Establishing Scientific Identity: Strategies in Developing a Successful Career in Research

Mildred S. Dresselhaus
Massachusetts Institute of Technology

Second APS workshop for Survival Skills for Successful Women Physicists
On the Job Survival

- Get a good technical background – then you can more easily do what is expected and a little more

- Have enough time at work to do world class science
  - Selective neglect of unimportant assignments
  - Set priorities

- Develop organizational skills to get expected work done quickly – to have time for science at cutting edge
  - Expected work in academia: proposal writing, reports, mentoring students, service work
  - Expected work in industry, government labs: has corresponding categories

- Develop your personal equation of success
  - Get balance in your life – family, interests
  - Find the level of professional activity that is appropriate for you

- Service work
  - Minimize at early stage of career
  - Select items where you can contribute more uniquely
  - See where you can personally be most effective
  - Focus on high impact activities
  - Give small time commitment but emphasize high impact for service work
Advancing Your Own Career

• Important to have job with the following characteristics:
  o Job that allows you to develop your research career
  o Enough time for work on research that advances your career
  o Opportunity to take risks
  o Allows opportunities for change of fields
  o Provides good facilities for research
  o Provides good research environment – helps generate novel ideas
  o Has good colleagues, collaborators
  o Has good students
  o Allows you to keep your options open

• Choice of topic for research
  o What I can do better than other people
    ▪ Perhaps because of prior experience
    ▪ Perhaps because of better facilities
      o Choose topic that excites you
      o Choose topic that others care about
      o For high risk problem with students – have safety net for them
      o Consider availability of funding
        Examples from my own experience:
        ▪ Magnetic field controlled phase and phase transitions
        ▪ Coherent generation of phonons

• Finding mentors
  o Helping you with your career generally
  o Advising you on decisions
  o Recommending you for invited talks, invited review articles, committee memberships, etc
Summary of Survival Skills

- Applies to both men and women.
- Opening the door
  - Take advantage of opportunities when they arise
  - Be productive in generating opportunities for yourself
- Get a good education – breadth and depth
  - continue growth with field
  - special considerations for women
    - can expect more demands on their time during pre-tenure years (e.g., raising a family or extra service assignments)
    - Respond to heavier demands with increased efficiency, and selective neglect
- Establish a scientific identity of your own
  - Differentiate yourself from your advisor – he/she may get more credit for your work than he/she deserves
  - Do PhD in one area (A) – post-doc in another area (B)
  - Establishes scientific identity in AB
    - My own examples:
      - magneto-optics in semiconductors and semi metal-graphite
  - Find your own niche
  - With luck, make a discovery that attracts attention, and make presentations that clearly describe the advance that has been made.
• In applying for a job, it helps to come from a good place
  o Good resources to do work
  o Good training opportunities
  o Evaluators will pay more attention to you

• In deciding between more than one job offer
  o Consider which offer gives better opportunity for advancing your career to meet your own goals
  o Good facilities and resources for research
  o Technically strong colleagues and students
  o Welcoming colleagues, supervisors
  o Are people likely to evaluate your achievements objectively
  o Good opportunities for growth, advancement
  o Adequate salary, reward structure