

Undergraduate Brunch: Careers Workshop & Awards

Sunday, April 16, 10:45 am – 12:30 pm

The Gallery, Lobby Level



Getting a Physics Job

How many students go to grad school when they graduate in physics or astrophysics?

- 1) 9%
- 2) 28%
- 3) 48%
- 4) 67%
- 5) Trick question!

Getting a Physics Job

How many students go to grad school when they graduate in physics or astrophysics?

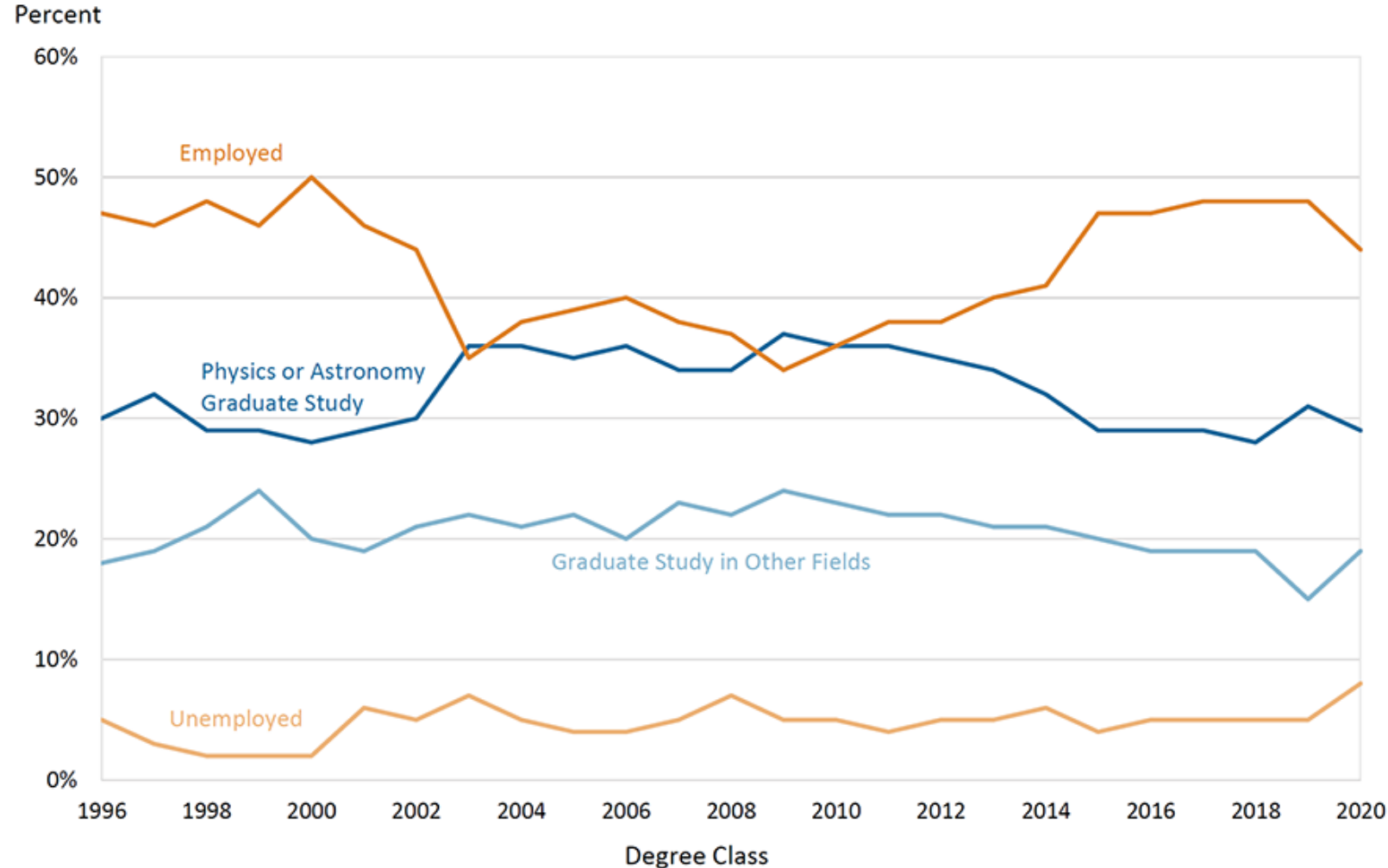
- 1) 9%
- 2) 28%
- 3) 48%
- 4) 67%
- 5) Trick question!

Getting a Physics Job

How many students go to grad school when they graduate in physics or astrophysics?

- 1) 38%
- 2) 48%
- 3) 61%
- 4) 72%
- 5) Trick question?

