Please test Zoom audio and video settings

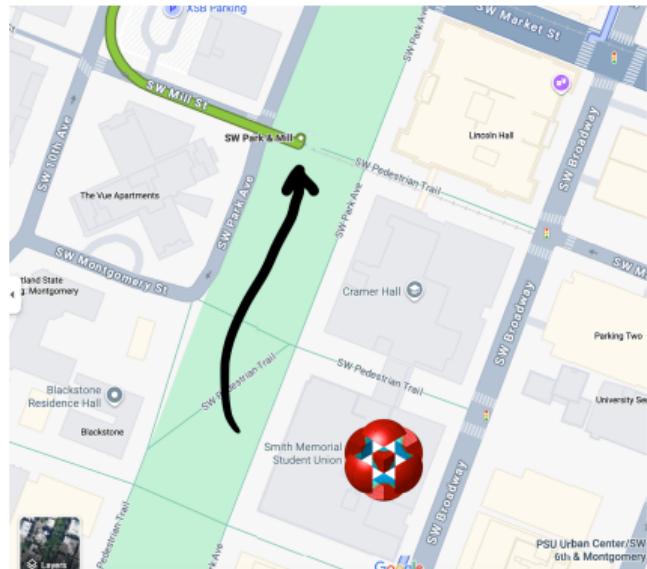
► Meeting Room

- All workshop activities will take place in this room (SMSU 296/8)
- The **front doors** on SW Broadway will be open throughout the workshop
- Other building doors are **card-access only**

Workshop Dinner

We will be hosting a workshop dinner **today** at **6:00 pm**

McMenamins Tavern & Pool
1716 NW 23rd Ave



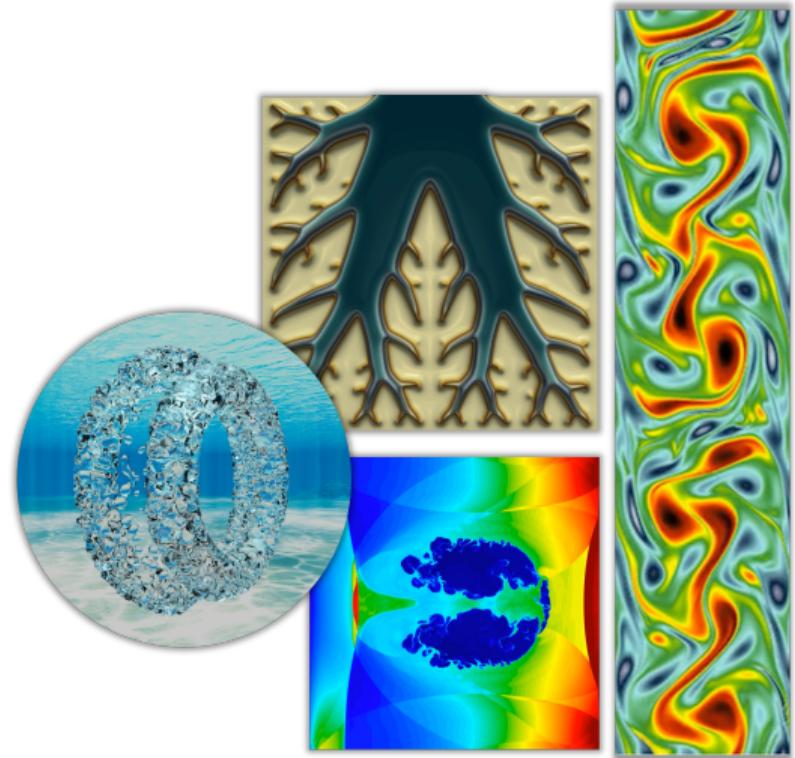
Via Streetcar

NS Line (going North) from
SW Park & Mill
to
NW 23rd & Marshall
then 6 minute walk

(Pay by tapping credit card)

