Grantwriting and Obtaining Funding: Essential Strategies for Women in Physics

ICWIP2008
Seoul, Korea

Beverly Karplus Hartline, Ph.D.
Delaware State University
USA

Got Dreams?

- **Sponsorship of Conference IV?**
- **Scholarships for students?**
- **A research lab or project of your own?**
- **Research equipment?**
- **A computer?**
- **Faster Internet access?**
- **Improved science in local schools?**
- **Science camps for girls?**
- **Access to research literature?**
- **Solve problems in your country and community?**

Need Money!

Women in Physics: Africa and Middle East
B.K. Hartline 18 March 2007

The Funding Process Simplified

- **Grantees want money**
- **Sponsors and Donors have money they want to give away**
- **Sounds like a perfect match, *except:***
  - **Demand exceeds supply $\Rightarrow$ sponsor's market**
  - **Funding usually comes with strings attached**

Context for Physics Funding

- **Government R&D and education budgets and trends**

- **Extent to which physics solves problems of national need and interest**

- **Private foundation interest and resources**

- **Everyone wants and needs funding, so the competition can be fierce!**

- **Typical form of funding: scholarship, grant, or contract**

To get funding,

usually you have to ask for it

and say what you want it for

<p style="color:red; font-weight:bold">WRITTEN APPLICATION</p>

<p style="color:red; font-weight:bold">OR PROPOSAL</p>

Most Grants and Scholarships are **Not** Blank Checks

The Faustian Bargain: if you accept the money

- **You must do what you proposed and the sponsor therefore wants and expects**

- **You must satisfy the sponsor's accountability requirements**

- **Frequent communication with the sponsor is a very good idea**

➢ **Be very careful about preparing and submitting a proposal, if are not interested in the project**

How Does It Typically Work?

- **People write a proposal to obtain funding that will allow them to do a specific project they want to do**

- **Sponsors review proposals, and fund the projects and grantees they judge to be BEST**

  - **Best means most likely to accomplish something THE SPONSOR wants done,**

  - **Best means most likely to result in some other benefit desired by SPONSOR**

- ➢ **What's in it for grantees? Money**

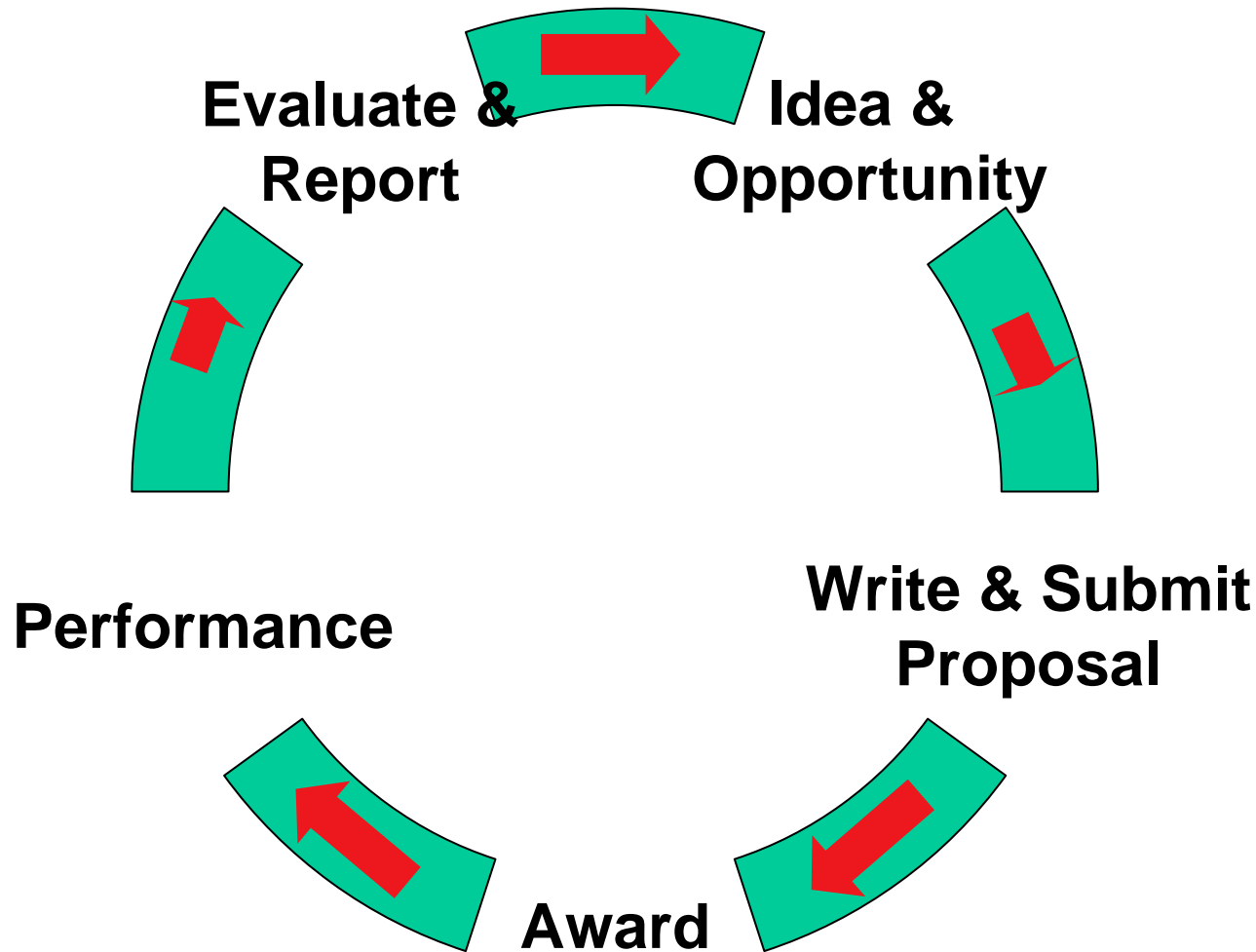- ➢ **What's in it for sponsors? Advancing their agenda or image**

