

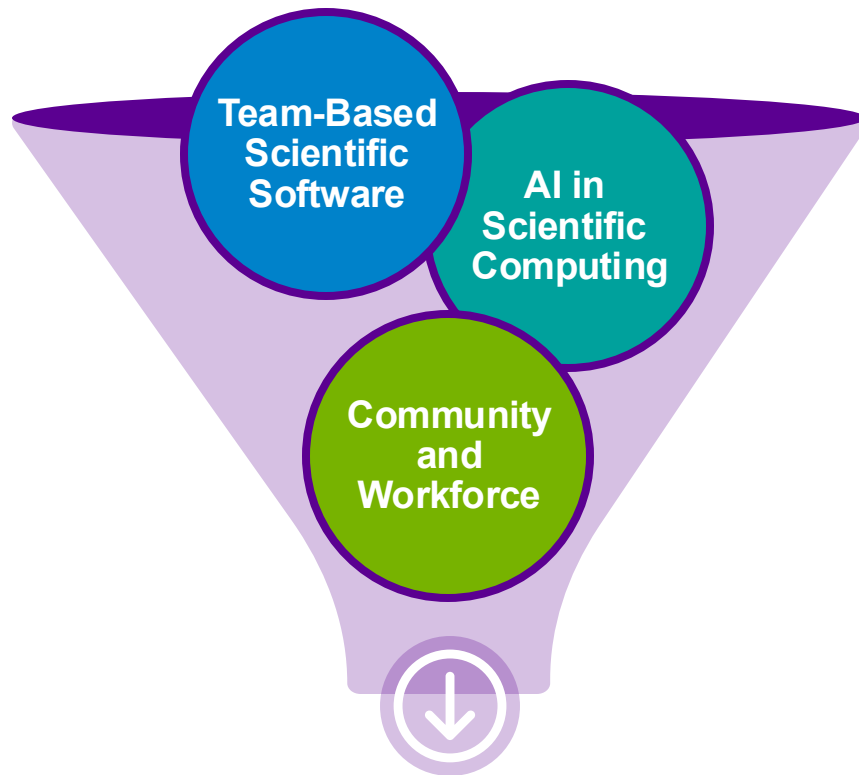
# Toward Next-generation Ecosystems for Scientific Computing

**Harnessing community,  
software, and AI for cross-  
disciplinary team science**

April 29 – May 1, 2025  
Chicago, IL

## Workshop Organizers:

Lois Curfman McInnes, Argonne National Laboratory  
Dorian Arnold, Emory University  
Prasanna Balaprakash, Oak Ridge National Laboratory  
Mike Bernhardt, Team Libra  
Beth Cerny, Argonne National Laboratory  
Anshu Dubey, Argonne National Laboratory  
Denice Ward Hood, University of Illinois Urbana-Champaign  
Mary Ann Leung, Sustainable Horizons Institute  
Olivia B. Newton, University of Montana  
Stefan Wild, Lawrence Berkeley National Laboratory

