

## **APS GRAD EDUCATION CONFERENCE – EVENING PANEL**

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- 1. Like in this morning's talk, focus on numbers - enrollments, PhD production, & the initial job market for grads.**
- 2. One big determinant is the trend in funding for physics research, first in terms of how many entering students can be funded, and indirectly in terms of the health of the job market for graduates.**
- 3. Sadly, the funding not promising. In the private sector, large corporate labs have shrunk and jobs at small enterprises probably don't make up for the drop. Will likely continue as the relative dominance of the US economy continues to fade. One potential bright spot for grad education might be corp/university partnerships, but also limited in scope.**
- 4. Add to this recent decline in funding for national labs, for example, recent cuts in DOE funding and impending layoffs at Fermilab and SLAC, with the fiscal tightness likely to worsen with the economic climate. Labs will try to counter by embracing smaller interdisciplinary projects, but again only a partial offset at best.**
- 5. Gov't funding for academic research will probably be more resilient, but that may just mean keeping up with inflation over the long term.**
- 6. All of this suggests a holding pattern over the medium term in enrollments. Maybe also a consolidation of research facilities, countered by more international collaborations, as long as US contributions are not cut further. The danger is that, remembering the rollercoaster shape of the PhD production curve presented this morning, we seem to be moving towards another local peak, as we did 15 and 35 years ago. Those sharp rises in degree production, based on decisions made by departments and graduate students years earlier, combined with an unexpected negative turn in the job market to create a crisis for new PhD's. Now, as then, some of the early warning signals included signs of an impending funding drop and a rising fraction of new PhD's opting for postdocs, often an indicator of some graduates choosing a holding pattern rather than venturing directly into a worsening job market.**
- 7. The Professional Physics Masters option – there has been a lot of discussion about this, and we at SRC have tried a number of studies in the last dozen years to get a sense of the real extent. The upshot seems to be that ideas are promising, but the scope so far is small. Pat Mulvey added a module to his 1996 survey of enrollments and degrees. Based on department self-report, about 40% (75) PhD departments claimed they had such programs and produced ~180 PMS/year.**
- 8. 5 years later, Roman Czujko and other conducted a Sloan-funded study, and in responses to more detailed questions, only about half the number of PhD departments**

**claimed to have a PMS. Production numbers were hard to gauge but also seemed around half, maybe 80/year.**

- 9. As far as MS depts. are concerned, they currently only produce about 200 graduates, and almost half then continue on in their studies, mostly non-citizen students going on into PhD programs and mostly in physics. So that, here too, the number that could be possibly earning a true PMS is small, probably around 100.**