The Grant Cycle

- **Sponsor issues solicitation or prospectus (sometimes)**
- **Applicant prepares and submits proposal**
- **Sponsor or peers review/evaluate proposals**
- **"Best" proposals selected for funding, sometimes after negotiation and budget/scope adjustment**
  - **Other proposals rejected or deferred**
- **Funded grantee does the work**
  - **Cultivating strong relationship with sponsor**
  - **Satisfying sponsor's requirements**
- **Grantee completes project, closing budgets and finishing the work, including final report, if needed**
- **Grantee prepares and submits new/renewal proposal**

The Grant Cycle

Evaluate & Report → Idea & Opportunity → Write & Submit Proposal → Award → Performance → (cycle continues)

General Questions

- **Who sponsors grants?**
- **How much money can one get?**
- **What does the grant have to be about?**
- **What are the chances of getting funding?**
- **Other?**

Developing the Proposal

- **What do you want to do? The project idea**
- **Why is it worth doing and even important?**
- **How do you plan to do it? The approach**
- **What benefits and results do you expect?**
- **Who will do it and what are their qualifications?**
- **How much money do you need?**

Take 5 minutes & write down

- **What do you want funding to do? The project idea**
- **Why is it worth doing and even important?**
- **What benefits and results do you expect?**
- **How much money do you need?**

Questions for a Research Proposal

- **What is the research problem?**

- **Why is the research needed?**

- **How significant is the proposed idea?**

- **How does the project relate to and build on existing knowledge? Who else is working in this area?**

- **Might the project lead to future breakthroughs?**

- **Are there potential applications or broader impacts?**

- **How might the project advance knowledge within and across disciplines?**

- **Uniqueness? Investigator qualifications? Methodology?**

- **Theoretical basis? Soundness of plan and approach?**

Sources of information

- **Friends, colleagues, proposing organization, other organizations**
- **Physics literature**
- **Library**
- **Internet**
- **Other...**

Design the Approach

- **Brainstorm many alternative approaches**
- **Evaluate each, select (or create) the best**
- **Optimize and develop the plan**
- **Criteria for selection and optimization**
  - **Feasibility and effectiveness**
  - **Suitability and match to applicant, funder, community, available infrastructure**
  - **Uniqueness**
  - **Anticipated impact**
  - **Utility, practicality, sustainability**
  - **Cost effectiveness, schedule**

