

LA-UR-20-26942

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Title: Strategies for seeking a job at a national lab

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Intended for: Seminar for University of Nebraska Physics Department

Issued: 2020-09-04

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Strategies for seeking a job at a national lab

Dale Tupa, Scientist, Physics Division, Los Alamos National Laboratory

Understanding the job market from the hiring side can help you develop better strategies for seeking a job. National laboratories represent a substantial source of jobs in the U. S. in engineering and science. High school, college, and graduate student internship positions are all available, but you can be more successful in finding one of these positions if you use a targeted search. Likewise, reaching out to individual researchers and/or knowing how to respond to job ads can increase your chances of getting an interview for a permanent job or positions, such as postdoc and postbac appointments, that can lead to permanent jobs. In my career as a research scientist at Los Alamos National Laboratory, I have hired people into all of these job categories, as well as served on many hiring committees for all levels of appointments. I will offer Polonius-type advice for jobseekers and discuss the hiring process and how you can optimize your own job search.*

**Polonius: A character in Hamlet, who can be seen as a sage senior dispensing nuggets of wisdom, or windbag geezer droning on with empty words.*

Okay, it's clear that this talk will be too annoying to follow if I use Shakespeare-type font to fit with the theme of Polonius.



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And these few precepts in thy memory
See thou character. Give thy thoughts no tongue,
Nor any unproportioned thought his act.
Be thou familiar, but by no means vulgar.
Those friends thou hast, and their adoption tried,
Grapple them to thy soul with hoops of steel;
But do not dull thy palm with entertainment
Of each new-hatch'd, unfledged comrade. Beware
Of entrance to a quarrel, but being in,
Bear't that the opposed may beware of thee.
Give every man thy ear, but few thy voice;
Take each man's censure, but reserve thy judgment.
Costly thy habit as thy purse can buy,
But not express'd in fancy; rich, not gaudy;
For the apparel oft proclaims the man,
And they in France of the best rank and station
Are of a most select and generous chief in that.
Neither a borrower nor a lender be;
For loan oft loses both itself and friend,
And borrowing dulls the edge of husbandry.
This above all: to thine ownself be true.

What advice does Polonius give?



PHYSICS

SINCE 1943

*Polonius: A character in Hamlet, who can be seen as a sage senior dispensing nuggets of wisdom, or windbag geezer droning on with empty words.

Blah-blah-blah

Give every man thy ear, but few thy voice;

Blah-blah-blah

Neither a borrower nor a lender be;

Blah-blah-blah

This above all: to thine ownself be true,

What do the kids hear?



Disclaimer

I am presenting my own (Polonius-quality) views, not any official views of Los Alamos National Laboratory



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What is my perspective?

I have spent 32 years at Los Alamos National Lab

I have personally mentored:

High school student interns

Undergraduate interns

Graduate students

Postdocs

Technicians

Technologists

Engineers

Other scientific staff



I have personally hired people to Los Alamos for all of those positions, plus served on hiring committees for Scientists, group managers, and division managers.

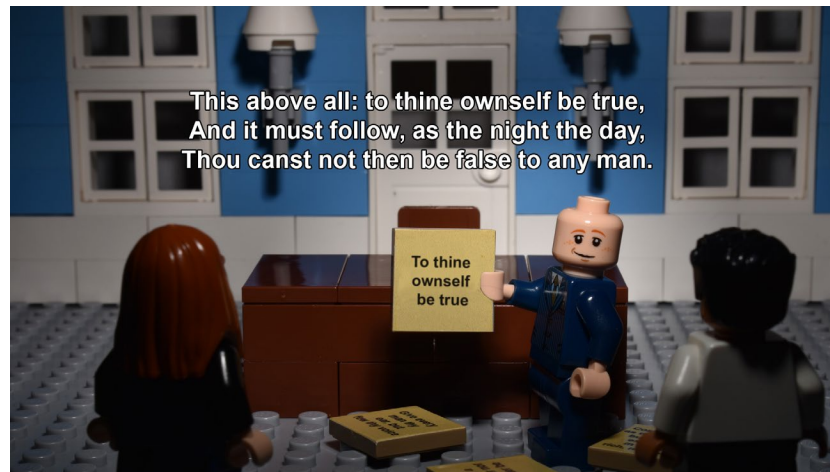
I remember what it's like to look for a job (But! I have not changed my job since postdoc!)