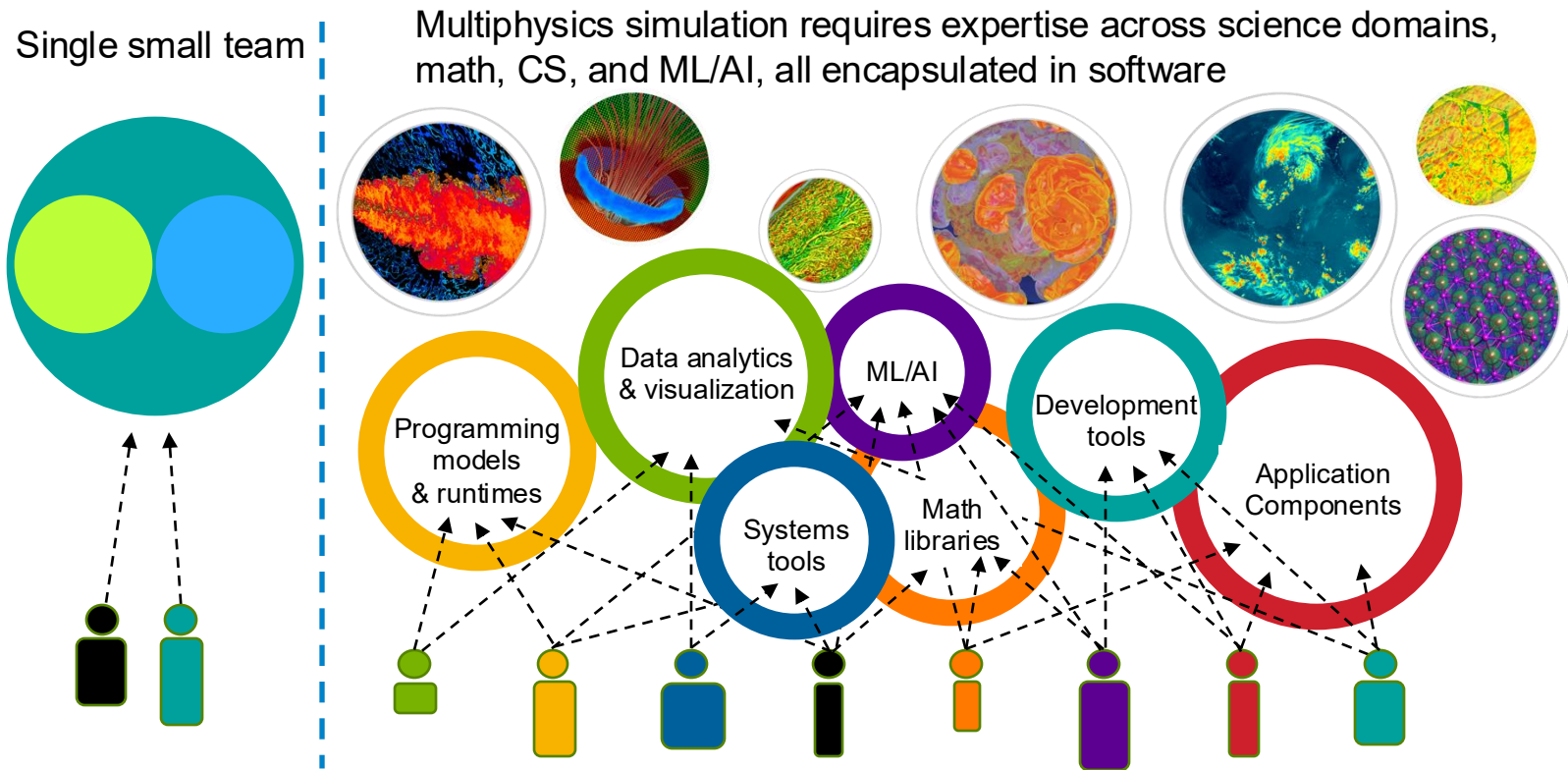


## NEXT-GENERATION ECOSYSTEMS FOR SCIENTIFIC COMPUTING

**Workshop Report: <https://doi.org/10.48550/arXiv.2510.03413>**

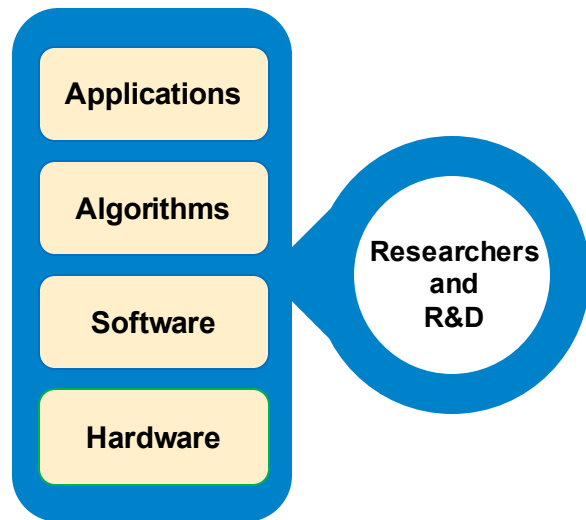
# REUSABLE SOFTWARE LIBRARIES AND TOOLS

... provide the foundation of many scientific simulations

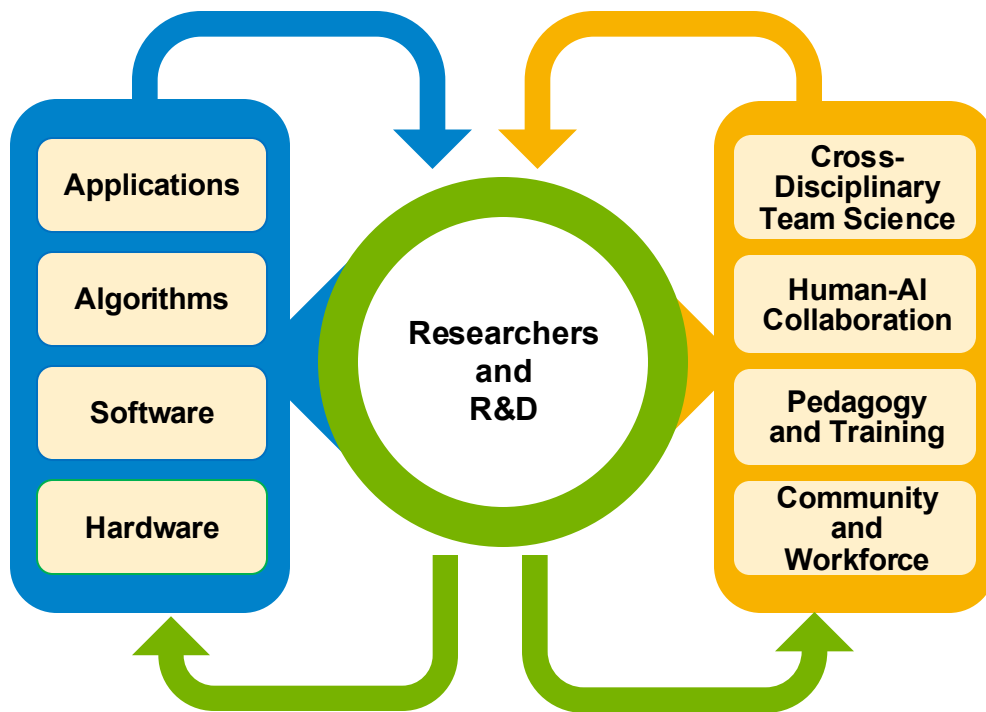


# SOCIO-TECHNICAL CO-DESIGN

**Traditional co-design  
for scientific computing**

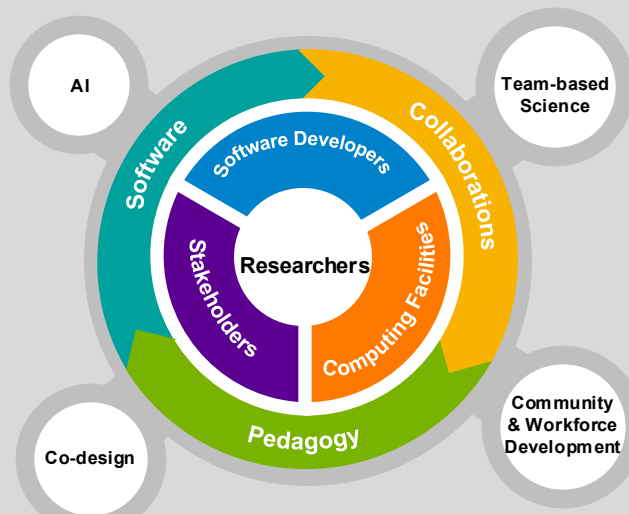


**Socio-technical co-design for future  
scientific computing**



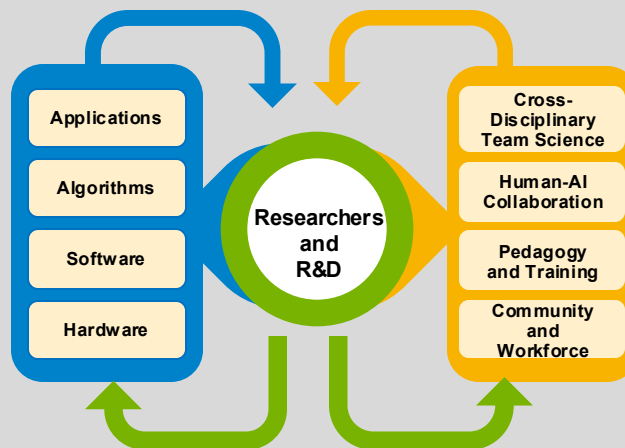
# WORKSHOP REPORT, SEPT 2025

## Next-Generation Ecosystems for Scientific Computing: Harnessing Community, Software, and AI for Cross-Disciplinary Team Science



As motivated by the needs of team-based science in an AI-driven future, we must advance software, cross-disciplinary collaboration, and pedagogy through co-design ... All while developing workforce and community.

### Socio-technical co-design for scientific computing

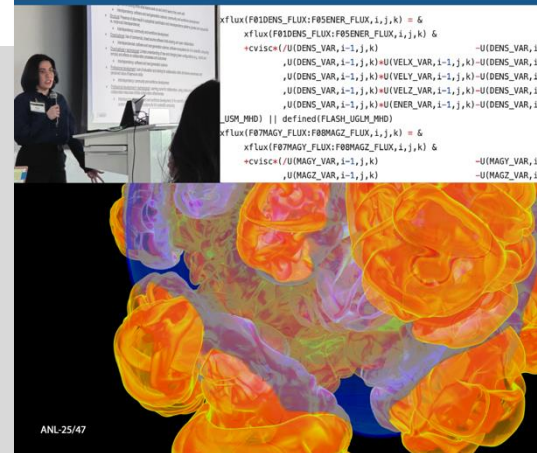


Technical and social co-design  
interwoven throughout all aspects of work

### Toward Next-Generation Ecosystems for Scientific Computing

Harnessing community, software, and AI for cross-disciplinary  
team science

September 2025



### WORKSHOP PARTICIPANTS OVERVIEW

Expertise in high-performance computing (HPC), AI, computational science, applied math, computer science, research software engineering, cognitive and social sciences, community development, and more ...

#### • DOE lab staff: representing all 8 labs in the CRLC

- ANL, BNL, LLNL, LLNL, LANL, PNNL, ORNL, SNL

#### • Universities: representing 12 institutions

- Boston Univ, Caltech, Emory Univ, Miami Univ, Texas State Univ
- The George Washington Univ, Univ of Central Florida
- Univ of Illinois Urbana-Champaign, Univ of Montana
- Univ of Notre Dame, Univ of Pittsburgh, Univ of Texas at Austin

#### • Agencies, industry, small businesses, nonprofits: 9 groups

- DOE Office of Advanced Scientific Computing Research
- National Academies of Sciences, Engineering and Medicine
- Center for Scientific Collaboration and Community Engagement
- National Science Foundation
- Ford Motor Company
- GE Aerospace
- Sustainable Horizons Institute
- Team Libre
- US-R&E

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