

## **Breakout Session on Comp Exam and Time to Degree**

*Reported by Janet Tate, session chair*

Herman Verlinde of Princeton led this discussion. He commented as an aside at the outset that the graduate research experience in Europe (his own graduate experience) is rather different – graduate "students" usually enter with a more comprehensive theory background, and are considered junior colleagues from the outset. He outlined Princeton's program, explaining the qualifying exam process and other requirements (for details, see his presentation). Princeton's average time to Ph.D. degree is 5 years, fully one year shorter than the national average. One factor might be an official change of status of the student at the university in years 6 and 7 (called Degree Completion Enrollment), and no formal status with the university beyond that (although such a student may still submit and defend a thesis). Another factor could be the removal of the general written qualifying exam and its replacement by performance in required courses that has allowed students to focus on their research more quickly. (Princeton retains a preliminary written qualifying exam that most students pass in their first year, and for which there are no required courses. The attrition rate due to the preliminary qualifier is very small.) Peer pressure, especially among theory students to meet the annual post-doc interview cycle might be another.

He also cited careful tracking of students (a yearly re-enrollment interview for example) and maintaining a congenial departmental environment where students mentor one another and engage in social activities, as factors that have improved the climate.

Discussion:

*Time to degree:*

A short time to degree at Princeton might be partly explained by a higher-than-average percentage of students pursuing theory (about 50%), who tend to finish faster than experimentalists, but this is not entirely responsible. (Theory students at Princeton are required to complete a significant experimental project, which is likely, if anything, to slow their progress to the theory degree.)

Session participants felt that early entry into research was important to keeping time to degree short. Removal of barriers such as a comprehensive written exam could further this goal as students spend a long time in exam preparation and faculty are reluctant to take on students until they have passed the comprehensive exam.

*Comprehensive exam:*

A straw poll of the approximately 30 participants indicated that a significant majority of programs require a written qualifying/comprehensive exam. Those that don't have a written qualifier cite almost perfect correlation with the results of the written qualifier and performance in the required courses. They note the increased responsibility on the part of the instructors in the required courses and the potential for some unevenness. On the whole, they are satisfied with the elimination of the written qualifier. Of those that do require a written qualifier, many expressed unease with the exam for different reasons. The opinions ranged from considering the exam a complete waste of everyone's time to mild unease and wishing there were something better. No one came out in whole-hearted support, but in the previous panel the MIT speaker had stated that the MIT faculty and students were satisfied with their comprehensive exam. Princeton has eliminated one of two comprehensive exams. The main reason for maintaining the written exams, at least for the departments represented, seems to be its objectivity and a uniform imposition of standards on students (as distinct from an oral exam, for example). There were many variations on the written exam format, the form of the exam, the preliminary oral, the thesis proposal, and the timing of these.

It seemed most helpful for people to listen to how other departments handle qualifying exams, preliminary oral exams, required courses as qualifiers, etc., so we decided to compile this information from the departments present and make it available on the conference website.