Finding A Promising Funding Source and Sponsor

Seek Funder-Project Match

- **Shared mission and goals**
- **Shared constituency**
- **Common core values and "culture"**
- **Similar image, motto, vision**
- **Shared "market"**
- **Interest in product or result**

Women in Physics: Africa and Middle East
B.K. Hartline 18 March 2007

Types of Funders

- **Public**
  - **National government**
  - **State or provincial government**
  - **Local government**
  - **International: UNESCO, European Union, ICTP. . .**
- **Private (everything else)**
  - **Foundations**
  - **Corporations and businesses**
  - **Professional and trade associations**
  - **Service clubs**
  - **Wealthy Individuals**

Women in Physics: Africa and Middle East
B.K. Hartline 18 March 2007

Public Sponsors

- **Advantages**
  - **Lots of money; often make large grants/contracts**
  - **Purpose set by legislation**
  - **Likely to cover all costs, including overheads**
  - **Known application process, criteria, deadlines**
- **Disadvantages**
  - **Bureaucratic, often require cost sharing**
  - **Reviewers favor experienced applicants, low risk**
  - **Proposals longer, often many stipulations**
  - **Programs rise and fall with political winds**
  - **Many requirements, therefore higher cost**

Private Sponsors

- **Advantages**
  - **Usually less bureaucratic and more flexible**
  - **Welcome innovative proposals, emerging issues**
  - **Proposals often simple, short**
  - **Can help leverage large public grants, provide non-cash support**
- **Disadvantages**
  - **Smaller grant size**
  - **Priorities can change rapidly**
  - **Process, policies, and procedures less defined**
  - **Review/approval process less "transparent"**
  - **Often won't pay all costs or overheads**

The "Fit" is Key

- **The "fit" between your idea/project and the sponsor's interests is key**
  - **Learn as much as possible about the sponsor**
    - *What has it funded recently?*
  - **Know the eligibility requirements**
  - **Understand the selection process**
  - **Know the selection criteria**
  - **Know and address any special requirements**
- **Make sure the proposal clearly demonstrates how your project satisfies sponsor's criteria and requirements: Who has the money, writes the rules!**

Take 5 minutes

- **Think of some possible funding sources for YOUR idea?**

- **Why would they care and want to support your project?**

It's Your Job to Understand the Funding Agency

- **History, mission, and purpose**
- **Geographic service area and population served**
- **Current programs**
- **Size and purpose of grants**
- **Its rules and guidelines**
- **Background and experience of staff**
- **Its future plans**
- **Its funding sources**
- **Its competitors and collaborators**
- **Any special contacts or connections with you?**

Women in Physics: Africa and Middle East
B.K. Hartline 18 March 2007

Resources for Finding Funders

- **USA Federal Agencies: http://www.grants.gov**
- **USA: The Foundation Center: http://www.foundationcenter.org**
- **USA: Chronicle of Philanthropy: http://chronicle.com**
- **USA: GuideStar: http://www.guidestar.org**
- **International: "The Global Landscape Analysis of Donor Support to Science, Technology, and Knowledge for Development" by Sara Farley: http://www.scidev.net/pdffiles/africancapacity/SFarley_London.pdf**
- **Organizations identified by Working Group members**
- **Web pages of specific funders**

Likely similar resources in Your Country/Region

Third World Academy of Sciences (TWAS)

- **Gives Grants and Prizes**
  - **Research grants: up to US$10,000: 1 July, 1 Dec.**
  - **Research Units in Least Developed Countries: up to US$30,000: 31 August**
  - **Spare parts for scientific equipment: up to US$1,000**
  - **ICTP-TWAS Electronic Journals Delivery Service: will email individual scientific articles**
- **For more information: http://www.twas.org**

Advice for Contacting Funders

- **<u>Do</u> contact them, but do your homework FIRST**
- **Follow their guidance**
- **Make a good first impression by planning well**
  - **Get to the point**
- **Cultivate a relationship**
- **Follow their rules when you apply**
- **Don't bother them right after the deadline**
- **Send thank-you notes**
- **If funded, keep them informed, invite them to visit**
- **If not funded, request feedback**

