

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

The applicant demonstrates strong academic records and has obtained extensive research experiences. The applicant proposes to study the fish locomotion employing computational and experimental tools. Most of the recommendation letters support the candidate and discussed about the motivation and skills.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Good

Explanation to Applicant

The applicant participated in many outreach activities that includes research presentations, publications, organize student-led seminar series to advance understanding and reaching out local high school students. Results from the proposed research might have a broader impact. However, the applicant misses to describe specific goals and significant details about proposed broader impact activities. The applicant seems to be very passionate which could translate into great societal impacts.

Summary Comments

The applicant proposes to study the fish locomotion employing computational and experimental tools. Though the research plan is interesting, it lacks broad picture and depth. For example, it is not clear what will be the major breakthrough. The recommendation letters support the candidate and discussed about the motivation and skills. However the letters are not strong enough to make the candidate competitive enough.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

This candidate has the seeming uncanny ability to have an interest in both biological systems and physical systems. She has spent her undergraduate years exploring research by spending a year abroad in Australia and visited Antarctica to do research. She has used her undergraduate years to explore a lot of different types of research and has presented a technical statement on fish locomotion that combines her interest in both biology and physics. She has already a number of publications in refereed journals and she has made several poster presentations. The interdisciplinarity of her curiosity is exactly what the workforce in the physics community will be doing since biological systems now pervade just about everything that we do as physicists. Her strong letters of support also reflect her varied interest and her maturity to tackle difficult problems that are on the cutting edge of research.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

This candidate has been involved in a number of projects aimed at increasing the awareness of careers in physics and biology . She is the founder of a group that is called Excellent Adventures to ensure that underclassmen are introduced early to opportunities that they can become involved in later in their careers at the intersection of biology and physics. She also works with a group that tutors minority students in the metropolitan area of her university.

Summary Comments

This candidate offers a balanced outlook at work and play in the life of a physicist. The ideas that she presents are refreshing and yet also could offer a very rigorous program for innovative and exciting research. The interdisciplinarity of the various research topics from neutrons to fish locomotion are challenging and provide insight to how the world of research is moving to cross and transdisciplines.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

The candidate proposes a computational research project on fish locomotion using molecular biology and/or physics models. Prior to identifying this project for her PhD research, the candidate had been involved in many different undergraduate research projects and her contributions are highly praised by all of the reference writers from Georgia Tech. It seems that the candidate selected her dissertation project after a 7-week research trip to Antarctica, as part of another Georgia Tech faculty member; it seems slightly odd that this faculty member was not asked to provide a letter. The candidate co-authored one paper as an undergrad, a strong indicator of her research potential. Unfortunately, the proposal suffers a bit from a seemingly 'hasty' compilation (particularly of the personal statement), which include some incomplete sentences, grammar mistakes and so on.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

The candidate has a strong record of prior accomplishments in outreach and education; for example, she introduced a student-led seminar series dubbed 'Excellent Adventures' at Georgia Tech. The candidate was home-schooled, she has international experience as she spend a semester in Brisbane (Australia) as an exchange student, and she has a keen awareness of the unique challenges that female students face in STEM disciplines. Even more impressive, she participated as the only undergraduate in a 7-week research expedition to Antarctica. Paired with the expected outcomes of the proposed research, future broader impacts and previous accomplishments of this proposal seem exceptional, even though it also would have benefited from more polished write-up in the personal statement.

Summary Comments

This proposal could have been among the top-10% proposals if the candidate had spend a little more time polishing the texts for the personal statement and the research proposal. I still think it is worthwhile to be considered for funding; if it is declined in this round, I strongly encourage the candidate to resubmit in the next GRFP round.