SELF-ASSESSMENT - SUMMARY OF ACTIVITIES
UGA PHYSICS

Condition #1: *The right people apply for doctoral study.*
Condition #2: *The right applicants are admitted as doctoral students*
Condition #3: *Students and faculty form productive working relationships*
Condition #4: *Students experience social support from fellow students*

Conditions	**Goals /Activities**
1	**Goal**: It is difficult to ascertain the level of realism about demands and expectations of doctoral study for our entire applicant pool, since that would include the large-majority sub-set of students whom we either don't admit or whom we admit but who choose not to enroll here. We have no opportunity for direct, extended, personal interactions with those students comprised in this "no-enrollment subset", since, by definition, they don't come here. Only extended personal interactions, such as those occurring during our 1st year semester-length lecture courses, our 1st year 2-semester PHYS8990 Lab Rotation course, during extended (weeks or months of) research supervision and/or during our continual graduate advisement and faculty mentorship and guidance, would allow us to assess a student's degree of realism about demands and expectations. For the generally much smaller minority subset of students who (i) apply, (ii) are admitted and (iii) choose to enroll, hereafter referred to as the "enrollment sub-set", we have reasons to be believe that they either are, in a substantial majority, realistic about the demands and expectations of doctoral study or, in the alternative, that we are providing the necessary caring and nurturing environment that enables them to acquire an adequate level of realism within their first 1-2 semesters here at UGA. To put it in quantitative terms, we believe that at least 90%+-20% of the enrollment sub-set (not of the entire applicant pool!) are realistic about the demands and expectations of doctoral study. The foregoing lower-bound percentage estimate is based on (i) the fact that a lack of realism about the demands and expectations of doctoral study constitutes, almost always, a sufficient condition for attrition; and (ii) on our degree-completion vs. attrition ratio for the past 5 academic years; with the +-percentage range reflecting the statistical uncertainties imposed by our (very) finite sample size. **Proposed activities in this area are:** For the above-defined "enrollment sub-set" of the applicant pool, two very significant improvements are planned in our efforts to increase the applicants' degree of realism about the demands and expectations of doctoral study, beyond those already implemented by the department and briefly described above. For those members of the above-defined "no-enrollment sub-set" of the applicant pool whom we do not admit, we believe that our departmental applicant screening process infuses them with an adequate level of realism about our expectations. Lastly, for those members of the above-defined no-enrollment sub-set of the applicant pool whom we do admit, but who choose not to enroll here (and who, in the majority, accept offers at other universities), we believe that they will very likely demonstrate an adequate level of realism at other universities and departments. The main improvement the department proposes to implement consists of a

	further strengthening of its pre-admission screening program as it applies to domestic students by way of pre-admission on-campus interviews and testing of all domestic, and most importantly regional, applicants who can be brought to campus at realistic expense levels. The overall impact of this pre-admission screening will be maximized by a strong focus on regional and in-state students, since this subset of our applicants is usually the most problematic segment of the applicant pool in terms of terms degree completion. [This is ultimately a function of the severely sub-standard quality of the educational infrastructure available to science-oriented students in the regional, and especially in the State of Georgia, public school systems. Most of those regional student whose innate interests and curiosity about the physical sciences have managed to survive the devastating effects of public school science "education" will usually seek, at the earliest possible time, out-of-state and/or out-of-region undergraduate and graduate science and engineering educations. Only the least-prepared candidates are remaining, to apply to those in-state, regional and local colleges which supply the majority of our domestic/regional graduate applicants.] The pre-admission screening program will be carefully designed in close consultation with the UGA Legal Affairs Division so as to avoid any conflict with applicable federal, State and UGA laws and regulations regarding non-discrimination on the basis of national origin. This program improvement is also predicated on (a) the restoration of an adequate departmental operating budget so as to enable the department to pay for candidate travel and other incidental expenses to be incurred pre-admission (b) adequate faculty staffing levels to carry out the on-campus interviewing and testing program by re-allocation to the department of recently and soon-to-be vacated retirement positions. The latter condition is especially critical, since the department is at present down by at least 4 faculty lines and an additional 2-3 retirements are imminent, resulting in a likely net loss of 5-6 departmental full-time faculty (out of 25 departmental full-time faculty lines total) by the end of AY 2008.Yet, at the present time, most faculty hiring to re-fill these positions has been placed on indefinite hold (except for one) as a result of UGA's severe institutional shortage of start-up funds for new faculty hiring. It is therefore likely that these vacant and soon to be vacated positions will remain vacant for years to come. The resulting decimation of our faculty will have an obvious, and severely negative impact on all aspects of our graduate program. A second major improvement to ensure that the "right people apply" is to finish the planned construction of an addition to the Physics Building and to, at the very least, repaint the doors in the existing building. By way of background information, it must be pointed out here that the currently available building and space resources of our department can only be described as a major embarrassment for any institution that bills itself as "major research university". The building conveys the general architectural notion of a 1950s bomb shelter and it is far cry from the ambience one would expect in a modern research department. Lab and office spaces are sub-standard and overcrowded and in several instances they constitute severe work hazards. Visiting graduate student applicants (of which there will be many more when the above-described pre-admission on-campus interview program is implemented!) will surely be negatively affected by what they see when they visit.