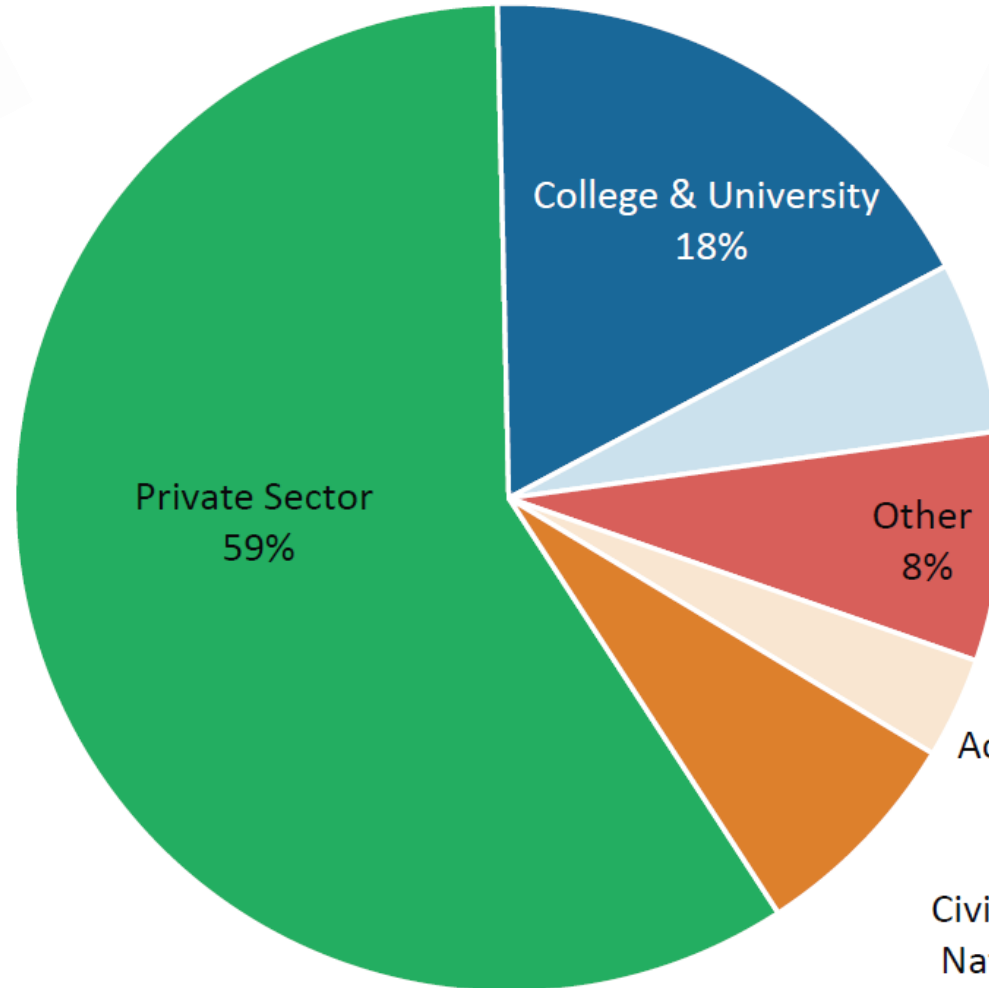
Status of Physics Bachelors One Year After Degree



Take aways

- ~1/2 get a job
- ~1/2 go to grad school
 - 6/10 are in Phys & Astro
 - 4/10 are NOT in Phys & Astr
- We are very employable!
- Most likely option: a job

Initial Employment Sectors of New Physics Bachelors, Classes of 2019 & 2020 Combined



High School
6%

Other
8%

Active Military
3%

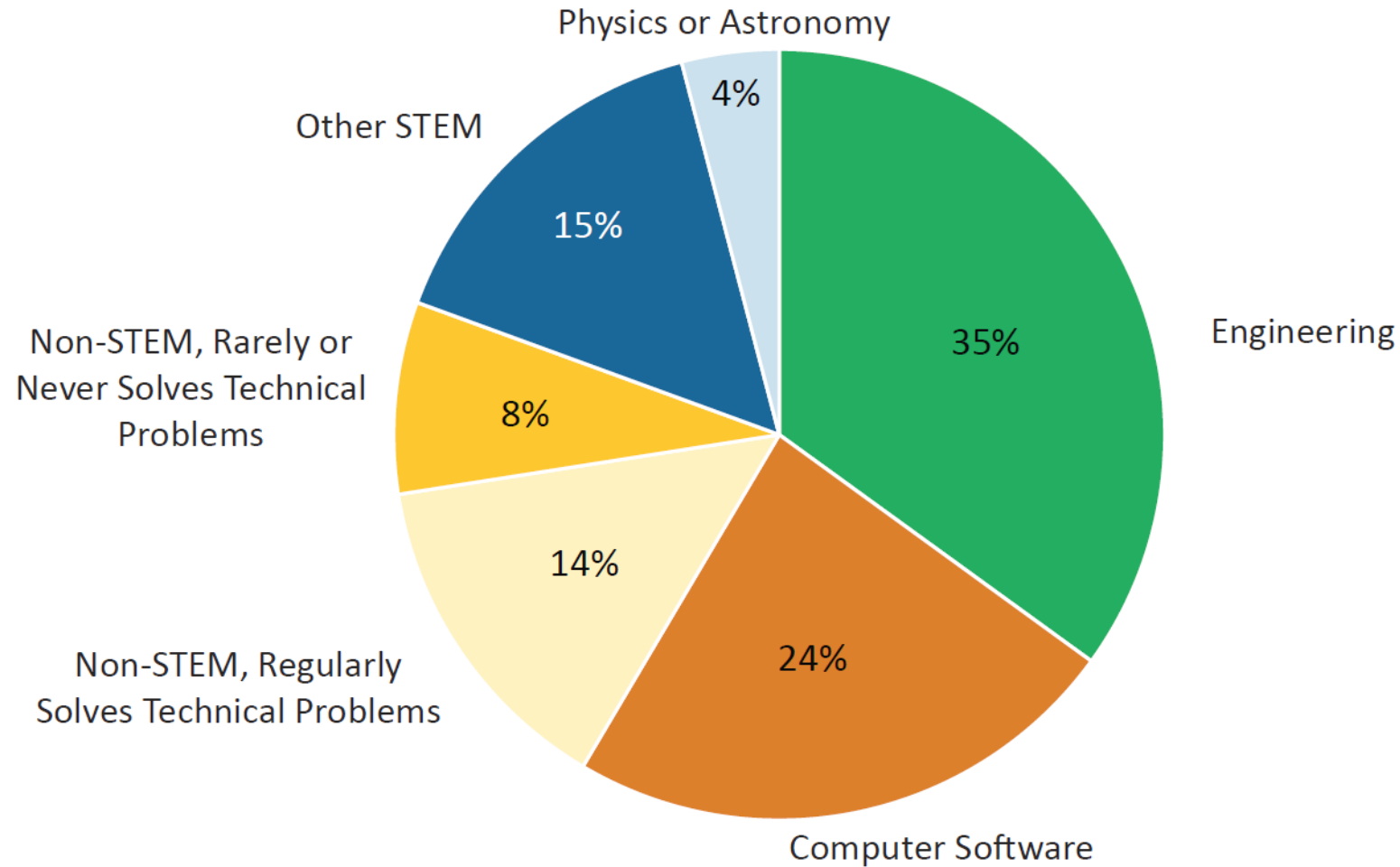
Civilian Gov't,
National Lab
7%

Getting a Physics Job

Where do most physics students who go to the private sector work upon graduation?

