

**Remarks by
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Hello everyone.

I want to first thank the organizers for giving the opportunity to give you a perspective from the National Science Foundation.

Our mission at NSF, as Congress wrote in 1950, is to “promote the progress of science, to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes.” You can actually take that mission and map it to the two review criteria that we use basically for everything we do at the NSF.

The first one is intellectual merit, which is the lens that we use to evaluate the science. The second one is broader impacts, which speaks to how the work that is being proposed will impact society beyond the discipline itself that its advancing

Broader impacts often cause some confusion, but it really relates to advancing the economic and the national prosperity and the security of the Nation. There are many ways to do that, including, for example, educating and training an exceptional and diverse STEM workforce. There is also driving innovation and therefore contributing to the economy, and there are many other ways.

A question that we all often get at the NSF when people come up with ideas they want us to support is: what is the NSF looking for? The answer always circles back to the intellectual merit and broader impacts concepts, but not only. There are also National Priorities. There are also agency priorities that do enter into the mix. And of course, there is also the reality of budgets and, of course, Congress and congressional priorities.

But there is also additional context at the NSF that I want to bring to your attention in particular for particle physics: Particle physics is a much smaller enterprise at the NSF than it is for example at the Department of Energy.

We mostly fund universities at the NSF. Including in the Physics Division, we fund a broad ecosystem of research facilities, such as LIGO within physics, and many others across NSF, such as ground-based telescopes, the facilities in Antarctica, oceanographic research vessels, and many more.

Resources are therefore allocated according to scientific strengths and the demonstrated community needs. So for us to be successful, we really have to focus on things that really target the capabilities of a relatively small community, that will have an outsized and visible impact, and that will leverage partnerships when possible, and when it makes sense.

When thinking about the ILC and a possible NSF future in it, I think it is useful to look at the LHC as an example, because we just made an investment of over 150 million dollars to the high luminosity LHC upgrades of the LHC experiments. That investment was based on, first and foremost, a very strong science case. It also had very strong community support, as evidenced by the last Snowmass and the evolution of the recommendations of P5. Last but not least, it was also based on a long standing formal partnership with CERN, which in turn has been based on a joint DOE and NSF effort for quite a while.

In addition, the NSF LHC community focused their efforts in areas where they could be most effective. By that I mean in specific detector subsystem, which they had a lot of expertise and experience. We have also managed the U.S. LHC as a joint effort with the DOE. We have been doing it this way since 1997. And of course, because it is an international effort, along the way we've had the guidance and help of our friends at the State Department, which has been essential.

So, I think the LHC is a useful "existence proof" of a workable model for the National Science Foundation. I am also sure there are other models that could also work and we're open to discuss those.

However, even for the ILC we've had some precedent at the NSF; we funded actually quite a bit of R&D activities at universities, either directly or indirectly, about a decade ago. Some of this, I should say, was also done jointly with the Department of Energy. I think when the time is right, we will be ready to follow the community and re-engage in ILC detector and physics R&D.

I would like to leave you with a few thoughts, which I think frame it for me.

I think a successful U.S. involvement in an ILC starts with very strong community support and engagement and especially of those that will be leading the field in 10 to 15 years from now. This is really a necessary condition and you've seen that theme through throughout the workshop, especially at last night's panel. And I think this is worth repeating: it is essential to have the junior members of the community really engaged because we're talking about their future.

Any NSF participation in an eventual ILC would likely include partnerships and will have to demonstrate the societal relevance, the broader impacts, and we'll have to be inclusive of the Community.

U.S. participation in the ILC will be of such a scale that any NSF contributions, as in the LHC, will have to be part of a coordinated U.S. effort, as a “whole of government” effort.

Finally, we should think ahead and do a bit of forecasting of what society will be looking like when the ILC comes online and we need to ask ourselves, “are we as a particle physics community headed in the right direction in terms of its diversity, inclusion of different segments of society?” I mean that in the broader sense of these terms. What more can we do? I think this is the right time to ask this and a really a good opportunity for that.

So, I'll just conclude by saying that we at the NSF are watching with great interest the developments of the ILC and stand ready to respond, when appropriate, to the community and the direction they will be setting. Thank you.