

Navigating a World of Career Options

For Physics Bachelors
Degree Graduates



Crystal Bailey, PhD
American Physical Society

Some Questions

Out of a class of 100 undergraduate physics majors...

How many do you think will go straight to work after getting their BS?

39

(23 will go to work in the private sector, making \$51K - \$62K starting, on average)

How many do you think will become permanent physics professors?

5

(14 will actually complete a physics PhD, and only **one-third of those** will get a faculty job)

Where Physicists Work

- Private Sector

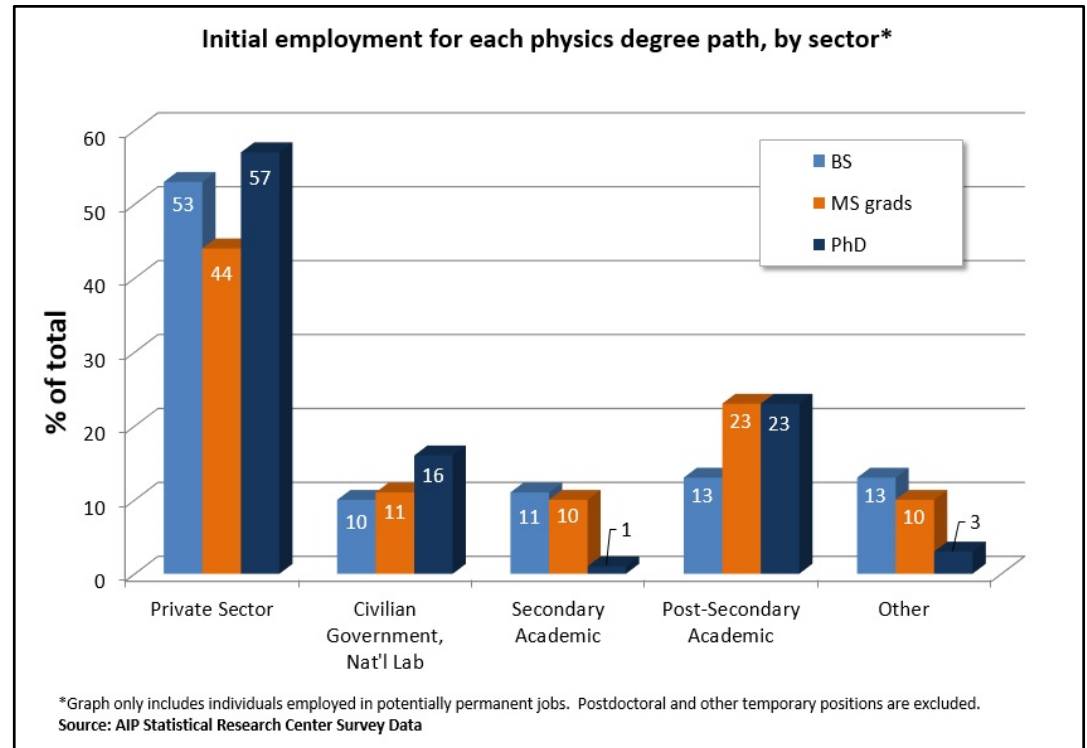
- *BS: comp. science and engineering, teamwork*
- *MS: management, some research*
- *PhDs: scientific research, product development*

- Academic Sector

- *BS: primarily high school teaching*
- *MS: lab coordinators, HS and college teaching*
- *PhDs: permanent professors*

- National Lab/Government

- *BS: technician, assisting users*
- *MS: management of instrument teams, patent work, engineering*
- *PhDs: senior research staff, oversee large operations*



Physics Workforce Summary

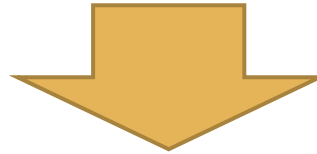
- Faculty positions are NOT the most common career path for physicists!
- Industry is the largest employment base for Physics PhDs...
...and for Physics Masters
....and Physics Bachelors.

You can find a career which aligns not only with your interests, but also your values, by keeping your mind and eyes open!

How Do I Start??