- 1) Physics/Astrophysics/Astronomy companies
- 2) Computer hardware or software
- 3) Engineering
- 4) To other STEM fields
- 5) Outside of STEM

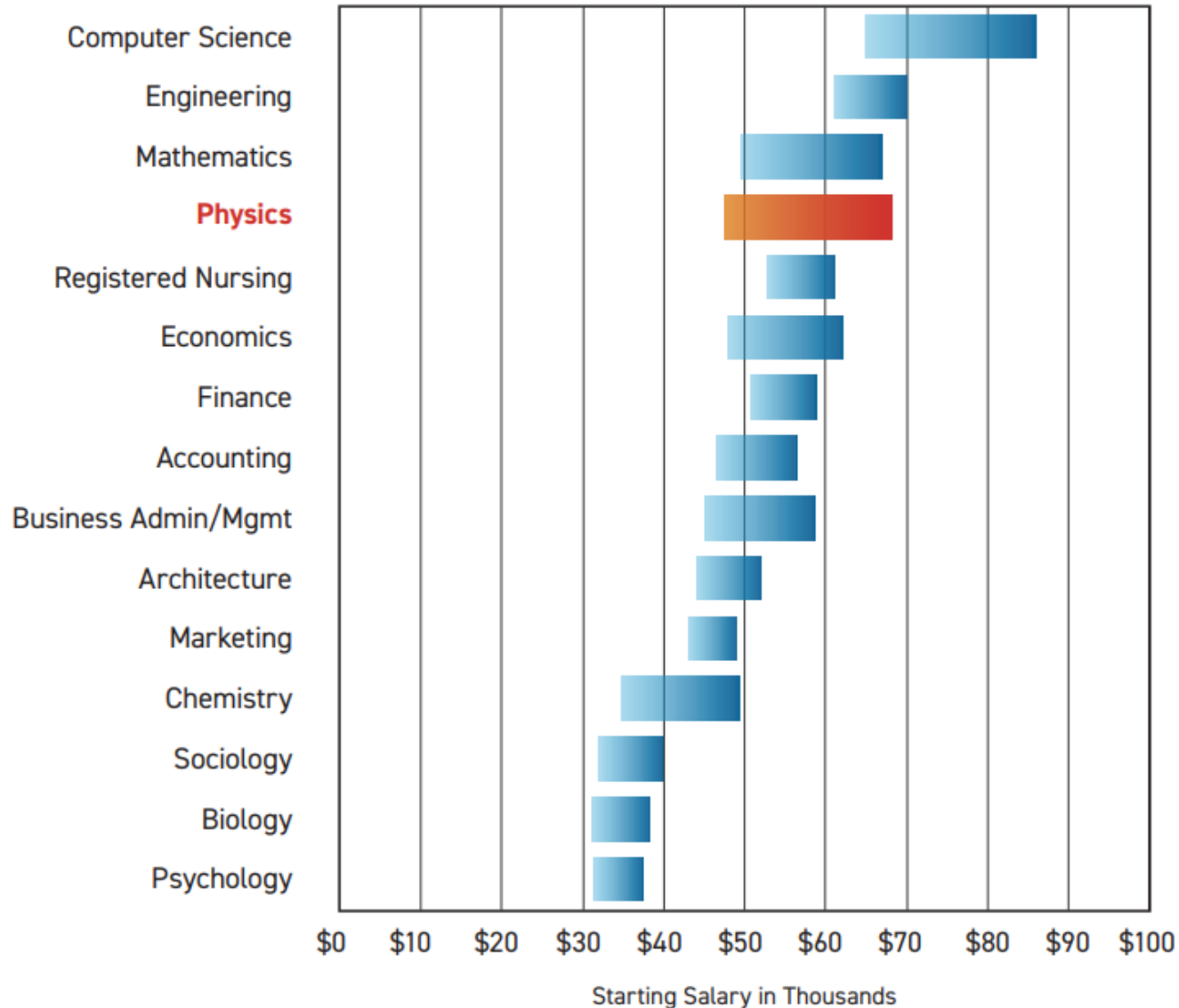
Field of Employment for New Physics Bachelors in the Private Sector, Classes of 2019 & 2020 Combined



STEM refers to natural science, technology, engineering and mathematics. Regularly solving technical problems refers to respondents who selected "Daily", "Weekly", or "Monthly" on a four-point scale that also included "Rarely or Never".

What Do New Bachelors Earn?

Starting Salaries for the Class of 2018



Physics majors are seated in a wide variety of jobs

Often positions that pay more are in the **private sector**

- Work in STEM jobs
- Often associated with coding, hardware, or engineering

~1/5 physics bachelor's degree recipients pursued advanced degrees in other areas.

Bars represent the middle 50% of salaries, i.e. between the 25th and the 75th percentiles.
Reprinted from the Summer 2019 Salary Survey, with permission of the National Association of Colleges and Employers, copyright holder.



