

## "Preparing and Applying for Faculty Positions at Baccalaureate Degree Institutions"

Dennis C. Henry, Chair, Physics Department, Gustavus Adolphus College  
St. Peter, MN 56082-1498; 507-933-7314, dchenry@gac.edu

Winter Meeting of the American Association of Physics Teachers  
Reno, NV, January 15, 1996

### ABSTRACT

There are approximately 2500 (FTE) physics faculty positions at the 485 bachelors-granting departments in the U.S. The annual turnover rate has recently been 7%, with about one third of departments filling one or more positions a year. Graduate students who are considering careers as teaching faculty can prepare themselves for the variety of opportunities, challenges, and satisfactions found in undergraduate institutions. The extent and quality of graduate teaching apprenticeships, the breadth of graduate coursework, the choice of sub-field, possible post-doctoral experience in research and/or teaching, and the development of a plan for engaging undergraduates in research are among the more significant criteria weighed by hiring institutions. Candidates with strong preparations and qualifications that match the advertised position, and who effectively communicate their interest in teaching at undergraduate institutions will be recognized and valued by faculty search committees and deans. This paper will address the range of institutional expectations for new faculty, and will recommend some actions to graduate students, faculty advisors, and department heads.

#### I. THESES:

- A. PHYSICS GRADUATE STUDENTS WHO ARE CONSIDERING CAREERS AS COLLEGE TEACHERS CAN TAKE SIGNIFICANT STEPS TO PREPARE THEMSELVES TO COMPETE FOR FACULTY POSITIONS, AND TO SUCCEED AS NEW FACULTY MEMBERS.
- B. GRADUATE FACULTY AND DEPARTMENT HEADS CAN ASSIST THEIR GRADUATE STUDENTS IN A VARIETY OF WAYS (AS MANY NOW DO) TO ACQUIRE EXPERIENCES AND ATTITUDES BENEFICIAL TO THEIR ACHIEVING THIS GOAL.
- C. CANDIDATES WITH STRONG PREPARATIONS AND QUALIFICATIONS THAT MATCH THE ADVERTISED POSITION, AND WHO EFFECTIVELY COMMUNICATE THIS IN APPLICATIONS WILL HAVE THE BEST SHOT AT THE (FEW) AVAILABLE POSITIONS.

#### II. FRAME OF REFERENCE, ACKNOWLEDGEMENTS, AND A DISCLAIMER

#### III. WHAT YOU ARE PREPARING FOR

##### A. INSTITUTIONAL TYPES AND SIZES

1. PUBLIC, PRIVATE (SOME CHURCH-RELATED), SMALL UNIVERSITIES (W/O

GRADUATE PROGRAMS), COMPREHENSIVE COLLEGES, LIBERAL ARTS COLLEGES

2. ENROLLMENTS: FEW HUNDRED TO FEW THOUSAND STUDENTS
3. FACULTY SIZE: 50 TO A FEW HUNDRED
4. DEPARTMENT SIZE: 1-10; SOMETIMES PHYSICS IS IN COMBINED DEPARTMENTS OR DIVISIONS
5. DEGREES & PROGRAMS OFFERED: B.S./B.A. IN PHYSICS; PERHAPS ONLY COURSES IN SUPPORT OF OTHER DEGREES. THE PHYSICS MAJOR IS AN ENDANGERED SPECIES ON SOME CAMPUSES.

B. DUTIES AND EXPECTATIONS [TEMPORARY POSITIONS, ITEMS 1 & 2 ONLY.]

1. TEACHING LOADS: 9-18 CONTACT HOURS PER WEEK, INCLUDING LABS.
2. COURSES AT ALL LEVELS, OF ALL TYPES, FOR ALL AUDIENCES.
3. RESEARCH AND SCHOLARSHIP EXPECTATIONS AND OPPORTUNITIES. WIDE VARIATIONS HERE. START-UP FUNDING IS OFTEN AVAILABLE WHERE SETTING UP A RESEARCH PROGRAM IS REQUIRED. TYPICAL RANGE: FEW \$K TO \$50K.
4. DEPARTMENT SERVICE: ADVISING, INFRASTRUCTURE (COMPUTERS, EQUIPMENT MANAGEMENT, ETC.), MENTORING, CURRICULUM, GRANTS
5. CAMPUS SERVICE AND FACULTY GOVERNANCE: COMMITTEES, ADMINISTRATION, OUTREACH, ADMISSIONS/RECRUITING
6. FOR TENURE AT MANY PRIVATE COLLEGES, A COMMITMENT TO THE MISSION OF THE INSTITUTION, OFTEN EVIDENCED BY HOW MUCH YOU WORK BEYOND THE ALREADY SIGNIFICANT EXPECTATIONS LISTED ABOVE. A VERY FEW CHURCH-RELATED COLLEGES HAVE A RELIGIOUS FAITH REQUIREMENT.