Self Assessment

Skills, interests, AND values



Exploration

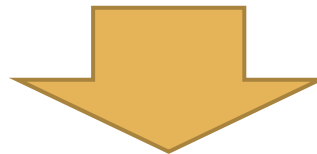
Which Careers Fit?

Skills Inventory

Gathering transferrable skills

Networking (passive)

Establishing Connections

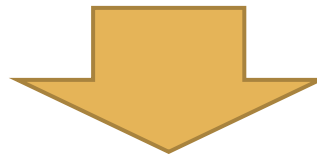


Job Search/Applications

Focused search for opportunity

Networking (active)

Utilizing connections to find opportunity



Interview, Negotiation

Connecting the dots between you and the job

Careers: A Broad View

A successful career means building connections between:

- Skills Sets

Does your skill set match the skill set needed for the job?

- Interests

Will you find this job intellectually stimulating and/or rewarding?

- Values

*Is this job a good match your future lifestyle goals? or,
Are the differences something you can reasonably adjust to?*

A detailed self-assessment
of skills *and values* is what
will help you achieve the
perfect fit.



An Activity: Future Career Goals

5 minutes- Compose a List of Your Career Goals/Values

- Doing interesting research
- Making a difference in people's lives
- Having a flexible schedule
- Working with other people
- Having a well-defined work schedule
- Making MONEY!!!

5 minutes- Compose a List of Future Job Titles

- Graduate Researcher
- Postdoc Researcher
- Professor
- National Lab Scientist
- High School Teacher
- Community College Teacher
- Entrepreneur
- Lab Director



Graduate
Researcher?

- Enjoys building things in lab
- Works hard, self-motivated
- Likes being creative
- Comfortable taking risks
- Enjoys being a leader
- Wants to make BIG money

Entrepreneur? Director of a
Science Center?



Physics
Teacher?

- Finds science interesting
- Enjoys explaining concepts
- Confident being social
- Enjoys talking to people
- Is persuasive
- LOVES to travel

Sales and Marketing?
Technical Consultant?

Many careers will match your talents, values and abilities.

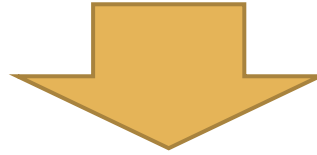
The first step is knowing **YOURSELF**, before you decide which careers to further explore.

- Strong[®] Interest Inventory
- Myers-Briggs[®] Personality Test

These tests are often available
FREE, or at minimal cost, from
Campus Career Services!!

Self Assessment

Skills, interests, AND values
Self assessment tools, Strong®, Myers Briggs®



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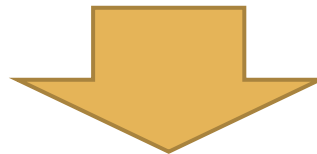
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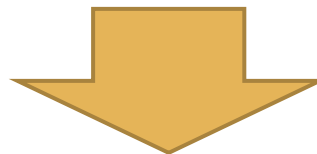


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Informational Interviews

Making the connection means understanding not only your values and interests, but also the *jobs*. Informational interviews are your secret weapon.

- 30-minutes
- talk to a person from an industry or company of interest
- *you* ask the questions!

Getting informational interviews is easier than you think!

- Networks (Alumni, Prof. Societies)
- *LinkedIn*[®]

Activity: Using LinkedIn®

Most (80%) of people get their jobs through 2nd degree connections.

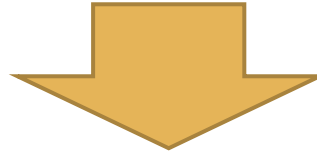
LinkedIn® is your #1 tool in discovering new connections and new opportunities.