Starting Salaries for New Physics Bachelors, Classes of 2019 & 2020 Combined

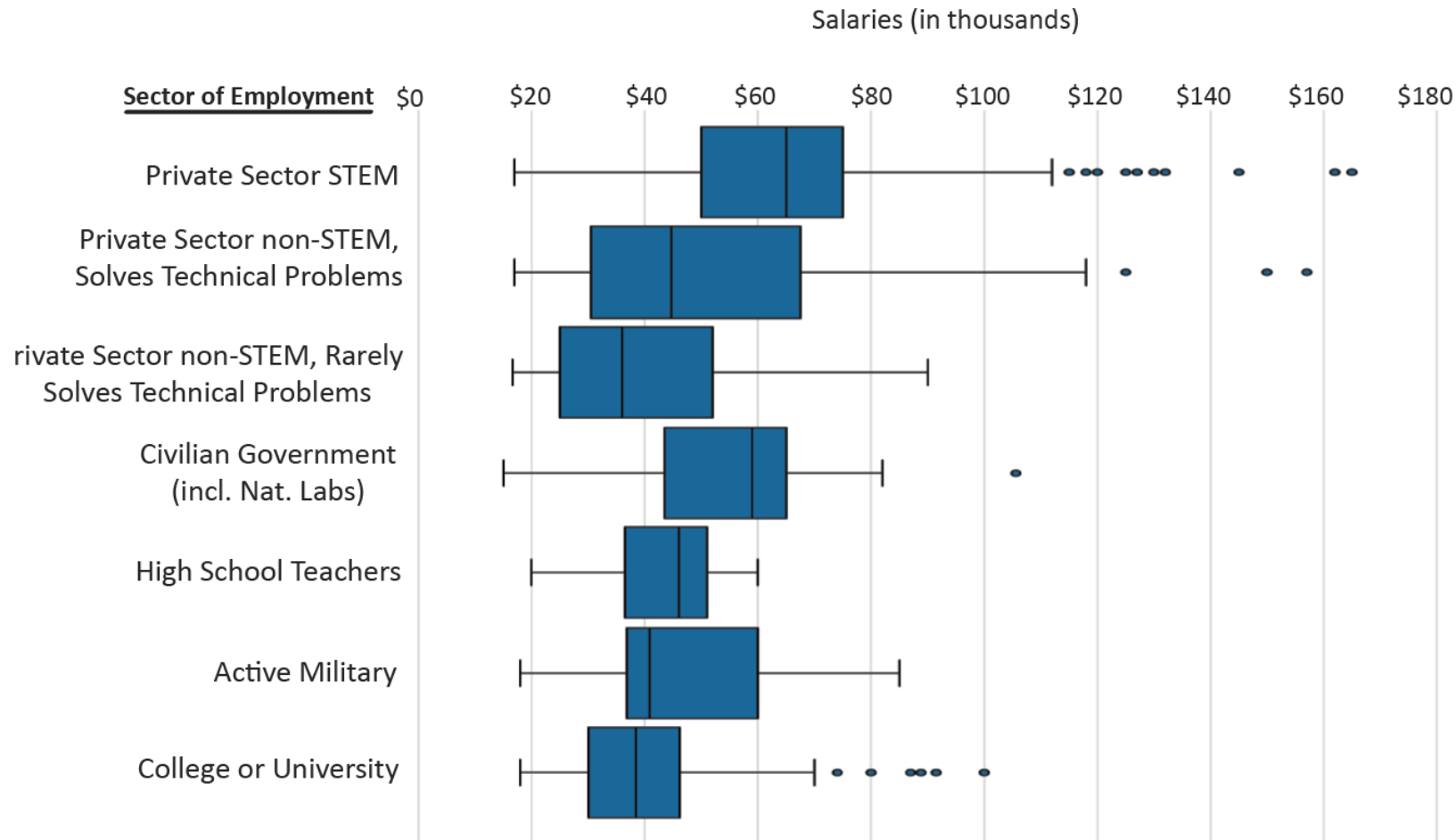
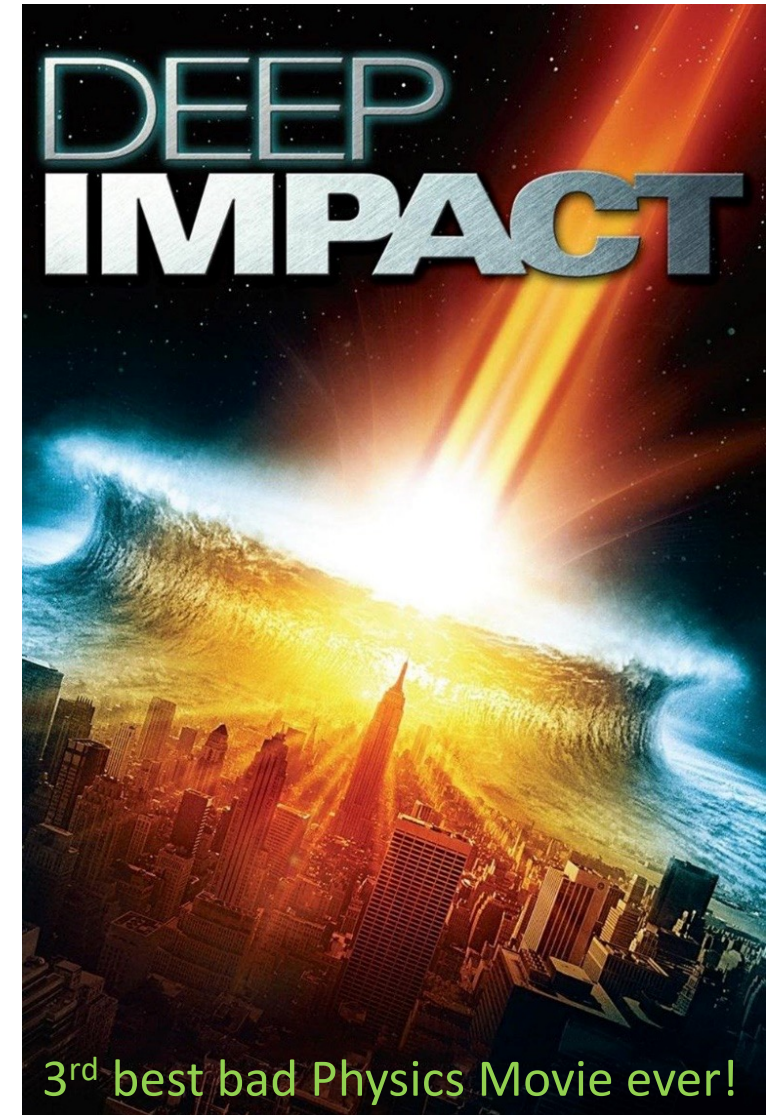


Figure only includes bachelors in full-time, newly accepted positions. The full starting salary range is represented by the lines extending to each side of the box. The box represents the middle 50% (25th to 75th percentile) of the salaries. The vertical line within the box represents the median starting salary for the sector. The dots outside of the lines are statistical outliers. Solves technical problems refers to respondents who selected “Daily”, “Weekly”, or “Monthly” on a four-point scale that also included “Rarely or Never” when asked how frequently they solved technical problems in their position.