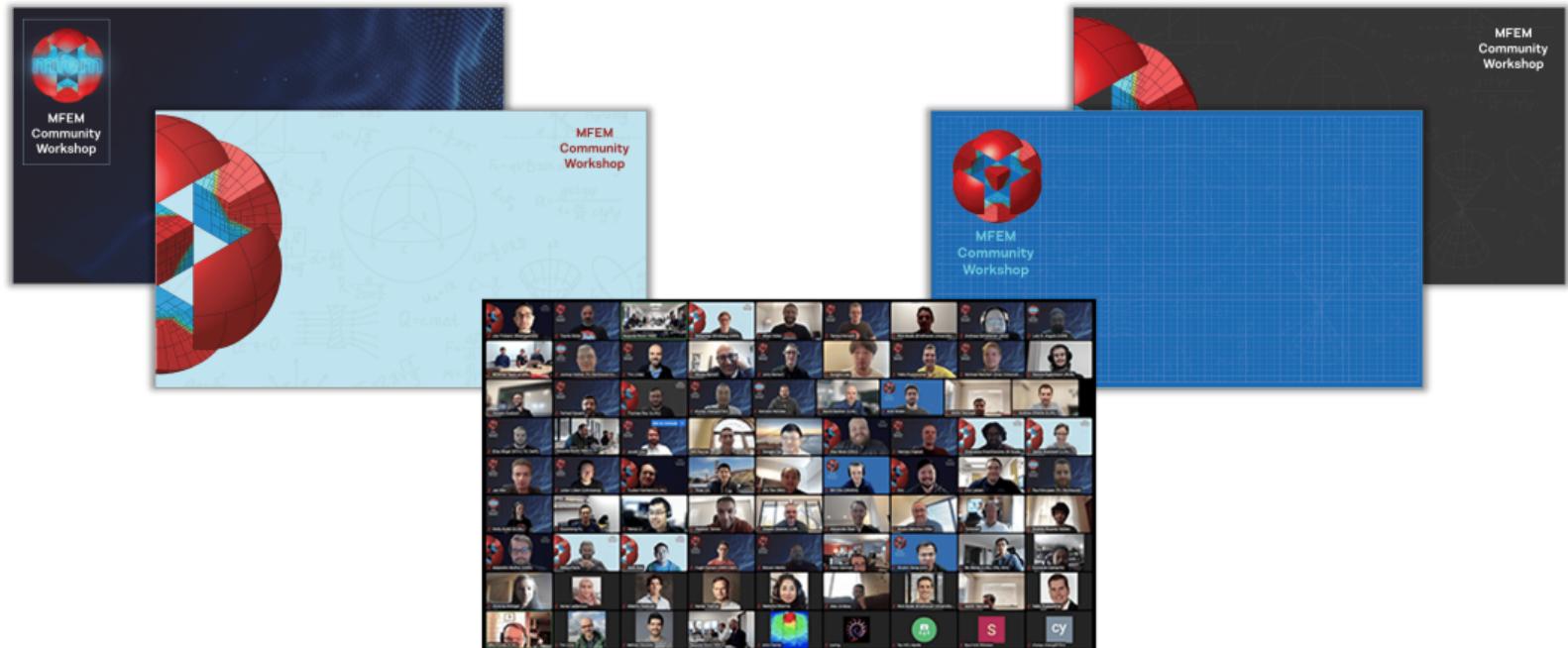
Simulation and Visualization Contest

- ▶ Thank you for your submissions!
- ▶ Event organizers have selected a winner
- ▶ The winner will receive a T-shirt
- ▶ Submissions will be featured at mfem.org/gallery