Homework:

- Complete your LinkedIn profile at this conference
 - *Picture!!!*
 - *Educational Information (e.g. high school, college)*
 - *Transferrable Skills (volunteering experience, research, hobbies, etc.)*
- Connect with 10 individuals at this conference!!
 - *Other Students*
 - *Mentors*
 - *Speakers*

Self Assessment

Skills, interests, AND values
Self assessment tools, Strong[®], Myers Briggs[®]



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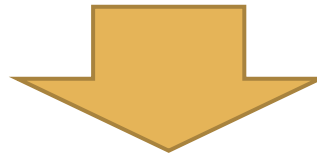
Which Careers Fit?
Informational Interviews
Networking events

Skills Inventory

Gathering transferrable skills

Networking (passive)

Establishing Connections
LinkedIn[®]
Conferences

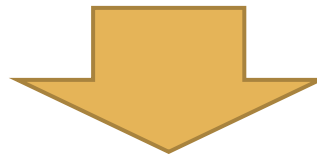


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Interview, Negotiation

Connecting the dots between you and the job

Activity: Assessing Transferrable Skills

5 minutes- Identify Transferrable Skills (not just technical skills!!)

- Created device controller using LabView
- Designed, built and tested new electrical component for experiment
- Used oscilloscope to isolate and minimize RF noise in circuits
- Built components using a drill press, lathe, band saw, etc.
- Served as president for local SPS chapter
- Volunteered to do outreach at local high school
- Speaks several languages fluently
- Etc.

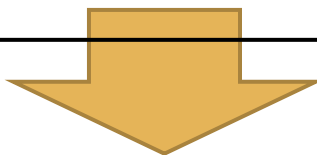
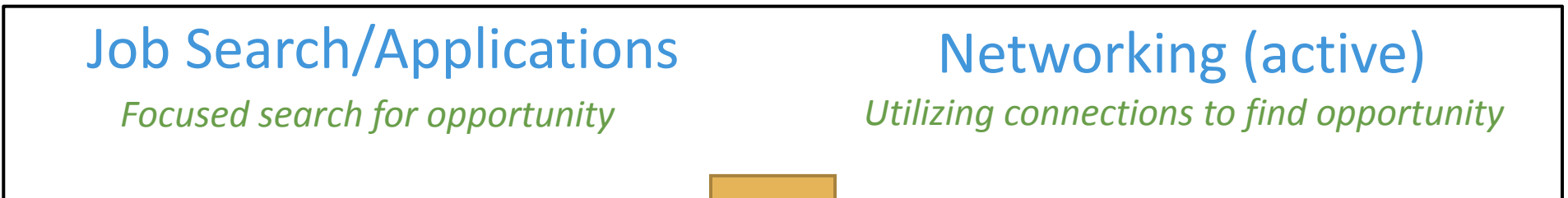
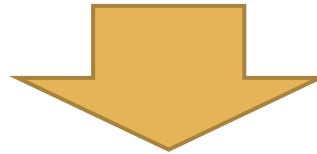
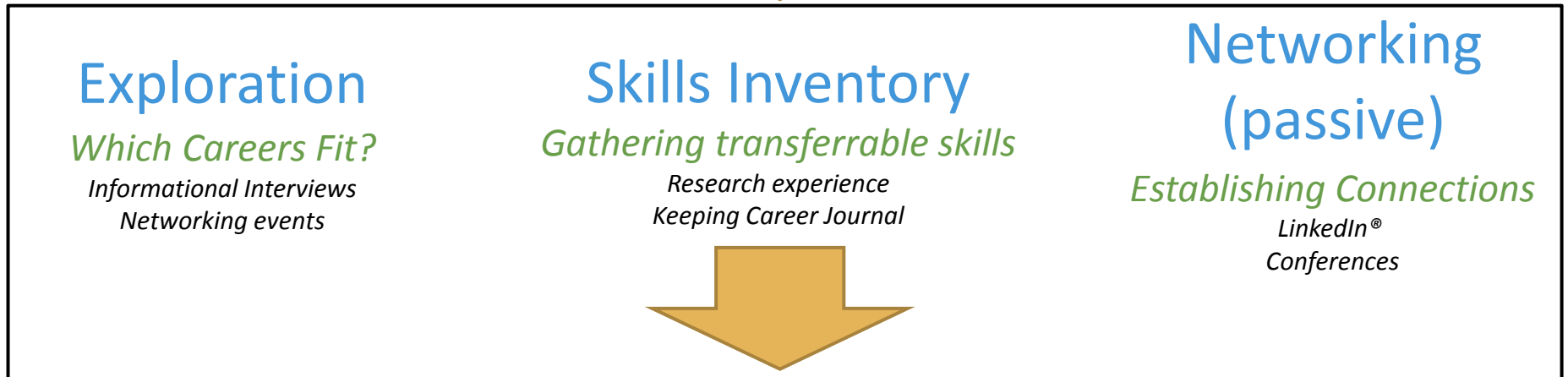
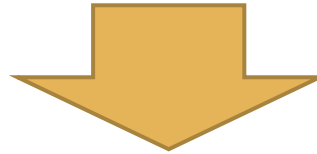
Tips for Writing Transferrable Skills:

- Word bullet points in the active voice, e.g. “Designed,” “Developed,” “Manufactured.”
- Avoid repeating verbs—mix it up.
- Group bulleted skills under common categories, e.g. “Analytical Skills”, “Leadership Skills,” etc.
- Follow each bulleted item with (your title, the institution, and the relevant dates)

Continue to add to your stash of resume “building blocks”! Keep a Careers Journal and Write Regularly!

Self Assessment

Skills, interests, AND values
Self assessment tools, Strong®, Myers Briggs®



Interview, Negotiation

Connecting the dots between you and the job

Job Search/Networking

- Visit the APS Job Board
- Job Fairs
 - Professional Meetings
 - Campus Career Fairs
- Talk to EVERYONE you meet or know!

<http://careers.aps.org>



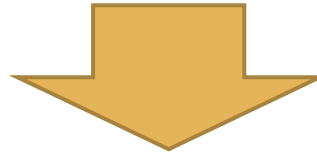
Writing A Resume

- CVs are not the same as Resumes!!
 - CV is long, lists ALL experience—even if it's not relevant to the job
 - Resumes are ONE PAGE, and only include information relevant to a specific job
- Learn to write a Skills Based resume:

<http://go.aps.org/physicsresume>

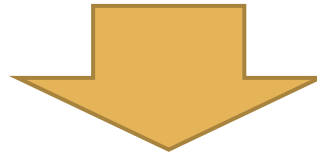
Self Assessment

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Skills Inventory

Gathering transferrable skills
Research experience
Keeping Career Journal



Networking (passive)

Establishing Connections
LinkedIn®
Conferences

Exploration

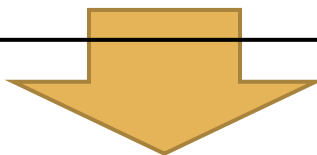
Which Careers Fit?
Informational Interviews
Networking events

Job Search/Applications

Focused search for opportunity
Job boards, career fairs
Effective, focused resume

Networking (active)

Utilizing connections to find opportunity
Reach out to contacts
Talk to people in everywhere



Interview, Negotiation

Connecting the dots between you and the job

What's Next?

If your resume does *its* job, you'll soon be faced with other questions like:

- Interviewing
 - How do I prepare myself? What can I expect?
- Negotiation
 - Should I negotiate my offer? What strategies can I use?
- Following Up
 - What are the standard practices? What if I don't receive an offer?

APS Online Professional Guidebook

- Features 5-minute “webinette” clips from the top APS careers webinars
 - APS webinar “*Putting Your Science to Work*,” with Peter Fiske
 - APS webinar “*Career Self-Advocacy: How I Got A Six Figure Job in the Private Sector*,” with Meghan Anzelc
- Topics include self-assessment, networking, interviewing and negotiation strategies, and more.