Initial Employment of Physics Bachelors

You can use your degree to have a **deep impact** on society

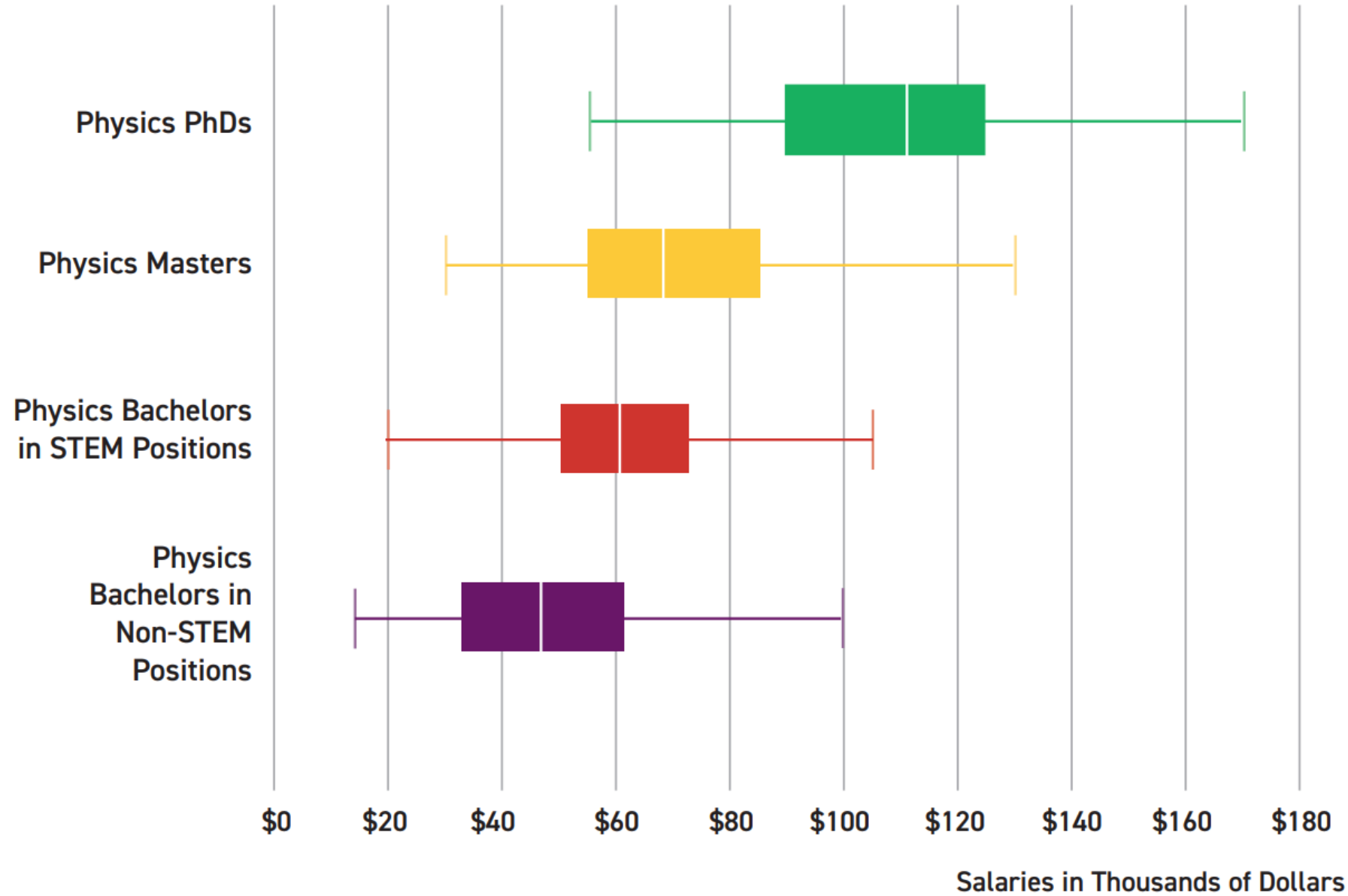
- Yearly schedule (maybe summers off)
- Daily variety
- Salary
- Task flexibility
- Personally rewarding
- *Deep impact on students*
- Strong human connections
- Community Impact
- A true career
- Job Market



3rd best bad Physics Movie ever!

