

# APS/AAPT Chairs Conference Breakout Report

## Issues for Small Departments – Second Session

Amy Bug, Swathmore College, Presider  
Jan Tobochnik, Kalamazoo College - Recorder

This session was presided by Amy Bug from Swarthmore College who handed out a set of potential discussion questions:

What constitutes small?

In what ways does size matter?

Are there offerings that we would like to support, but cannot?

What are the tradeoffs?

What limitations do we face?

Summary questions:

How would you define a "thriving" physics program at your college/university?

What are the major barriers you see in establishing and sustaining a thriving program?

What resources do you know about, and what information can you share about agencies, organizations, techniques, strategies,... to assist other departments in establishing thriving programs?

The discussion did not stick very closely to these questions, but most of them were touched on to some extent. There was a very diverse group of institutions at the session, though all departments were fairly small. A major concern seemed to be the difficulties in maintaining a reasonable number of physics faculty in the face of small numbers of students. Here is a list of comments:

(1) Physics is not at the center of intellectual life at most colleges or even within the sciences. Because of small staff sizes it is frequently difficult to offer courses for non-science majors.

(2) Other departments have much larger enrollments which make it hard for physics to get the staffing needed to do a good job. The number of students in intro courses versus advanced courses is very uneven.

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- (3) Because physics requires more skills (such as math) as background, it is not surprising that we have smaller enrollments than other liberal arts subjects and even other science departments.
- (4) Physics departments need to do more to advertise the value of physics majors and courses.
- (5) It would be interesting to compare outcomes of other science departments such as biology with physics, so that students can see the value of the major.
- (6) A strong strength of physicists is that they can teach most topics within the major and are frequently able to teach outside the major.
- (7) A concern was expressed that AAPT has lost its relevance to small colleges and the major research universities. Colleges have not been heavily involved. It was suggested that there needs to be more physics content at AAPT meetings.
- (8) Barriers include lack of critical mass of students at many institutions, faculty attitude is frequently defensive or negative, lack of communication between departments, insufficient mathematics sophistication of students, faculty turnover can be large, and large investment of time needed to work with students on research.
- (9) Things to do include using spin-up case studies, build SPS chapters, gather more and more persuasive material on the importance of physics that can be used with deans, find better strategies to make companies aware of what physics majors can do.