Download a Virtual Background

<https://mfem.org/workshop>

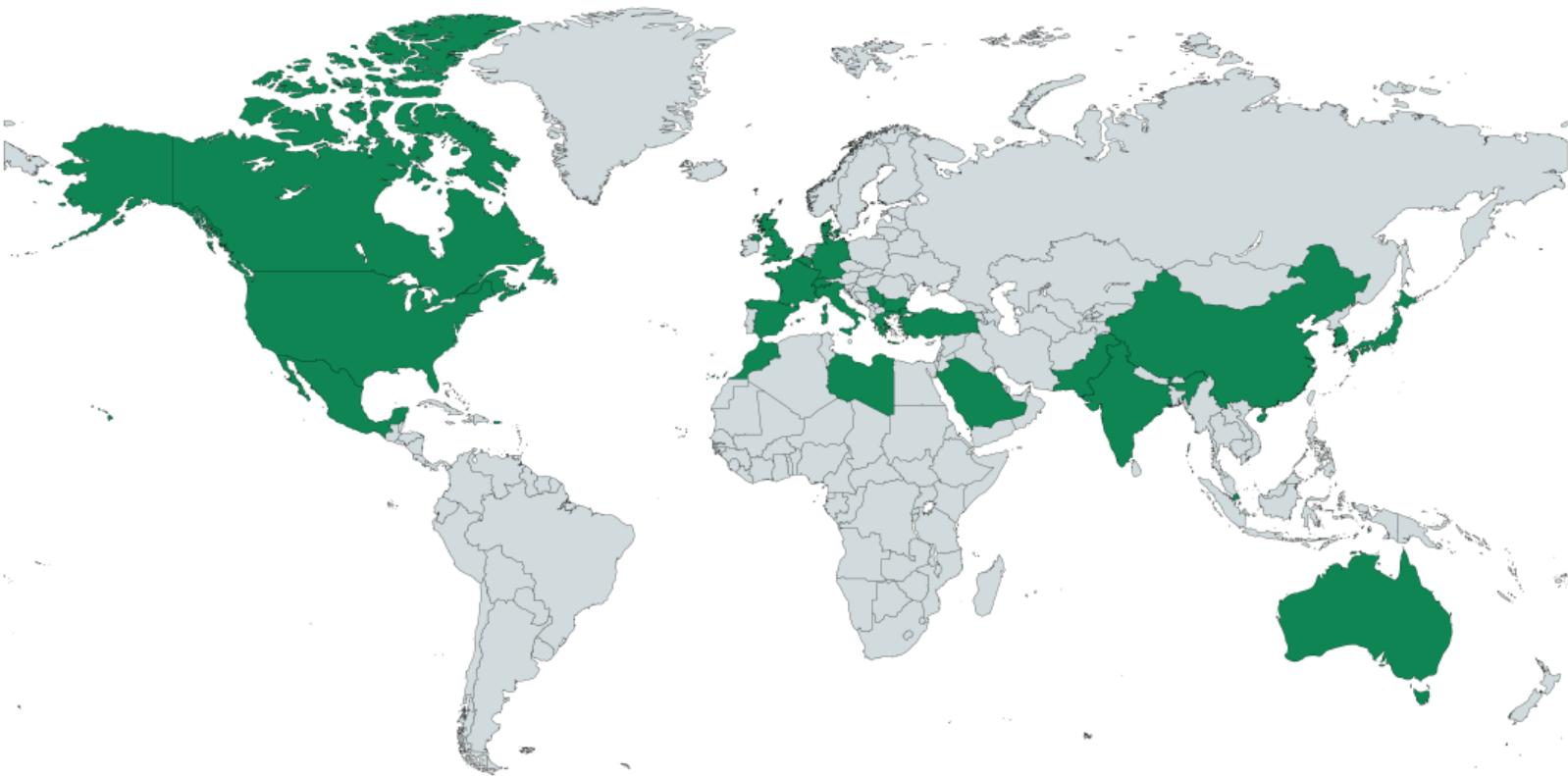


Let's Keep the Conversation Going

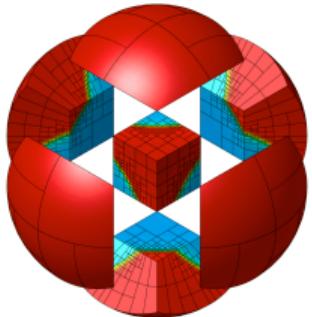
- ▶ Docs, examples, news, and more: mfem.org
- ▶ Software: github.com/mfem
- ▶ Stay in contact and ask for help: mfem@llnl.gov or
github.com/mfem/mfem/discussions
- ▶ Become an MFEM reviewer! We need help with reviewing contributions as the community grows

