Intellectual Merit Criterion

Overall Assessment of Intellectual Merit
Excellent

Explanation to Applicant
He will complete a BS at James Madison University in May of 2017. He has taken rigorous courses, and earned perfect grades. He participated in the Math in Moscow program. He has several publications and numerous presentations. He is a winner of a Goldwater scholarship. References letters are strong. He proposes research in graph theory and algebra. He explains the background and clearly states the problem he wishes to address. He doesn't give quite enough detail regarding his plan of attack.

Broader Impacts Criterion

Overall Assessment of Broader Impacts
Very Good

Explanation to Applicant
He has served as both president and vice president of the mathematics club at his institution. He has visited local schools and talked to middle school students about mathematics. He served as a co-creator of a mathematics class designed to illustrate the beauty of mathematics. He doesn't note any future broader impacts.

Summary Comments
He is a strong student, who has already begun to establish himself as a researcher. He should be successful in graduate school, and ultimately as a research mathematician. He is to be commended on his participation in broader impact activities.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit
Excellent

Explanation to Applicant
The research plan is well structured and it is evident that the applicant already has an experience in research, additional to the great academic performance including studies abroad. Moreover, the applicant has already contributed to advancing the science by producing a number of co-authored publications (2/4 published) and received a high praise in the three letters of recommendations.

Broader Impacts Criterion

Overall Assessment of Broader Impacts
Excellent

Explanation to Applicant
The applicant has given an impressive number of presentations and serves a president of the math club at JMU. Additionally, the applicant co-developed a seminar course for sophomores, which is student-run (already third time).

Summary Comments
The applicant is a great candidate for a graduate school and receiving the NSF support. The preparedness of the applicant in terms of the academic achievements and (already) co-authored publications is excellent. The broader impacts component is also

well-represented. Some of the references even point out that some of the current efforts can be shifted from outreach toward the research itself, but it does not diminish the overall great performance of the applicant.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit
Excellent

Explanation to Applicant
The applicant has engaged in a number of undergraduate research projects, including Math in Moscow and REU programs. The proposed research is well developed, builds on the past published results of the applicant, and is designed to connect objects across various areas of combinatorics/graph theory. Further, the applicant demonstrates a very well developed ability to collaborate. The application could potentially be improved by relating the work in graph theory/combinatorics to other disciplines within mathematics.

Broader Impacts Criterion

Overall Assessment of Broader Impacts
Excellent

Explanation to Applicant
The applicant has engaged in a nice variety of outreach opportunities and taken a leadership role in those endeavors. Particularly impressive is the applicant's work in developing a course for the department and revitalizing math club to include outreach to area youth. The applicant has given an impressive number of presentations. Moreover, it is clear from the application that the applicant has the potential to become an outstanding teacher in addition to researcher.

Summary Comments
The applicant has used a variety of opportunities to prepare for a career as a mathematician. A strength of the application is the relative ease with which the applicant moves from discussing computational tools to theoretical frameworks.