Important points about seeking a job at a national lab

Many jobs and many job types are available.

Real people make the decisions on whether they need to hire someone and which person they select.

You can improve your hiring prospects if you understand better how selections are made.



Another disclaimer

From now on, I will just use Los Alamos National Lab as a model. I am familiar with LANL and make no claims about how well this information extends to other national laboratories.



Many jobs and many job types are available.

Student positions at LANL:

FY18/FY19, LANL reached 1,800 total students:

Undergraduate students: ~ 1,000 (Summer students, year-round local students, ~ 35 SULI students, other internships)

Graduate students : ~ 800 (includes students who come via guest agreements)

High School students: ~ 65



Many jobs and many job types are available.

Student positions at LANL:

Comments from Amanda Neukirch, former UNL Physics student:

The best advice I have is to **get experience at the lab they are interested in** early in their career (undergrad, graduate, or postdoc). There are many opportunities to **spend a summer here** (and other labs, I have done internships at LLNL and Argonne) at both the undergrad and grad level. Then the students have the opportunity to see if they like the work, the work atmosphere, the people, the area etc. If their School advisor isn't the type that would be willing to support such an opportunity, I would suggest the student work to set up a collaboration. Then getting a foot in the door would be easier at whatever the next step in their career is. **If they are undergrads that think they really want to work at a National lab**, tell them to be cognizant that **spending a summer at one of the labs is great opportunity** and to take that into consideration when choosing a graduate advisor.



Ophelia, not Polonius!.

Many jobs and many job types are available.

Student positions at LANL:

The key to getting a student position at LANL is to understand how people hire students.

- 1) It is a one-on-one process, and reaching out to individual researchers makes all the difference in getting a position.
- 2) The LANL jobs interface has flaws

This information applies to postdoc and postbac applicants as well, so pay attention!



Many jobs and many job types are available.

Student positions at LANL:

A look at the LANL jobs site, from a student point-of-view. Thank you, Karl.



Gravedigger, not Polonius!

Many jobs and many job types are available.

Student positions at LANL:

The web site leads you to believe that you have made an effective application, but your application can be lost in a sea of others.

A real, live scientist makes the hiring decisions. Reaching out to individual researchers can increase your chances of getting a position.



Example: Reaching out to individual researchers, high school job applicant letter

Dear Dr. Dale Tupa,

< snip self-introduction >

I very much enjoyed my science and math courses over the years in high school. < snip classwork >

In my senior year, I will be taking an AP Physics course. I chose this course because I am very excited to learn more < snip motivation >

I believe that I can be of use to you and your group at PRAD as a student. I would be excited to see how you use proton radiography to image explosively driven experiments. Several years ago I got to tour LANCE and see the accelerator and other experimental areas, and was shown several PRAD imaging sequences. I am currently enrolled in an AP Physics course, and would excited to see how you use PRAD to validate predictions from physics models. I would love to help with image processing or cataloguing data. I am also very interested in learning about diagnostics like PDV (Photonic Doppler Velocimetry) and how you use principles like the Doppler effect that I am learning in my AP Physics class. I am also reasonably strong and tall, and would love to help with setting up experimental equipment.