Planning the Grant Writing

- **When do you want to start the project?**
- **What grant-submission deadline must you meet?**
- **Is the plan/project clear? Does it need development?**
- **What are the selection criteria? Does your project meet them?**
- **What information do you have in hand?**
  - **What goes in each proposal part?**
- **What do you need? Who do you need it from? How will you get it?**
- **Do partnerships need nurturing? Support letters?**
- **What review do you want/ need before submitting?**
- **What competing obligations do you have?**
- **How will you divide the proposal preparation among team?**

Typical Selection Criteria

- **Quality and soundness of project approach: goals, outcomes, activities, plans**
- **Need and potential impact**
- **Budget**
- **Performer capability: 'proof' you can succeed**
- **Plan for the future (sustainability or follow-up)**
- **Evaluation methods and plan**

Example Selection Criteria (1)

- **National Institutes of Health, USA**
  - **Significance: importance of problem; knowledge advancement; effect on the field**
  - **Approach: developed, integrated, and appropriate**
  - **Innovation in concepts, approaches, methods, aims**
  - **Investigator: trained, qualified, appropriately experienced**
  - **Environment and institution: support, uniqueness, ability to enable success**
- **Individual Donors**
  - **Usually informal process and criteria**
  - **Relationships often very important**

Example Selection Criteria (2)

- **National Science Foundation, USA**
  - **What is the *intellectual merit*?**
  - **What are the *broader impacts*?**
  - **Specific additional criteria specified in the solicitation, such as qualifications of applicant/institution, management plan, diversity, education, partnerships, knowledge transfer, value added**

- **Private Foundations**
  - **Generally focused on Foundation's purpose**
  - **May be "by invitation" only**
  - **May use formal review or simply judgment of its staff**
  - **Check the Foundation's web site & tax forms ("990's")**

Women in Physics: Africa and Middle East
B.K. Hartline 18 March 2007

Organizations Seeking Grants

- **Often have policies and approval processes**
- **Usually include budget guidelines (overheads, etc)**
- **Might have in-house forms for approval process**
- **Might have rules about how its information and statistics may be used**
- **Might have explicit procedures, roles, and responsibilities for managing an awarded grant**
- ➢ **Be sure to understand, allow for, and follow your organization's procedures and rules**

Parts of a Proposal (Typical)

- **Cover letter, title page, abstract or project summary**: introduce the project, performer, and amount requested

- **Problem statement & context**: problem addressed; who cares & why?

- **Project description**: goals, objectives, and approach

- **Evaluation plan**: explains how outcomes will be measured

- **Future plans**: how will work continue after grant is over?

- **Applicant capability**: evidence applicant can succeed

- **Budget**: table & narrative explaining budget details

- **Supporting material**: letters of support, bios, audited financial statement, other documentation funder requires

Grant-Writing Tips

- **Write for the reader (smart, but non-specialist)**
- ***Follow the sponsor's latest guidance and use the latest templates!!!! Meet the deadline!!!***
- **Be clear: What? Why? How? Who Cares?**
- **BE BOLD! AND CLEAR!!**
  - **Use language that creates interest & enthusiasm**
- **Systematically address any criteria and show close fit with sponsor's interests**
- **Ensure budget and duration are realistic**
- **Show team members' and partners' qualifications and commitment, matched to the work**
- **Describe specific milestones, deliverables, benefits**

Women in Physics: Africa and Middle East
B.K. Hartline 18 March 2007

General Tips

- **Tap others** to refine the idea and approach
- Get a **complete draft** as early as possible
  - It is easier to cut to fit, than to rush to find missing parts
- Have **colleagues pre-review** drafts before you submit
- For a large, complex proposal with many partners
  - Create the team early and ensure administration 'buy-in'
  - **Establish and enforce deadlines** that allow at least two internal review cycles of the full proposal before submission
  - Involve people outside the team in the **final review** (in brainstorming, too)
- **Be concise and clear**: Reviewers are busy people, too
- **Avoid last-minute rushes**: the quality ALWAYS suffers

Reviewers and Grant Managers are People Too

- **Personalities and networks**
- **Knowledge**
- **Interests**
- **Tastes**
- **Learning style**
- **Fears and biases**
- **"Marching orders" and job description**

➢ **Know and talk to grant managers and to people, who are frequently reviewers**

➢ **Volunteer to be a reviewer—the best way to learn!**

What came first:

The winning proposal?

or

The successful track record?

Women in Physics: Africa and Middle East
B.K. Hartline 18 March 2007