



Proposal Status | MAIN ▶

Organization: University of Texas at Dallas

Proposal Detail:

Proposal Information

Proposal Number: 1800700
Proposal Title: New bijective techniques in algebraic combinatorics
Received by NSF: 10/03/17
Principal Investigator: Nathan Williams

This Proposal has been Electronically Signed by the Authorized Organizational Representative (AOR).

NSF Program Information

NSF Division: Division Of Mathematical Sciences
NSF Program: Combinatorics
Program Officer: Stefaan De Winter
PO Telephone: (703) 292-2599
PO Email: sgdewint@nsf.gov
Review Information: External Peer Review began on **12/13/17**

Proposal Status

Status As of Today Dated: **03/26/18**

This proposal has been declined by NSF.

Comments from the cognizant Program Officer:

The review of your proposal in the Combinatorics program has been finalized, and I regretfully have recommended declination of your proposal.

These comments are the review analysis I prepared in support of my recommendation for this proposal, with information deleted that is purely administrative or that might identify reviewers or investigators who are not involved in this proposal.

Review Analysis

Principal Investigator: Williams, Nathan F.
Proposal Number: DMS 1800700
Institution: University of Texas at Dallas
Title: New bijective techniques in algebraic combinatorics

This proposal was considered by a panel on algebraic combinatorics and related areas. The panel consisted of 13 members whose research specialties covered the aforementioned areas; it evaluated 52 proposals. The panel was conducted and observed by NSF program officers from the Probability, Combinatorics and Foundations programs.

Each proposal was assigned to three or more panelists for review before the panel met, and in some cases additional panelists contributed reviews while the panel was under way. The reviews formed the starting point for a panel discussion in which other panelists in addition to the three reviewers participated. Comparisons between proposals took place in these discussions and are reflected in the panel summary. Both intellectual merit and broader impacts were taken into account by the panel in their placement of a proposal.

The panel sorted the proposals under consideration into a ranked set of equivalence classes that informs the NSF of the panel's assessment of priority for funding within this competition. In some cases additional reviews from other specialists and/or panels were obtained.

DMS program officers asked the panel to sort proposals into three groups (Highly Recommended for Funding, Fund if Possible, and Not Recommended for Funding) and to rank the middle group in detail. Historical funding rates and our estimates of the funds available led us set the sizes of the appropriate groups to be 10%, 30% and 60% of the proposals submitted. Most of the proposals placed by the panel in the Not Recommended for Funding category will be recommended for declination. Many of the Fund if Possible category proposals will also be recommended for declination.

This is a proposal in the area of algebraic combinatorics addressing problems at the interplay between Schubert calculus, MacDonalD polynomials, representation theory and geometric group theory.

Three panel reviewers gave this project ratings of G, G and E. The panel agreed that the PI has a very strong track record for a junior PI, and lauded the contributions to the field made by the PI so far. There was also agreement that the general topics the PI plans to work on are important and central to this area of research. However, with respect to the specifics of the proposal, a majority of the panel felt that too many problems were presented without sufficient detail to be convincing. Others, though agreeing to some extent, felt that this was a forgivable flaw given the PI's relative inexperience with proposal writing. There was consensus that the current proposal is very promising, but could be considerably strengthened by some careful editing, and presenting fewer but more detailed problems.

The broader impact aspects of the proposal were considered to be excellent, especially for somebody at the career stage of the PI. The PI has a history of involvement in REU, plans to continue to work with undergraduates, is mentoring a graduate student, and is actively involved in conference organizing. The panel was impressed with this level of engagement.

Given the strengths and weaknesses as described above, the panel in the end placed this proposal on Line 11 of the "Fund if Possible" category, below 14 other proposals in the same category. The reviewer giving an E rating concurred with the ranking of this proposal. I also agree with this ranking. Due to the substantial number of stronger proposals ranked higher than this one, as well as the budget constraints of the Combinatorics program, I recommend declination of this proposal. However, in light of the many strengths described by the panel, I strongly encourage the PI to reapply, carefully taking into account the criticisms and comments from the reviews and summary.

Recommendation: Declination.

Stefaan De Winter
Program Director
Probability, Combinatorics and Foundations

Reviews

All of the reviews of your proposal that have been released to you by your NSF program officer can be viewed below. Please note that the Sponsored Project Office (or equivalent) at your organization is NOT given the capability to view your reviews.

Document:	Release Date:
Panel Summary #1	Mar 22 2018 1:17PM
Review #1	Mar 22 2018 1:17PM
Review #2	Mar 22 2018 1:17PM
Review #3	Mar 22 2018 1:17PM

Context Statement

Probability, Combinatorics, and Foundations mega-Program
Proposal Review Context Statement for Fiscal Year 2018

In 2018 the Division of Mathematical Sciences' mega-program in Probability, Combinatorics, and Foundations (PCF) received approximately 253 research proposals; 89 in Probability, 113 in Combinatorics and 51 in Foundations. In addition all three programs received 20 conference proposals. Most of these proposals were reviewed by one or more of the five panels run by the mega-program; two in Combinatorics, two in Probability, and one in the Foundations program. Some proposals were evaluated by panels in other programs (within the division), and a number of proposals submitted to other programs in DMS, were reviewed by one of the PCF panels. Of the remainder, the CAREER, FRGMS, and RTG proposals were reviewed by division-wide panels, and most of the 20 conference proposals were reviewed internally. This year, the PCF mega-program expects to recommend support for less than one-third of competing proposals. A small number of submissions were reviewed exclusively by mail.

In the case of a panel review, typically three members of the panel submitted independent reviews prior to the panel's discussion of the proposal. A fourth panelist then wrote a summary. Sometimes, a proposal was reviewed by more than one panel or a combination of panel and mail reviews. Copies of all reviews used in the decision-making process are made available to the PI in FastLane.

Recommendations for particular proposals are often difficult to make and factors other than reviewers' comments and ratings enter into them. Appropriate balance among subfields, between new investigators and those previously supported, contribution to initiatives and interdisciplinary efforts, effect on education and human resource development, the total amount of funds available, and NSF policies are other important factors taken into consideration. Sometimes, revised versions of proposals declined one year are awarded the following year, and often research that has been supported for multiple funding cycles is declined as other, more competitive, proposals enter the competition.

Whereas reviewers' ratings are taken into consideration, the final recommendation is not based on a simple average of the ratings, and the merit of each proposal is based on the content of the reviews and the panel summary or panel summaries. Among other things, program directors look for reviewers' perspectives on the intellectual merit and broader impacts of the proposed research. The comments of each reviewer are considered in the context of other reviews written by the same reviewer. In other words, every attempt is made to develop a clear picture of each proposal's strengths and likely impact.

Among other things that reviewers look for in a successful proposal are the formulation of a problem or problems and an approach to their solution, clear exposition in the summary and project description, a conveyed sense that the research can be accomplished, and a vision of what the completion of the research might mean. To facilitate the evaluation process, proposals need to be written with the reviewer in mind, so that the importance of the proposed activity can be readily understood in a broad mathematical context.

The decision to fund a proposal is usually accompanied by high ratings, although sometimes proposals in risky new areas or proposals having potentially transformative ideas are funded even when they are not given the highest marks. Many meritorious proposals will not be recommended for awards. A decision to decline or to award a proposal should not be construed as a statement by either the NSF or by the program about the absolute quality of the proposed research. Taken collectively, the funded proposals present a balance across the active and essential areas of the discipline and are not identified by a simple ordering of proposals.

FY18 Program Directors in PCF,

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