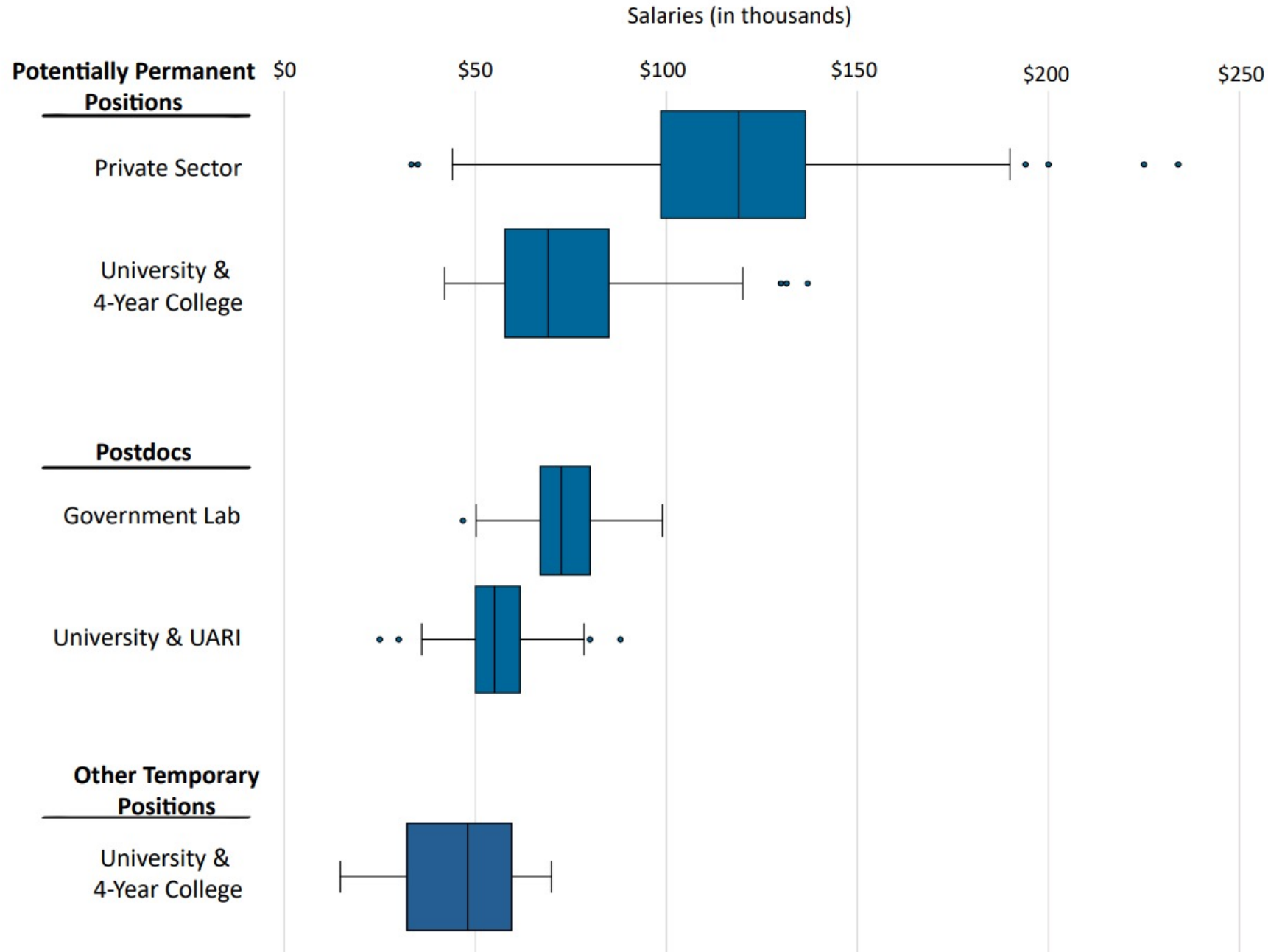
Starting Salaries in the Private Sector

Physics Degree Recipients, Classes of 2017 & 2018



The full starting salary range, excluding outliers, is represented by the lines extending to each side of the box. The box represents the middle 50% (25th to 75th percentile) of the salaries. The vertical line within the box represents the median starting salary. STEM refers to positions in science, technology, engineering, and math.

Starting Salaries for New Physics PhDs, Classes of 2019 & 2020 Combined



Data represents only US-educated PhDs who remained in the US after earning their degrees. The full starting salary range, excluding outliers, is represented by the lines extending to each side of the box. The box represents the middle 50% (25th to 75th percentile) of the salaries. The vertical line within the box represents the median starting salary for the sector. The dots outside of the bars are statistical outliers. Government Lab includes federally funded research and development centers, e.g., Los Alamos National Laboratory. UARI is university affiliated research institute. The data for PhDs holding potentially permanent positions in academia include salaries based on 9-10 and 11-12 month commitments and have not been adjusted. Data are based on respondents holding potentially permanent positions in the private sector (192) and in universities and 4-year colleges (37), postdocs in government labs (101) and universities and UARIs (277), and “other temporary positions” in universities and 4-year colleges (17).

A little bit about me

- UCLA – undergraduate degree
- University of Michigan – PhD in Physics
 - Student org involvement
 - Student government involvement
 - APS Volunteer
- Got my job at APS through networking!
 - Careers Senior Program Manager at APS



A little bit about you?

How many are

- Freshmen/Sophomore?
- Juniors/Seniors?
- Super Seniors?

How many want to

- Pursue national lab careers?
- Pursue academic careers?
- Work in industry?
- Other?





What do physicists do?

What do Physicists Do?

Private Sector

- BS: computer science and engineering, sales/consulting, teaching, medical physics
- MS: management, some research, product development
- PhDs: scientific research, data science, management

Explore Common Career Paths:

aps.org/careers/physicists/prospects.cfm

aip.org/statistics/employment





Examples of Successful Physicists' Careers

aps.org/careers/physicists/profiles

Physicist Profile



Zahra Hussaini, BS,
Site Reliability Engineer

Zahra switched her major to physics to seek a deeper understanding of materials science. As she worked at NIST to get a taste of research, she instead discovered her passion for computer science.

Currently, Zahra works on Google Search, debugging and fixing issues before they become visible to users.



Learn more: aps.org/careers/physicists/profiles/hussaini.cfm



Physicist Profile



Maggie Seeds, BS/BA
Business & Technology Consultant

Maggie found physics to be a natural path that “helped train her brain to think analytically.”

Currently, Maggie’s consultant role ranges from technical to strategic, falling anywhere in the process of raw materials making it all the way to finished, marketable products.

Advice for students: Work on soft skills, especially how to communicate with different audiences.



Learn more: aps.org/careers/physicists/profiles/seeds.cfm



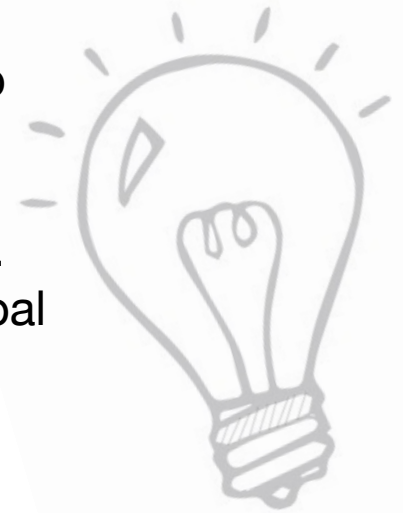
Physicist Profile



December Martin, BS
Senior Project Manager

December found a job at a biotech startup straight out of college. She traveled to several countries to teach science and English and to support humanitarian work. This fueled her passion for a career in global development with strong social responsibility.

Now, December is a project manager working on a device to treat brain aneurysms and strokes!



Learn more: aps.org/careers/physicists/profiles/martin.cfm





What about you?

What do you want to do?

Preparation starts with you: Self-Assessment

- Reflect
 - What are you good at?
 - What do you enjoy doing?
 - (What do you hate doing?)
- What do you value?
 - Work-life balance
 - Money
 - Location/choosing where you can live
 - Flexible work schedule
 - Control over your work/research



Let's review our skills!