In my Desktop Publishing and Information Management classes, I learned how to make an appealing poster < snip skills >

My educational goals are to attend a four year college, majoring in a STEM field. I particularly enjoy being able to apply what I learn in the classroom to real life. Working at Los Alamos National Lab would be a fantastic opportunity to combine classroom learning and real work applications as well as a place to learn more details about topics learned within the classroom

< snip relevant experience > < snip relevant experience >

< snip request for a job >

Thank you for this opportunity.

< snip name >



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< snip relevant experience> < snip relevant experience>

< snip request for a job>

Thank you for this opportunity.

< snip name>

Shows detailed research. Asks to work in my facility and knows what research I do with undergrads. Above and beyond

Typical motivation; by writing a personal letter, this already stands out.



The only thing missing (for casting the biggest net) is asking me to pass his/her info along if I don't have a position.



Reaching out to individual researchers

At LANL, the person who hires reads every application. (No computer-based keyword or HR pre-sorting).

Your resume/CV gives general information relevant to ANY job. Your cover letter says why you are good for this particular job and why this particular job is good for you.

If it's really important to you, reach out even if there is no job ad.

Two approaches:

You have a specific skill you can bring to the table.

You have a passion for a specific topic.

Do research. Learn about the work done in the specific team or group and ask to join it.



Many jobs and many job types are available.

Positions at LANL for holders of undergraduate degrees:

A look at the LANL jobs site, from a graduating senior point-of-view. Thank you, Karl.



Gravediggers, not Polonius!

Many jobs and many job types are available.

Comments about positions at LANL for holders of undergraduate degrees:

The names of job series at national labs may not be intuitive. Know the different categories, which takes research.

At LANL TYPICALLY:

Technicians have associate's degrees,
Technologists have 4-year degrees,
Scientist 1 and Engineer 1 have 4-year degrees,
Scientist 2 and Engineer 2 have completed a postdoc,
Scientist 3 and Engineer 3 lead research projects...

At LANL, postbac position are uncommon, but becoming more common.

A postbac position may appear if you reach out.

(A postbac position should not be a crutch.)



Many jobs and many job types are available.

Postdoc positions at LANL:

Universities offer Postdocs, National Labs offer careers!

- Tanja Peitross, LANL Physics Division Leader



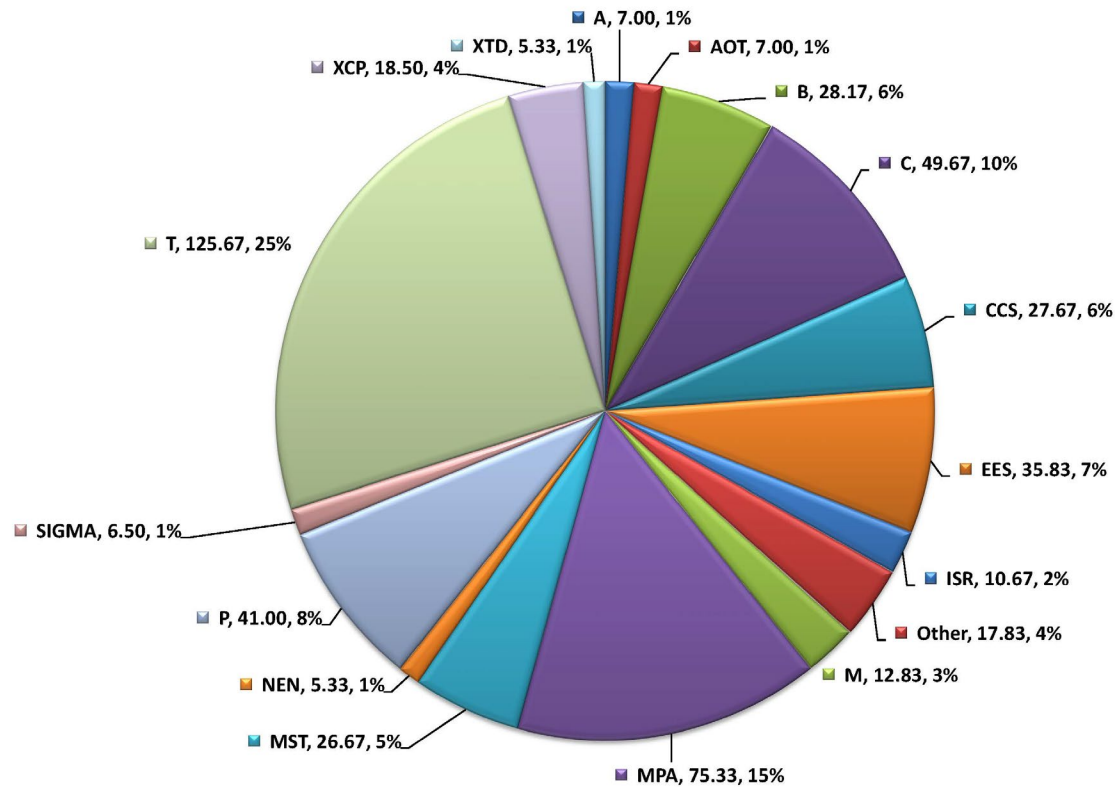
Gertrude, not Polonium!