Workshop by the Numbers

- ▶ **282 total registrants**
 - **166** researchers
 - **31** postdocs
 - **85** students
- ▶ In-person/remote split: **59/223**, breakdown: (**35/131 + 4/27 + 20/65**)
- ▶ **103 institutions** = **13** labs + **76** universities + **14** industry
- ▶ **24 countries**
- ▶ **27 talks**, including **10** student talks, **20** in-person



Created with mapchart.net

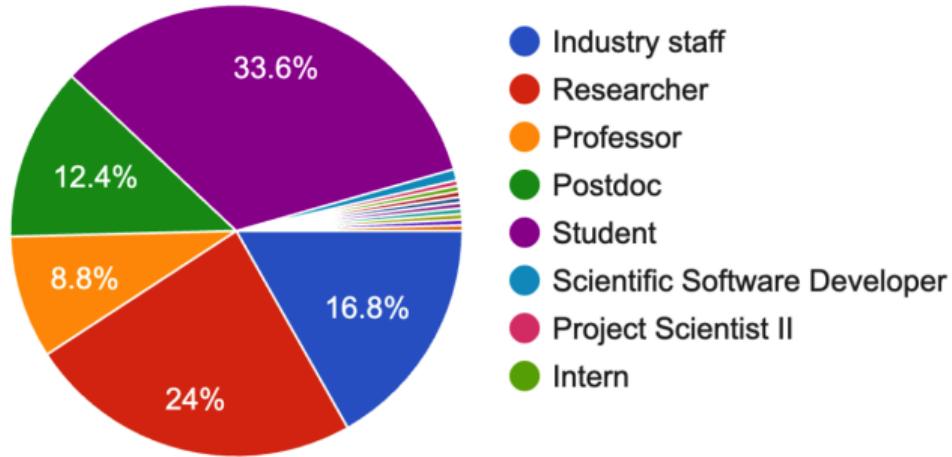


Students

- ▶ **85** students
- ▶ **10** lightning talks + **1** 30-minute talk
- ▶ **20** in-person
- ▶ We were able to offer student travel funding, supporting in-person attendance
 - This year, almost all student talks are in-person

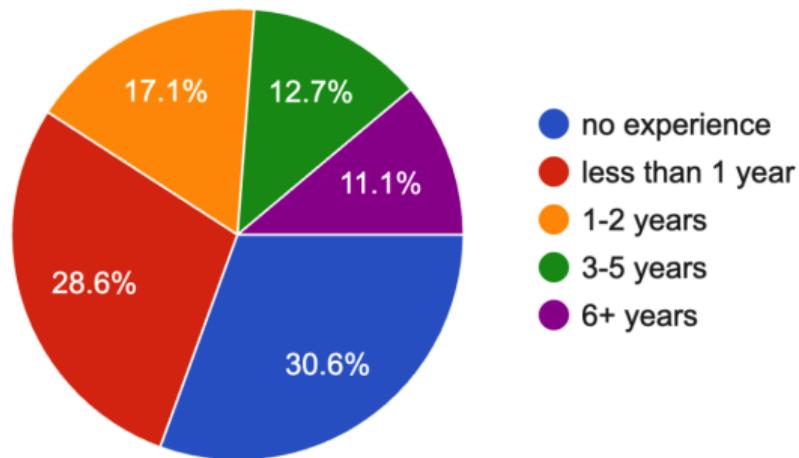
Position

250 responses



Experience with MFEM

252 responses



Main Application Areas

- ▶ Fluid flow
- ▶ Structural mechanics
- ▶ Design optimization
- ▶ Electromagnetics
- ▶ Data science
- ▶ Fusion energy
- ▶ Additive manufacturing
- ▶ Subsurface flow

Main Features

- ▶ Adaptive mesh refinement
- ▶ High-order FEs
- ▶ Parallel scalability
- ▶ Linear solvers and preconditioning
- ▶ GPU acceleration
- ▶ Automatic differentiation
- ▶ Mesh optimization
- ▶ Discretization methods

Enjoy the workshop!