Examples of Technical Skills

- Applied research
- Technical problem solving
- Teaching
- Programming
- Documentation
- Data and Error Analysis
- Advanced mathematics
- Simulation and modeling
- Design and development
- Using specialized equipment
- Quality control

Examples of Non-Technical Skills

- Writing concisely and accurately
- Tailoring your message to an audience
- Managing/leading groups of people
- Managing projects (creating task lists, developing timelines, setting goals, etc.)
- Planning for and obtaining necessary resources (e.g. funding)
- Developing and managing budgets
- Working on a team



Job Search

- Use Job Boards
 - APS/SPS Job Board: employers hiring physicists
jobs.spsnational.org
careers.aps.org
 - Google Jobs, LinkedIn, Indeed, etc
- Use skills as keywords
- AIP Resources: BS job titles, Who's Hiring Physicists?



Resource: What job title should you search for?

Common Job Titles of Physics Bachelors



Self-reported job titles from physics majors show the most common job titles one year after graduation:

- “Engineer” or “Analyst”
- Most don’t contain the word “physics”

These positions are for physicists!

- Physicists literally have these jobs
- They do physics

Don’t type “physics” into a job search bar!

- People with a background just like yours have titles such as these...

Who's hiring Physics Bachelors degrees?

www.aip.org/statistics/whos-hiring-physics-bachelors

New York

[Actionet](#)
[Advanced Optowave Corporation](#)
[AES Northeast, PLLC](#)
[Alarm.com](#)
[Albany Medical Center](#)
[Alstom](#)
[American Society of Mechanical Engineers](#)
[Andrew Davidson and Company](#)
[Apnatomy](#)
[Apple](#)
[Applied Materials Inc.](#)
[Apptegy](#)
[Arcos LLC \(formerly SAMsix LLC\)](#)
[Association of College and University Educators](#)
[Atmovita](#)
[Authorea](#)
[Automated Dynamics](#)
[Avarint Inc](#)
[Access Worldwide](#)
[Ball Aerospace](#)
[Bechtel Marine Propulsion Corp](#)
[Blackridge Technologies](#)
[Bloomberg L.P.](#)
[BMO Capital Markets](#)
[BOK Solutions](#)
[Bright Power](#)
[Bureau Veritas Consumer Products Services](#)
[Bushwick Starr](#)
[CARMERA](#)
[Celonis](#)

[Centrex Advanced Technologies Inc](#)
[Cerner Corporation](#)
[CloudCheckr](#)
[Cobham Mission Systems](#)
[Columbia University](#)
[Consumer Direct Care Network](#)
[Core Tech Industrial](#)
[Covance](#)
[Credit Agricole Corporate & Investment Bank](#)
[Credit Suisse](#)
[Crossix](#)
[Cummins Inc.](#)
[Dartmouth College](#)
[Department of Education](#)
[Depository Trust & Clearing Corp.](#)
[Deutsche Bank](#)
[Donaldson Inc.](#)
[EagleView Technologies](#)
[ECCO III Enterprises, Inc.](#)
[Edward J. Strategic Consulting](#)
[Endeavor Air](#)
[Enigma Technologies](#)
[Evans Analytical Group](#)
[Exelon Corporation](#)
[Facebook](#)
[FDM Group](#)
[Federal Reserve Bank of New York](#)
[Filter, LLC](#)
[First Manhattan Consulting Group \(FMCG Direct\)](#)
[FJA-US](#)
[Floating Point Group](#)

[GE Aviation Systems](#)
[GE Renewables](#)
[Goldman Sachs](#)
[Golisano Institute for Sustainability - RIT](#)
[Google Inc.](#)
[Grainger industrial supply](#)
[HEPCO Inc.](#)
[Hill-Rom's Welch Allyn](#)
[Honeybee Robotics](#)
[Horizon Media](#)
[IBM](#)
[IHS Markit](#)
[IMA Life](#)
[Intuitive](#)
[Jaros, Baum & Bolles](#)
[JP Morgan](#)
[JRI America](#)
[Kraus Hi-Tech](#)
[Lockheed Martin](#)
[Logic Technologies Inc.](#)
[MA Polce Consulting](#)
[Marathon Energy Corp.](#)
[MathWorks](#)
[MediaMath](#)
[Milliken & Company](#)
[Morgan Stanley](#)
[Mulligan Security](#)
[Nathan Kline Institute
for Psychiatric Research](#)



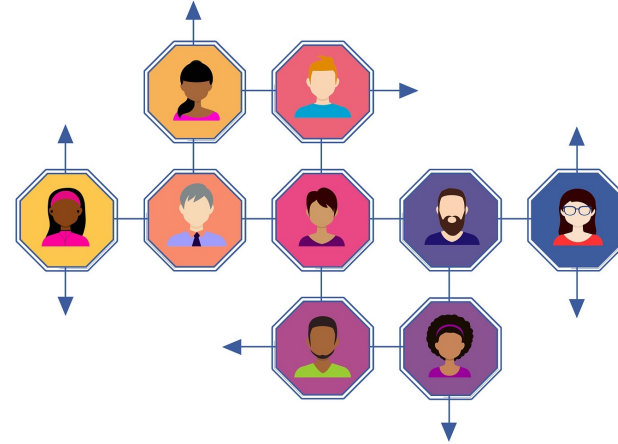
**Too many options, how do I
narrow this down?**

→ Network!

How can you start preparing?

Build Your Network

- Join LinkedIn
- Attend alumni mixers, career fairs, conferences, etc.
- Volunteer or Find internship



Find Career Mentors

- SPS Alumni Engagement Program
- Look for 'career mentor' ribbon
- Join the APS IMPact program to find industry mentors: impact.aps.org
- Ask faculty mentors to connect you to industry professionals/past students

Attend Informational Interviews

- Short conversation, 30-60 min
- Used to learn about a specific career path
- Ask your contacts for an introduction
- Ask a new connection
- Reach out on LinkedIn (cold email)



Conducting an informational interview

Before the Interview

- Do some research so you know your audience
- Prepare questions
- Set some goals
 - Learn about a new career
 - Make 2 more contacts
 - Find new skills of interest
 - Sign up for a volunteer project



During the interview:

- Can you tell me about your career path?
- What do you like about your job? Dislike?
- What does a typical workday look like?
- Can I get involved/volunteer?
- Don't ask for a job!

