

**CALL for SUBMISSION of WHITE PAPERS to
the NSF MPSAC SUBCOMMITTEE on
NEXT-GENERATION GRAVITATIONAL-WAVE OBSERVATORY**

Submissions must be made in PDF format
to ngGW@nsf.gov by June 12th 2023, 5pm EDT

I. Introduction

Following a request by the National Science Foundation Assistant Director of the Mathematical and Physical Sciences Directorate, the Mathematical and Physical Sciences Advisory Committee (MPSAC) established a Next Generation Gravitational Wave (ngGW) Detector Concept Subcommittee to assess and recommend a set of concepts for new GW observatories in the U.S. Consideration of a ngGW detection network is also a direct response to Astro2020 recommendations, which described it as a central component of the future of astronomy and astrophysics.

The ngGW Subcommittee membership and charge can be found at: <https://www.nsf.gov/mps/phy/nggw.jsp> The overarching goal for this Subcommittee is to identify configurations that can operate by the mid-2030s at approximately an order of magnitude greater than the [sensitivity of LIGO A+](#) and to recommend optimal ngGW concepts under different potential constraints. The Subcommittee's work will all be based on input from the scientific community. The expectation is that the ngGW Subcommittee findings will inform future NSF deliberations and that an optimal concept will mature into an MREFC-scale detection network.

II. White Paper Guidelines

The ngGW Subcommittee invites the submission of white papers that address the SC's specific charge, overarching goal, and as many of the deliverables identified in the charge as possible. It would be especially beneficial to the process if the white papers linked the science potential and opportunities with the technical capabilities of the next-generation observatories.

More specifically the submitted ngGW white papers should include the following elements: science motivation and key science objectives, technical description of the proposed concept(s) and how different aspects are associated with key science, current and new technologies needed, risks, timelines, and approximate cost assessment, any synergies or dependencies on other multi-messenger facilities (existing or future).

White papers should be a single PDF format, limited to 20 pages (including figures, excluding references and co-authors). Submissions should be sent to ngGW@nsf.gov by June 12th 2023, 5pm EDT.

The ngGW Subcommittee may contact research teams and collaborations for more information during their deliberations.

Thank you for considering this call and for your time in preparing and submitting white papers. If you have any questions, please send them to ngGW@nsf.gov.