

Division on Engineering and Physical Sciences
Board on Physics and Astronomy

Committee on Atomic, Molecular, and Optical Sciences

October 10-11, 2024

Hybrid meeting - Academies Beckman Center, Newport Room

DAY 1 - October 10, 2024

(Times are in Pacific Time)

OPEN SESSION

Livestream: <https://vimeo.com/event/4636327>

1:30	Welcome and Meeting Objectives	Mette and Prem, CAMOS Co-Chairs
1:45	<u>Session 1: Impacts of AMO, Enabling New Science</u> 20 mins + 10 min Q&A each	Margaret Murnane*, University of Colorado Boulder; Linda Young*, Argonne National Lab
2:45	Emerging Topic: Correlating cryogenic light and electron microscopy at the nanoscale for a deeper understanding of biological systems	Pete Dahlberg, SLAC National Accelerator Laboratory 20 min presentation, 10 min Q&A
3:15	Panel discussion 45 min discussion	
4:00	Break	
4:15	<u>Session 2: Workforce and DEI in AMO Science</u> 30 min presentation + 15 min Q&A	Patrick Mulvey*, American Institute of Physics
5:00	Day Wrap-up Discussion 30 min discussion with all invited guests	
5:30	Open Session Ends, Break	

DAY 2 - October 11, 2024

OPEN SESSION

Livestream: <https://vimeo.com/event/4636335>

9:45	Welcome	Mette and Prem, CAMOS Co-Chairs
10:00	<u>Session 3: Tools Made of Light</u> 20 min + 10 min Q&A each	Laura Sinclair*, National Institute of Standards and Technology, Holger Mueller, University of California Berkeley
11:00	Emerging Topic: Thorium nuclear clock	Jun Ye*, University of Colorado Boulder 20 min presentation, 10 min Q&A
11:30	Panel Discussion 30 min discussion	
12:00	Working lunch	
1:00	<u>Session 4: Many-body Physics / Quantum Information Science</u> 20 min + 10 min Q&A each	Kang-Kuen Ni*, Harvard University; Ben Lev*, Stanford University
2:00	Emerging Topic: Nonequilibrium dynamics and quantum scars in ultracold spinor gases	Yingmei Liu*, Oklahoma State University 20 min presentation, 10 min Q&A
2:30	Panel and Wrap-up Discussion 30 min discussion	
3:00	Day Wrap-up Discussion 30 min discussion with all invited guests	
3:30	Open Session Ends, Break	

*: denotes virtual speaker

(see more on page 2)

STATEMENT OF TASK

The National Academies of Sciences, Engineering, and Medicine will appoint the Committee on Atomic, Molecular, and Optical Sciences (CAMOS) to support scientific progress in atomic, molecular, and optical sciences and to assist the federal government in planning programs in these fields by providing advice on the implementation of decadal survey recommendations. CAMOS provides an independent, authoritative forum for identifying and discussing issues in atomic, molecular, and optical sciences among the research community, the federal government, and the interested public, thereby serving as a unifying force in this diverse and varied field.

CAMOS's scope also includes appropriate cross-disciplinary areas and consideration of budget and programmatic aspects of the implementation of the decadal survey undertaken by federal agencies.

CAMOS will assess progress on the most recent decadal survey of the field, and monitor the progress of its recommended priorities and critical scientific and technical activities.

When requested by a funding agency and as approved by the National Academies in accordance with National Academies procedures, CAMOS may be asked to write reports to address an issue associated with the Decadal report to provide agencies with timely advice on agency progress and implementation. After a new, separate statement of task is approved, CAMOS will gather evidence and produce a consensus report. The report may address key strategies being pursued by the agencies and the status of agency actions that relate to the state of decadal report implementation. Reports may also highlight scientific discoveries and engineering and technical advances relevant to progress on the science objectives identified in the most recent decadal survey. In addition, the reports may focus on one or more of the following types of issues:

- The scientific impact of a change in the technical and engineering design, cost estimate, schedule, or programmatic changes of one or more of the survey-recommended activities;
- The impact of a scientific advance on one or more survey-recommended activities;
- If applicable, the scientific impact of implementing recommendations from a mid-decadal review and other relevant Academies' reports.