Where to next?

Judy Franz, American Physical Society

I'd like to briefly raise several topics with the idea of starting some discussion after the panelists make our presentations:

1. International perspective: We always hear that graduate education in science in the US is the best in the world, and this is probably true, but there is a lot more competition from around the world and it is growing.
    A. In Europe there has been a movement toward Mobility. This means that students can freely study in any country, have short research experiences with key researchers in their field and attend conferences anywhere with ease. Thus opportunities are exciting and growing in Europe
    B. In Asia (Japan and Korea) there is recognition that their universities have been stifling because they weren't welcoming top scientists from around the world. Now new universities have been formed where by statute a high percentage of faculty members must be foreigners and classes will be mostly in English. They hope to attract a large number of foreign students as well.

    Why do students keep coming to the US for graduate study? I don't think that our courses are better than others and there are excellent faculty research programs in many countries. In part, we may be living on past glories. But I think it is the flexibility of our structure and programs and the range of career opportunities that await students at the end of their studies. It is old sense of America, the frontier, where you can succeed by cleverness and hard work, and our entrepreneurial spirit. You don't get claustrophobic in the US. Young assistant professors have a lot of freedom, and the Senior Professor is not (usually) going to take all of the credit for your work. So it's key to keep this spirit alive and well in graduate programs.

2. Preparing for a diversity of careers: You've already had a panel on this topic, but I want to raise it anyway because I think it's so important. The majority of Physics PhDs will not become university professors or work on basic research in our national labs. They will do many things, but what they do has been changing drastically from what they used to do. This is because most of the large corporate

research labs have disappeared. Everyone knows that Bell Labs is nothing like it was, but this is also true of GE, GM, Ford, Exxon, IBM, etc. Many physicists will work for small companies where their breadth, flexibility, creativity and communication skills will mean more than their publication list. We have to keep all of these students in mind as we plan our graduate programs. Are we doing this?

3. Diversity: Women make up about 18% of your graduate students and African Americans and Hispanics a much smaller %. Many of these students are stepping, at least partially, out of their comfort zones to do graduate work in physics. It wasn't what their families and friends expected of them, and they are not sure that they made the correct decision. This leads to insecurity, which, evidence shows, grows during their graduate studies. It is particularly prevalent in the period before they join research groups. Who is responsible for reaching out to these students and making them feel welcome. Certainly the department chair, but also the graduate advisor, don't you think? What can you do? Margaret will give you some good ideas tomorrow, but I hope it is something that is on all of your minds.

4. Energy and the environment: Young people now are much "greener" than past generations. They really worry about what we are doing to our planet. We have organized a workshop on energy research the day before the March Meeting for graduate students and postdocs. We planned on a group of 80 and twice this number applied within days. What can we do in our graduate programs to bring in some of this desire to help the environment? Energy is a basic part of physics and I don't think that we want to ignore it in our programs and just give it away to the environmental science programs.