<http://go.aps.org/physicspdguide>

Other APS Resources

- Library of Physicist Profiles
 - Advice from physicists representing a diversity of degree paths and careers
- Job Prospects Pages
 - Profiles feature the most common career paths for physicists
 - Includes day to day activities, additional skills and training needed, salary information, job outlooks

Physicist in a Government Funded Laboratory
Career Profile

 <p>Education BS, MS, or PhD in physics or in a related field</p>	 <p>Additional Training BS level - prior research PhD - prior research or postdoctoral appointment</p>
 <p>Salary BS \$36,000 - \$67,000 PhD \$70,000 - \$95,000</p>	 <p>Outlook BS init. employment: 10% PhDs init. employment: 16%</p>

What They Do
National laboratories employ physicists from a variety of degree paths—BS, MS, or PhDs. Some examples of activities of physics bachelors working in national labs include:



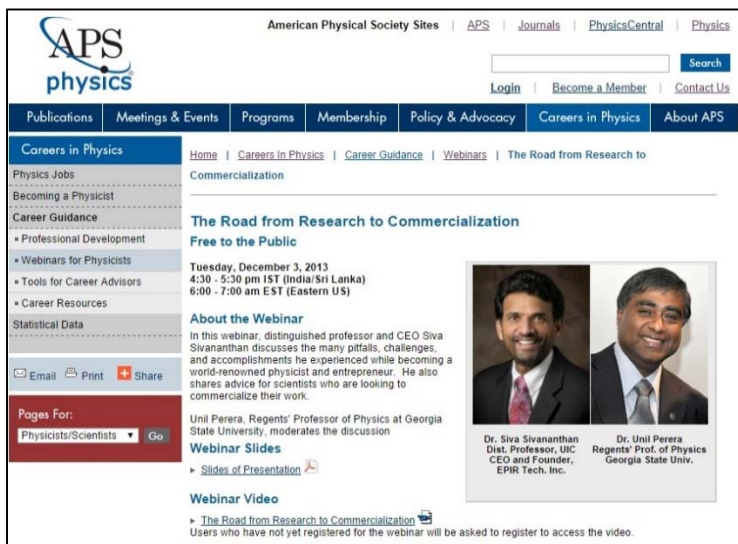
- Serving as an interface between physicists and engineers.
- Turning prototype systems into field-deployable units.
- Testing off-the-shelf or laboratory-developed equipment to determine if it meets experimental requirements.
- Evaluating engineering designs and parts.
- Performing computer simulations.

Physicist Profiles

Physics masters and PhDs working in national labs often find themselves managing resources and people. In addition to doing research. Activities of these physicists in national labs can include:

- Seeking clients and funding for research, either alone or with a team of other scientists. Clients are usually government agencies.
- Researching issues of interest to clients. Research may be performed experimentally in a laboratory or through computer modeling and simulation. Research areas may be classified or sensitive.
- Traveling to field sites to test equipment developed in a laboratory in an actual working environment.
- Interfacing with clients, laboratory staff, and management to report research progress and challenges.
- Developing financial plans to stay within program cost and

Claudia Alexander
Claudia likes to write science fiction and ride horses when she's not studying comets and moons.

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Careers in Physics

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The Road from Research to Commercialization
Free to the Public

Tuesday, December 3, 2013
4:30 - 5:30 pm IST (India/Sri Lanka)
6:00 - 7:00 am EST (Eastern US)

About the Webinar
In this webinar, distinguished professor and CEO Siva Sivanathan discusses the many pitfalls, challenges, and accomplishments he experienced while becoming a world-renowned physicist and entrepreneur. He also shares advice for scientists who are looking to commercialize their work.

Webinar Slides
Slides of Presentation

Webinar Video
The Road from Research to Commercialization
Users who have not yet registered for the webinar will be asked to register to access the video.

Dr. Siva Sivanathan
Dist. Professor, UIC
CEO and Founder,
EPR Tech, Inc.

Dr. Unil Perera
Regents' Prof. of Physics
Georgia State Univ.

- Physics Employment and Salary Information
 - Clearing house for most recent physics employment data from AIP SRC
 - Thumbnails and links to full reports for more information
- APS Webinars Archive
 - On-demand viewing for all webinar presentations

Remember:

- Plan Effectively by Broadening Your Focus
 - *Use your resources to explore your career values and learn about career paths outside of academic physics.*
- Focus on Skills, Not on Labels
 - *Use skills-based resumes and cover letters to connect the dots between the job description and your skill set.*

Visit the [APS Online Professional Development Guide](#) and the [Careers Website](#)

THANK YOU!

BAILEY@APS.ORG