Many jobs and many job types are available.

Postdoc positions at LANL:



Postdocs by Division (Total = 501)
August 2020



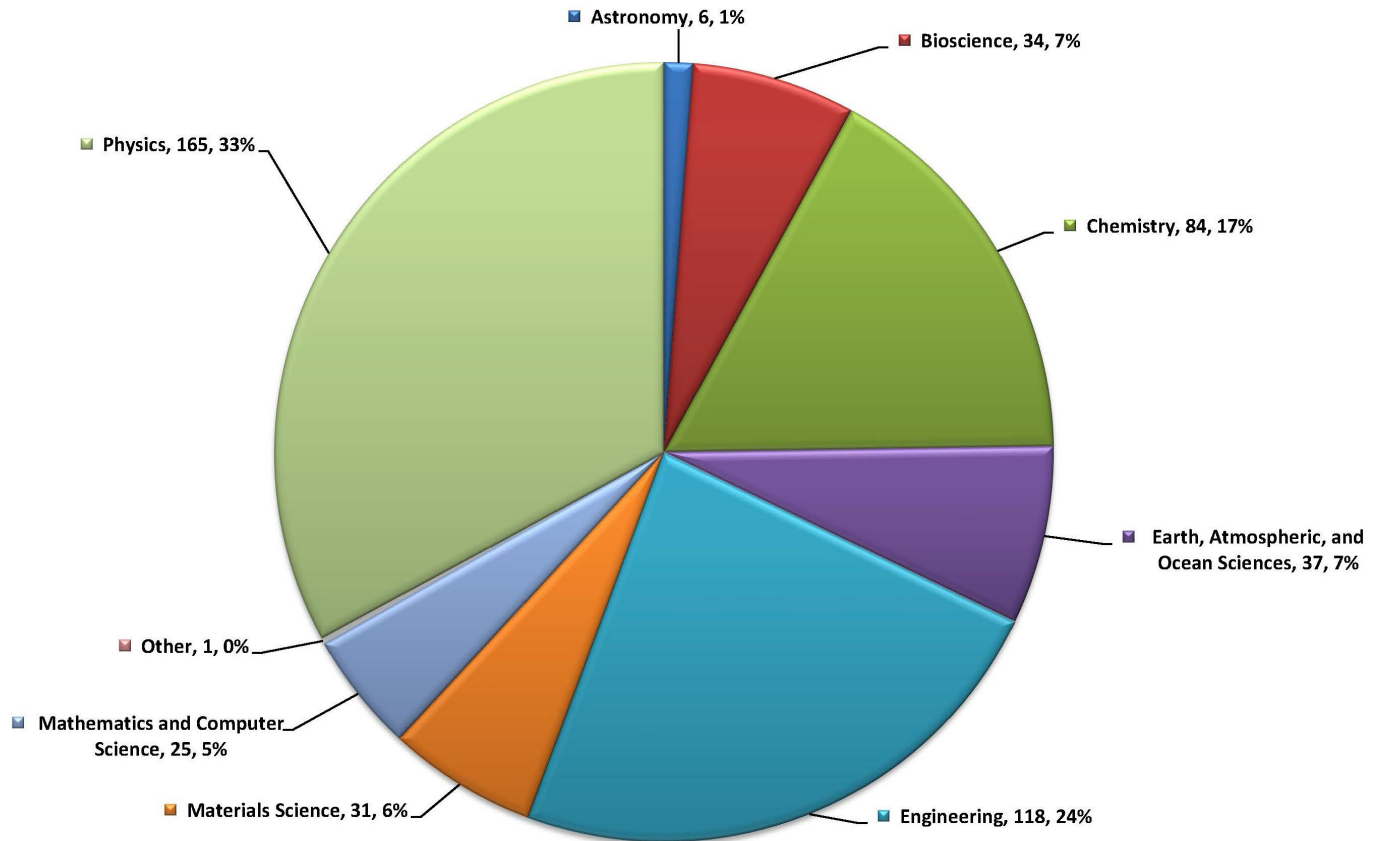
Many jobs and many job types are available.