Some resources

APS Careers Website

- APS Job Board
- Physicist Profiles
- Common Career Paths

- APS Webinars
 - Success in Industry Careers
 - Career Development for International Physicists
 - Professional Development during a pandemic
 - Public Engagement

aps.org/careers

APS Careers Guide

For students and early career physicists.

- Profiles of physicists working in a variety of career paths
- Discussion of careers with social impact
- Employer Directory – Companies/organizations hiring physicists

go.aps.org/careersguide



APS Career Resources!

Shape Up Email Series

- Subscribe to weekly professional development “challenges,” with resources and tips.
- Current topics include Applying to Grad School, Career Exploration, Job Search, Interview Process, Professional Image



APS Online Professional Guidebook

- Topics include self-assessment, networking, interviewing and negotiation strategies, and more.
- Each chapter features 5-minute clips from the top APS careers webinars

aps.org/careers



SPS Career Resources

FREE: Workbook for undergraduates

- **Knowing Yourself - Knowledge and Skills Assessment**
Practice the skills you will need beyond your undergraduate degree
 - Aimed at career selection, resume building, and starting your first job
- **Networking – Making the most of Meetings and Collaborations**
 - Develop practical skills necessary for effective networking
- **Finding the Right Career – Informational Interviewing**
Participants prepare for and carry out a mock informational interview.
 - Purpose: Career selection, resume building, and starting your first job

Download a free copy

www.spsnational.org/careerstoolbox

The collage features several items related to career resources for physics students. At the top right is the cover of the 'Careers Toolbox for Undergraduate Physics Students & Their Mentors, Fourth Edition'. Below it is a worksheet titled 'Exercise - Tool #1' with a table for job titles and keywords. The table has three columns for 'Job title' and 'Key words'. Below the table are three rows for 'Organizations with this job title'. To the left of the QR code is a small graphic with text: 'Free by using the resource for Undergraduate Physics', 'Call a resume', 'Find jobs, research and earnings', and 'With cover letters'. At the bottom right is a small illustration of a person thinking at a laptop with question marks above their head.

Job title:	Job title:	Job title:
key words:	key words:	key words:
Organizations with this job title	Organizations with this job title	Organizations with this job title

14 | Careers Toolbox for Undergraduate Physics Students



Careers Publications

The SPS Observer

- Hidden Physicists and Astronomers
- Careers options
- Student Profiles



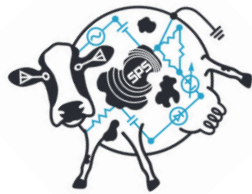
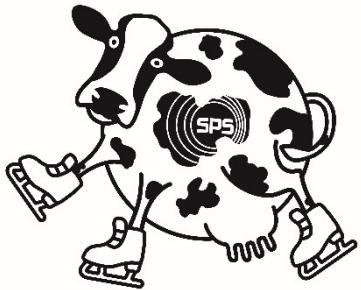
GradSchoolShopper.com issue this fall

- Free data!
- +35 articles on
 - Grad School Paths
 - Finding the right program
 - Application advice
 - Setting yourself up for success

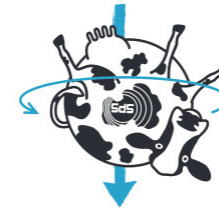


Remember:

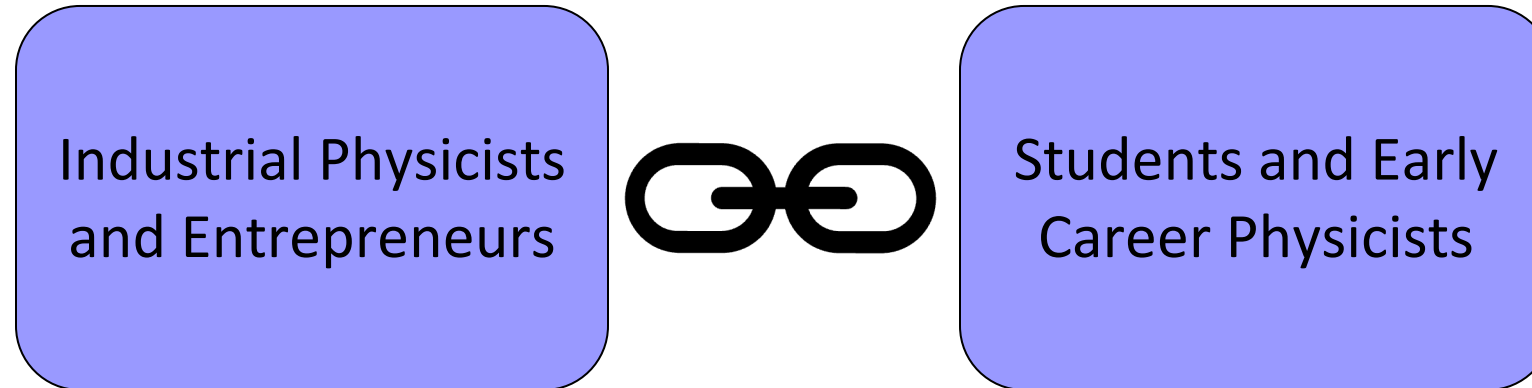
- Plan Effectively by Broadening Your Focus
 - Use your resources to learn about career paths outside of academic physics
- Build Your Network
 - Be able to express who you are, and what you want, and tell absolutely everyone you meet.
- Focus on Skills, Not on Labels
 - Use skills-based resumes and cover letters to connect the dots between the job description and your skill set.



Thank you!!!



APS IMPact Program



- Signup is easy – must be an APS member
- Search database based on a variety of characteristics (e.g. topics willing to discuss, physics background, professional experience)
- Mentees can search the mentor database, request a relationship (usually ~3 mo.)

impact.aps.org

The Elevator Speech

You need to do these things in that time:

- Identify your audience
- Give an explanation using only words they already understand
 - Ex. Thing Explainer
- Explain who you factually are.
- What are you passionate about?
- Highlight your accomplishments.
- Tell them what you want to do next.

