

Tactics for the 'Intellectual Merit' Section of an NSF Grant Application

Question: I'm writing a proposal for an NSF grant. The "intellectual merit" section seems to have very specific requirements and not much room to make a case. Can you offer me some tips or tactics?

Expert Comments: For Intellectual Merit, PIs should convey how important the research is in its context or field, but many of them are too vague as to the originality, creativity, and potentially transformative nature of the work they propose. Reviewers key in on these terms. They want to see these aspects of intellectual merit shine through.

For originality and creativity, one approach would be to summarize the current thinking in the field and ask yourself: How is my proposal new or different from others? Then convey that in specific terms in the application.

For example, perhaps it's well-known that scientists have been studying a certain metal because it has unusual properties they believe could have a beneficial application to society. But you see a different beneficial application and propose a different set of experiments to get there, or perhaps you propose a different way of achieving the original goal, and can give reasons why your methods have a greater chance of success.

For the "potentially transformative research" part of the application, take the answer to the previous question and ask yourself how your work potentially changes the direction or challenges the conventional wisdom of the field. If your experiments with the metal succeed, it will prove that the previous line of thinking overlooked important factors.

While it's true that "potentially transformative" only means your work might change the field, it's important to say what will happen if your findings do go in a direction that contradicts or sheds new light on the conventional, resolves a long-standing issue, or brings a brand-new new perspective.

Expert Comments: Dr. Michael Lesiecki, executive director of the Maricopa Advanced Technology Education Center (MATEC), Phoenix.

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