C. CRITICAL SKILLS (BEYOND KNOWING PHYSICS, ENTHUSIASM, HARD WORK, ETC.)

1. COMMUNICATIONS; ORAL AND WRITTEN ENGLISH
2. TEACHING VERSATILITY
3. INTERPERSONAL SKILLS

#### 4. IDENTIFYING THE ALIGNMENT BETWEEN PERSONAL AND INSTITUTIONAL/DEPARTMENT GOALS

#### D. COMPENSATIONS

1. YOU WON'T GET RICH, YOU WON'T HAVE TO LIVE UNDER A BRIDGE, AND YOU'LL HAVE SUMMER OPPORTUNITIES.
2. ENVIRONMENT AND LOCATION (PLUSES AND MINUSES)
3. SPOUSE OPPORTUNITIES (OR LACK THEREOF IN SMALLER TOWNS AND CITIES)

#### IV. WHAT YOU CAN DO WHILE A GRADUATE STUDENT

##### A. COURSE WORK

1. TAKE AS MANY GRADUATE AND UPPER-LEVEL COURSE ELECTIVES BEYOND THE CORE AND OUTSIDE YOUR SUBFIELD AS YOU CAN. I.E. SOLID STATE, NUCLEAR, ASTROPHYSICS, ELECTRONICS, OPTICS, ETC. (YOU MAY BE TEACHING IT IN A COUPLE OF YEARS.)
2. THEORISTS: TAKE AT LEAST ONE ADVANCED LAB COURSE.
3. MAKE UP FOR UNDERGRADUATE DEFICIENCIES OR SKILL WEAKNESSES, SUCH AS IN WRITING OR SPEAKING.
4. NON-NATIVE ENGLISH SPEAKERS MAY HAVE TO UPGRADE THEIR FLUENCY TO COMPETE FOR THESE POSITIONS.

##### B. ACQUIRING TEACHING EXPERIENCE AND NETWORKING

1. GET AS MUCH (GUIDED) T.A. EXPERIENCE AS POSSIBLE. LAB AND RECITATION INSTRUCTOR ASSIGNMENTS ARE PREFERABLE TO TUTORING OR GRADING GRADUATE Q.M.
2. TAKE ADVANTAGE OF T.A./POST-DOC TRAINING COURSES AND OPPORTUNITIES, SUCH AS THOSE HIGHLIGHTED BY OTHER SPEAKERS AT THIS SESSION.
3. SEEK OUT AND ACCEPT LEADERSHIP, LECTURING, ORGANIZATIONAL, SUPERVISORY, WRITING AND OTHER CHALLENGES AS A T.A. OR POST-DOC.
4. MAKE SURE THAT INTERESTED FACULTY AND DEPARTMENT LEADERS KNOW AND VALUE YOUR WORK, AND WILL BE PREPARED TO WRITE AN

INFORMED, STRONG LETTER OF RECOMMENDATION.

5. **JOIN AAPT**, ATTEND REGIONAL AND NATIONAL MEETINGS, PRESENT PAPERS DEMONSTRATING INTEREST IN TEACHING ISSUES, BUILD YOUR NETWORK.
6. BECOME AWARE OF THE PRINCIPAL APPROACHES AND TRENDS IN PHYSICS EDUCATION. KEEP AN OPEN, BUT CRITICAL MIND. (READ EVERY EDITORIAL WRITTEN BY CLIFF SCHWARTZ IN THE PHYSICS TEACHER.)

### C. RESEARCH AND SPECIALIZATION

1. EXPERIMENTAL VS. THEORETICAL VS. COMPUTATIONAL VS. INTER-DISCIPLINARY.
2. BE AWARE OF THE RISKS OF TOO-NARROW SPECIALIZATION OR DEPENDENCE ON BIG OR SINGLE-SITE "SUITCASE" PHYSICS. MAY NOT BE APPROPRIATE OR SUSTAINABLE IN A COLLEGE ENVIRONMENT. KEEP A STRONG SECOND INTEREST ACTIVE.
3. WHEN REVIEWING YOUR OPTIONS FOR THESIS ADVISORS, TRY TO DETERMINE IN ADVANCE HOW SYMPATHETIC THEY MIGHT BE TOWARD HELPING YOU CARRY OUT YOUR PROFESSION IN A FOUR-YEAR COLLEGE. BE PREPARED TO CLOSET YOUR TENDENCIES TOWARD A CAREER IN COLLEGE TEACHING IF YOU REALLY WANT TO WORK WITH DR. X.
4. BE PREPARED TO DEVELOP A SUSTAINABLE, EXTERNALLY-FUNDED, UNDERGRADUATE RESEARCH PROGRAM IF YOU ARE AIMING FOR THE INCREASING NUMBER OF POSITIONS REQUIRING THIS.
5. PLAN POST-DOC AROUND ITEM 4. NOT REQUIRED FOR MANY POSITIONS, HOWEVER.

## V. SECURING A POSITION: STRATEGIES AND TACTICS

### A. TYPES OF POSITIONS

1. TEMPORARY (VISITING ASST. PROF., 1-2 YEAR). DON'T OVERLOOK THESE. CAN BE EXCELLENT EXPERIENCE AND A GOOD STEPPING STONE. HOWEVER, MORE THAN A COUPLE NO LONGER INCREASE YOUR COMPETITIVE ADVANTAGE OVER "ROOKIES", AND, IN FACT, CAN RAISE QUESTIONS, EVEN IN TODAY'S TIGHT MARKET.
2. FIXED-TERM, WITH ZERO OR SOME CHANCE FOR CONVERSION TO TENURE-TRACK. OFTEN A NATIONAL SEARCH WILL STILL BE REQUIRED, EVEN IF YOU ARE THE INCUMBENT.