Postdoc positions at LANL:



Postdocs by Field of Study (Total = 501)

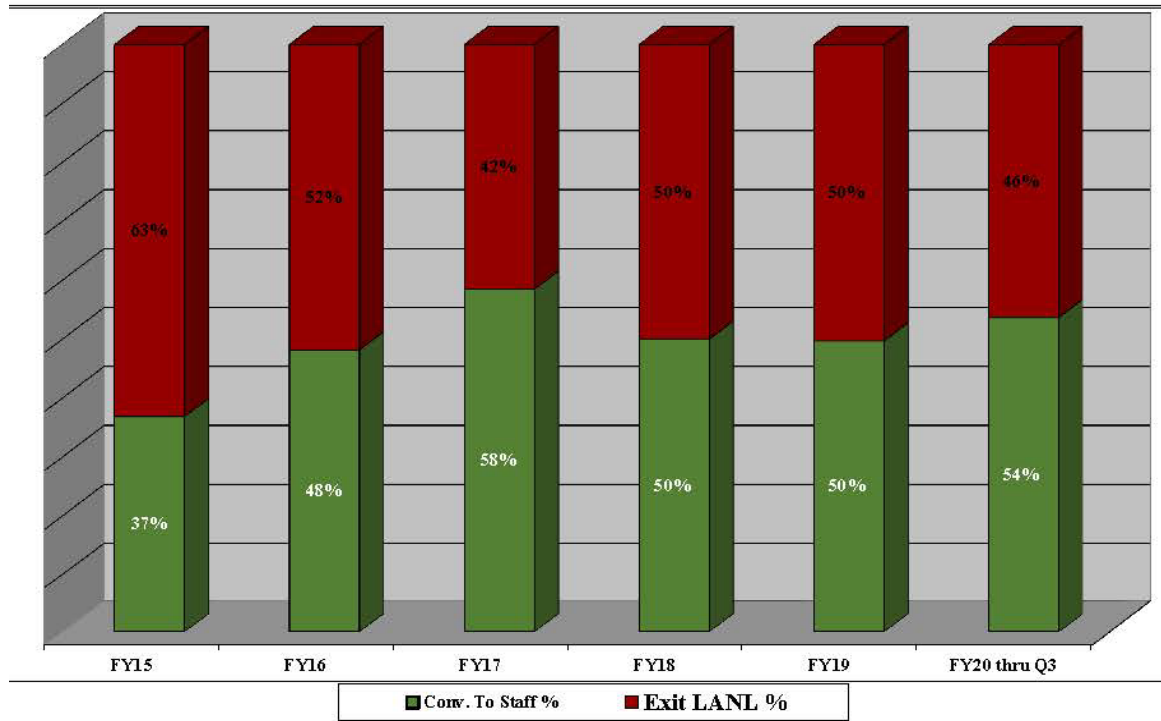
August 2020



Many jobs and many job types are available.