2	They do. Our existing applicant screening and 1st year student orientation processes appear to be working reasonably well, as evidenced by our degree-completion *vs.* attrition ratio. Within the framework of our overall institutional and departmental parameters, we feel strongly that we are at a point of diminishing returns in this area, *i.e.*, major additional efforts would likely not be supported by a detailed cost-benefit analysis. **Proposed Activities for this area**: One primary issue, recently addressed, concerned the amount of time it takes our 1st year grad. students to become affiliated with a research group and to become fully engaged in research activities. The high level of individualized advisement which our students have always enjoyed, along with a recent revision of our core curriculum, reduction in core course load and the recent institution of a quite successful mandatory 1st year PHYS8990 Lab Rotation course have significantly reduced the time to become group-affiliated, to typically well under a year. At the pre-admission level, the department is planning to implement a rigorous pre-admission on-campus interviewing and testing program for domestic and especially regional applicants, as already described under Section b. to Condition #1 above. In addition the, the planned senior graduate student guidance program described under Section b. Condition #4 below, will be a substantial further improvement in this area.
3	The department's recently instituted practice of sending 1st year graduate students through the mandatory PHYS8990 Lab Rotation course presents students with the opportunity to work directly and closely with individual faculty members before deciding on an advisor. Thus, the Lab Rotation course also helps each student to find an advisor whose interpersonal style best matches the needs of the student. The department also conducts a graduate student orientation for all incoming graduate students at the beginning of the academic year to get the new students acquainted with all members of the faculty and their research programs. Interpersonal or other professional interaction problems between students and faculty are few and far between. When they occur, they are dealt with most effectively on an informal, case-by-case basis, by way of collegial intervention by the graduate coordinator, department head and other faculty, jointly with a well-established, but informal student support network. **Proposed activities for this area:** The department is presently studying possible implementation of some of the same programs for improving and maintaining good professional relations between graduate students and faculty which have been successfully implemented in the UGA Department of Genetics, including, for example, a departmental retreat. We are also contemplating other measures as well as other measures, such as a making the currently weekly departmental coffee hour a daily afternoon affair, so as to improve the social interactions between all members of the department, but especially including faculty and graduate students. While some of these planned measures are cost-neutral, others, like the departmental retreat, are not and they must therefore, again, be predicated on the restoration of an adequate departmental operating budget

4	The large majority of our students are active participants of a fully functional network that provides not only social support and "inside" information, but also opportunities for fruitful scientific interactions and an overall sense of community. Due to the extensively interdisciplinary character of several of our research programs, this network extends well beyond the boundaries of the department. **Proposed activities for this area:** A regular (*e.g.*, annual) departmental retreat that includes students, postdocs, visiting scientists and faculty will be very helpful in further enhancing the connectivity and strength of the "network", as described above under Section b. of Condition #3, subject to the restoration of adequate departmental operating funds. An additional important measure will the implementation of a senior graduate student guidance program, similarly the one existing in the UGA Department of Genetics, whereby the more senior graduate students (2^{nd} year and up) are becoming even more actively involved in guiding 1^{st} year graduate students in becoming fully connected with the already existing support network. As this program becomes formalized it will be necessary to allocate for-pay graduate student teaching assistantship time for those senior graduate students who participate in this program, since graduate students are not contractually obligated (nor should they be!) to perform advisory or instructional functions without pay.