3. TENURE-TRACK. FEW AND HIGHLY SOUGHT AFTER, BUT ONLY A SMALL FRACTION OF THE N-HUNDRED APPLICANTS YOU HEAR ABOUT ARE REALLY COMPETITIVE.

## B. INFORMATION GATHERING

1. CRITICALLY SURVEY POSITION ANNOUNCEMENTS IN *PHYSICS TODAY*, AIP PLACEMENT SERVICE *SUMMARY OF OPEN POSITIONS*, PI-NET, DEPT. BULLETIN BOARDS, AND (VERY OCCASIONALLY) THE *CHRONICLE FOR HIGHER EDUCATION*.
2. **DO NOT APPLY FOR POSITIONS IF YOU DON'T MATCH THE QUALIFICATIONS FAIRLY CLOSELY!** A GREAT DEAL OF EFFORT AND MONEY COULD BE SAVED BY ALL PARTIES IF APPLICANTS ADHERED TO THIS. IN OUR PAST HALF-DOZEN SEARCHES, THERE WAS A CLEAR MAJORITY OF APPLICANTS WHO WERE REALLY LOOKING FOR RESEARCH POSITIONS AND WHO HAD ONLY THE FAINTEST IDEA OF WHAT OUR POSITION ENTAILED.
3. FIND OUT AS MUCH AS YOU CAN ABOUT THE COLLEGE AND DEPARTMENT BEFORE APPLYING. SOURCES OF INFORMATION: PETERSON'S GUIDES, WWW LISTINGS, COLLEGE CATALOGS (LOCAL HIGH SCHOOLS OFTEN HAVE LOTS OF THESE), VARIOUS MAGAZINE RANKINGS (U.S. NEWS & WORLD REPORT), FELLOW GRAD STUDENTS, FACULTY HEARSAY, VISITS.

## C. CONSTRUCTING AND MANAGING THE APPLICATION

1. TREAT YOUR APPLICATION WITH THE SAME CARE AND ADHERENCE TO SPECIFICATIONS AS YOU WOULD A RESEARCH GRANT PROPOSAL.
2. ADAPT YOUR COVER LETTER TO THE SPECIFIC POSITION. ADDRESS ALL OF THE SPECIFIC REQUIREMENTS FOR THE POSITION AND YOUR OBJECTIVE QUALIFICATIONS FOR THEM EARLY IN THE LETTER. THE IMPORTANCE OF AN INFORMATIVE, WELL-WRITTEN, AND PROFESSIONAL COVER LETTER CANNOT BE OVER-EMPHASIZED. HOLD IT TO A TWO-PAGE LIMIT.
3. FULFILL ALL APPLICATIONS REQUIREMENTS STATED IN THE ANNOUNCEMENT. THINGS TO KEEP IN MIND:
  - a. BE SURE THAT YOUR TEACHING-RELATED EXPERIENCE AND ACCOMPLISHMENTS ARE PROMINENT IN YOUR LETTER AND RESUME OR VITA.
  - b. DON'T IGNORE RELEVANT POINTS FROM YOUR UNDERGRADUATE EDUCATION. IF YOU CAN DEMONSTRATE AN AWARENESS FOR THE

TYPE OF INSTITUTION TO WHICH YOU ARE APPLYING, DO SO.

- c. STATEMENT OF TEACHING PHILOSOPHY. KEEP IT TO ONE PAGE. IDEALISM IS FINE, BUT DON'T GET CARRIED AWAY WITH A PARTICULAR CURE FOR ALL THE ILLS OF THE CLASSROOM, LAB, OR PROFESSION.
  - d. RESEARCH PLAN. AT THOSE COLLEGES EXPECTING SIGNIFICANT RESEARCH WITH UNDERGRADUATES, THE STRENGTH AND REALISM OF THIS PLAN WILL OFTEN BE A DECIDING FACTOR IN WHO COMES FOR AN INTERVIEW.
  - e. BE SURE THAT AT LEAST ONE LETTER OF RECOMMENDATION WILL BE INFORMED AND CONVINCING ABOUT YOUR TEACHING SKILLS AND POTENTIAL.
  - f. DON'T SEND COPIES OF RESEARCH PUBLICATIONS UNLESS SPECIFICALLY REQUESTED.
- 4. HAVE SOMEONE WITH EXPERIENCE READ YOUR STANDARD APPLICATIONS MATERIALS, WITH RED PEN IN HAND.
  - 5. BE PREPARED FOR TELEPHONE INFORMATION GATHERING AND INTERVIEWS. KEEP YOUR E-MAIL AND TELEPHONE MESSAGES COVERED. AVOID UNNECESSARY CALLS AND E-MAIL TO THE PERSON LISTED IN THE AD OR ANNOUNCEMENT.

## VI. CONCLUSION AND QUESTIONS