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Call for White Papers

Issued by
The Committee on AMO2020

Dear Colleagues,

The National Academies of Sciences, Engineering, and Medicine has appointed a committee in charge of carrying out a study on the science strategy for the field of Atomic, Molecular, and Optical Physics. The committee's Statement of Task involves surveying the status of the field, its impact on other disciplines of science and emerging technologies, recommending a future science strategy, discussing ways in which the key goals identified by the committee can be addressed by current priorities and activities, and identifying possible opportunities for coordination with international, commercial, and non-for-profit partners.

Besides collecting feedback through town hall meetings and presentations from experts, the committee is requesting community input on these topics in the form of white papers. Please find below recommended topics for white papers and submission guidelines. White papers will be accepted from now until November 16, 2018.

Please note that multiple authorship accurately reflecting a consensus among many individuals is strongly encouraged. Everyone in the research communities associated with AMO physics and related fields is encouraged to author or collaborate on these papers.

Recommended Topics for White Papers

The following topics, derived from the study's Statement of Task, are suggested. White papers should not revisit or attempt to redefine the scientific priorities or mission recommendations from previous decadal surveys or strategies. Instead, they should:

- Identify areas of significant scientific progress since publication of the previous AMO decadal study (AMO2010).
- Identify AMO research fields where significant progress will likely be made with current and upcoming research support, thus identifying areas of promising AMO investment opportunities.
- Identify possible changes in the AMO R&D landscape, including outlooks on new, important areas of AMO-related research and identification of major scientific gaps.

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- Identify challenges AMO may face over the coming decade and how those challenges might be addressed.
- The committee has already identified ultracold matter, ultrafast / x-rays, precision measurement, photonics / nanoscience, high-field and ultrafast physics, quantum information science as key research areas of AMO science, so we invite input on areas of AMO science that are not covered by the above list.
- Identify key cross-disciplinary research opportunities and areas that will both strengthen the core of AMO science and enrich its impact.
- Identify strategies and practices that will educate and train a new generation of AMO scientists who will rise to the challenges and opportunities of the field.
- Identify key areas where experiment and theory collaborations can help facilitate major scientific discoveries.
- Discuss how to develop and expand partnerships (interagency, International, and public/private) in furthering the goal of achieving a full potential of AMO science.
- Discuss how to enhance diversity and make AMO science a more inclusive community that attracts the broadest cross-section of talent from all demographics.

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Guidelines for White Paper Format and Submission

To facilitate document management, please follow these guidelines:

- White papers may not exceed 5 pages in length. This includes all figures, tables, references, and appendices. Web links to other documents may be included in the references.
- Documents should be single spaced, use 12-pt font, and have 1-inch margins on all sides.
- A cover page may be included and will *not* count toward the 5-page limit. It should state the title of the white paper, the primary author's name, phone number, institution, and email address, and a list of co-authors with their respective institutions.
- The permission of each co-author must be explicitly given prior to submission
- Only papers in .pdf format will be accepted.
- File sizes should be made as small as possible. White papers larger than 10 Mb in size cannot be accepted. For file management purposes, please compress figures as much as possible. Hyperlinks to higher resolution versions of illustrations are permissible.
- Appendices may contain license or policy examples or other supporting, pre-existing documents, but not further text or other material created for the paper.
- Given that the committee will be composed of experts in a broad range of AMO and related fields, background or introductory material is generally not expected or desired.

Please respect that the committee has a short time to evaluate a potentially large number of white papers. A well argued, concise paper will make the strongest impression. Use specific examples from your own experience, cite specific policies that impact you, use numbers, etc., wherever possible.

White papers must be submitted through the online link located at nas.edu/amo. Only white papers submitted by means of this system will be accepted. Submissions must be made before 11:59:59 PM EST, November 16, 2018. Questions on the process can be submitted to cjones@nas.edu. White papers will **not** be accepted at that email address. All white papers will be made publicly available and posted to the committee's website per federal regulations.