

Proposal: 2246877

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Agency

Agency Name: National Science Foundation

Application

Agency Tracking Number: **2246877**

Project Title: Combinatorics and Braid Varieties

Requested Amount: \$458,824

Received Date: 09/27/2022

PI/PD: Nathan Williams

Authorized Representative: Simon Butcher

Submitting Institution: University of Texas at Dallas

SAM Legal Business Name: UNIVERSITY OF TEXAS AT DALLAS

Program

Program Title: Combinatorics

Program Code: 7970

Funding Opportunity Number: PD 18-7970

Division/Area of Science: Division Of Mathematical Sciences

Program Contact Name: Stefaan De Winter

Program Contact Phone: (703) 292-2599

Program Contact Email: sgdewint@nsf.gov

Application Status History

Award Number	Award Date	Award Amount	Start Date	Duration
2246877	06/29/2023	\$210,000	07/01/2023	36 Months

Status	Status Date
Awarded	06/29/2023
Recommended	06/29/2023
Pending	06/29/2023

Cognizant Program Officer Comments

Dear Professor Williams,

Congratulations on the award for your proposal. I am looking forward to the many interesting results that will undoubtedly be produced during this award.

Please carefully read the automatically generated e-mail message from me with subject "NSF Division of Mathematical Sciences award information." That message explains DMS expectations for acknowledging NSF support, use of the NSF logo, and project reporting, as well as how to access a copy of the award letter sent to your institution's sponsored research office.

Feel free to contact me if you would like additional information about this award.

The comments below are the review analysis that I prepared in support of my recommendation.

Congratulations and best wishes for continued success with your project.

Stefaan

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 PID: DMS- 2246877
 Institution: University of Texas at Dallas
 PI: Williams, Nathan F.
 Title: Combinatorics and Braid Varieties

Panel Name and Number: P231123 – Combinatorics II

Intellectual Merit: Panelists agreed that the PI has been building a strong track-record that includes some recent highlights, particularly the PI's approach to counting non-crossing objects. The proposal builds on this recent breakthrough by proposing to apply the new technique in a variety of settings. Panelists felt that the proposal makes a strong case for this proposed work and were convinced that interesting results were to be expected.

Broader Impacts: Panelists rated the broader impacts as above average. The proposed broader impacts include work with graduate and undergraduate students, editorial work and conference organization.

Panel Placement: The panel, while agreeing this was a very good proposal, in view of the very strong competition, unanimously agreed to place the proposal just below the top of the Recommended category.

Program Officer Recommendation: I concur with the panel's evaluation and placement of this proposal in the context of this panel. The proposal was not ranked high enough to be reached in the first round of funding. Given the overall quality of the proposal the Combinatorics program decided to bring this proposal for consideration in a mega-program wide equalization. More specifically, program directors in Probability, Combinatorics and Foundations met to discuss still pending projects in all three programs. Program Directors ranked the proposals into three categories: I. those to be recommended for an award with available funds, II. those to be recommended if extra funds become available, and III. those to be recommended for declination. Given the overall high quality of the proposal, both in intellectual merit and broader impacts, program officers unanimously agreed to place it in group I. In view of the budget pressure on the Combinatorics program the PI was asked for a revised budget. I recommend a standard 3-year award in the amount of \$210,000 from the Combinatorics program.

Program Director Name: Stefaan De Winter
 Program Name: Combinatorics

Review Information

Please note: The Sponsored Projects Office (or equivalent) at the submitting organization is NOT given the capability to read the below review information.

Panel Summary

Panel Summary	Release Date
Panel Summary #1	06/01/2023

Proposal Review [Summary of All Reviews](#)

Review	Release Date
Proposal Review #3	06/01/2023
Proposal Review #2	06/01/2023
Proposal Review #1	06/01/2023

Process Statement

All proposals submitted to NSF are reviewed according to the two merit review criteria - intellectual merit and broader impacts - as described in the [NSF Proposal & Award Policies & Procedures Guide](#). If a proposal is submitted to a specific program solicitation, additional review criteria may also have been used in the merit review of the proposal. Any additional review criteria used in the evaluation of a proposal would be described in the program solicitation to which the proposal was submitted. If the proposal was submitted in response to a funding opportunity that involved both NSF and one or more external funding organizations, then NSF staff may consult with those external organizations before finalizing a recommendation.

Your proposal received an external review, either by *ad hoc* reviewers only, by panel only, or by a mix of *ad hoc* and panel reviews. Some proposals may be considered by more than one panel. Reviewers have knowledge of the science and engineering subfields involved in the proposal as well as potential applications when relevant. The reviewers' fields of specialty are usually complementary within a reviewer group. Sometimes, reviewers with a broader scientific, technical, or management expertise are required for proposals involving substantial size or complexity, partnerships, broad multidisciplinary content, or significant national or international implications.

When a panel is used, individual reviewers, who may be panelists or *ad hoc* reviewers, are usually asked to submit written reviews to inform the panel discussions. If, after a panel has discussed a proposal, the Program Officer believes that additional expert advice would be helpful, they may request post-panel *ad hoc* reviews. During a panel meeting, written summaries of the panel's discussions of proposals are prepared. These summaries are brief synopses of the salient points emerging from the panel's discussion of each proposal, as they relate to the NSF and solicitation-specific review criteria. Copies of all the reviews and panel summaries used in the decision-making process for your proposal are available to you and your co-Principal Investigator(s), if any, on the Research.gov "[Proposal Status](#)" screen.

When a panel is used, the panel usually has an opportunity to categorize proposals with respect to their degree of competitiveness or priority for funding. Panels may decide that the written reviews capture all the salient points and that no further discussion by the panel is warranted; in those cases a panel summary may not be provided.

Panelists and Program Officers with certain conflicts of interest are disqualified from either serving as a reviewer or otherwise participating in the review process. Panelists or Program Officers with conflicts of interest that do not require disqualification are asked to leave the meeting room while the proposal that contains the conflict is discussed and do not otherwise participate in any funding recommendations for that proposal. Any written review received from a reviewer who is identified as having a conflict of interest is not used in the review process.

In reading the reviews, please keep in mind that the reviews are addressed to NSF staff, and not necessarily to you, the Principal Investigator. Occasionally, reviews may contain irrelevant, non-substantive, erroneous or *ad hominem* statements. The review panel and the Program Officers disregard such statements in arriving at a recommendation for the proposal.

External reviews are advisory; NSF makes the decision to Award or Decline, or in the case of preliminary proposals, to Invite/Not Invite or Encourage/Discourage. While many projects warrant funding, budget limitations necessitate that many of these be declined. In the difficult decision-making process, Program Officers consider the relative strength of each project as well as other factors, such as award balance among sub-disciplines, geographic distribution, types of organizations, and the potential contribution of each award to broadening the participation of individuals from groups traditionally underrepresented in science, technology, engineering and mathematics.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director/Office Head/Office Director or their designee whether the proposal should be declined or recommended for an award (or Invite/Not Invite or Encourage/Discourage in the case of a preliminary proposal). Normally, final programmatic approval is at the division/office level; large or complex awards may receive additional levels of review. Because of the large volume of proposals, this review and consideration process may take six months or longer. Large proposals, particularly complex proposals, or proposals in programs involving external partnerships may require additional review and processing time. Information on funding rates for all NSF divisions can be found at <https://delweb.bfa.nsf.gov>.

NSF allows resubmission of substantially revised proposals as described in the [NSF Proposal & Award Policies & Procedures Guide](#), but encourages investigators to seek the advice of the Program Officer before resubmissions are prepared. Some program solicitations impose restrictions on the timing of resubmissions. Investigators should be aware that the Foundation will treat the revised proposal as a new proposal that will be subject to the standard review procedures.

Information about reconsideration of declined proposals is found in the [NSF Proposal & Award Policies & Procedures Guide](#). If you have questions regarding the review of your proposal, please contact the Program Officer who managed your proposal. Contact information is available on Research.gov.