Postdoc positions at LANL:

Postdoc Exits – Conversions vs. Terms *FY '15 thru FY '20 Q3*

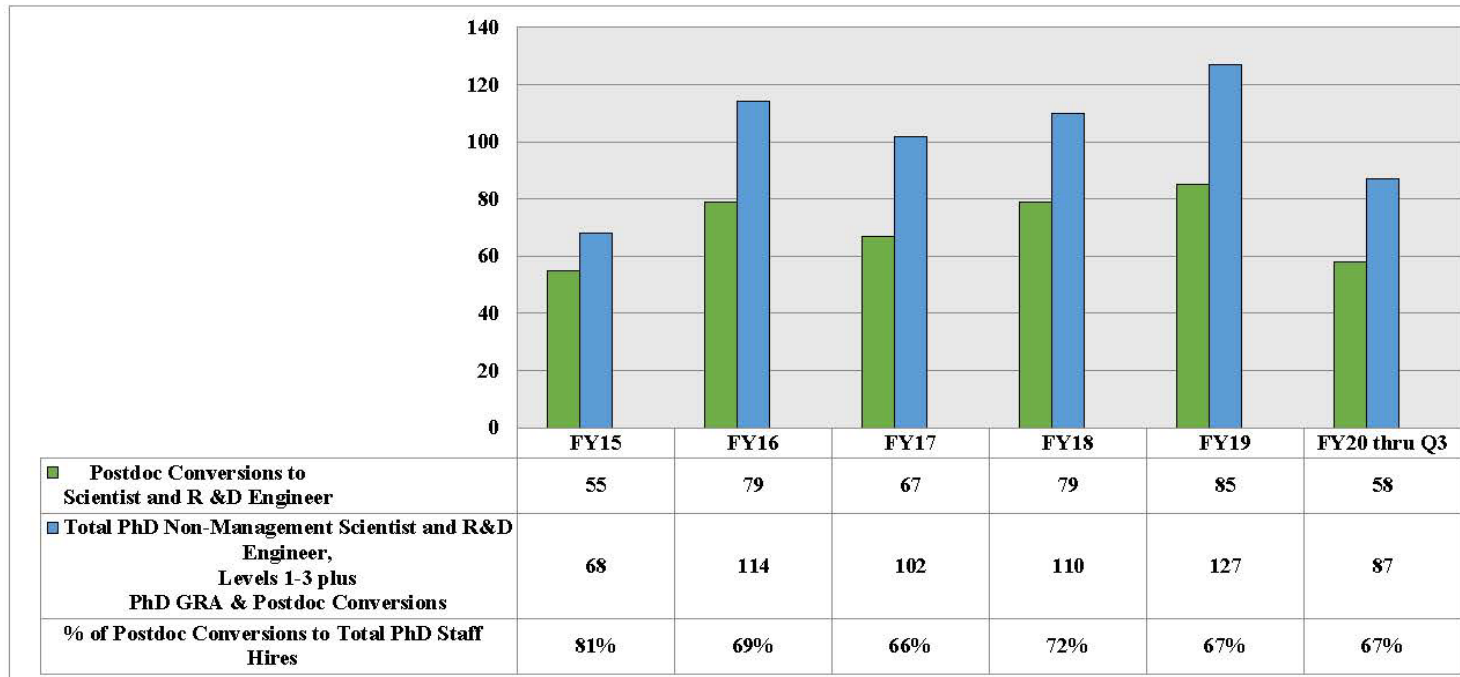


Many jobs and many job types are available.

Postdoc positions at LANL:



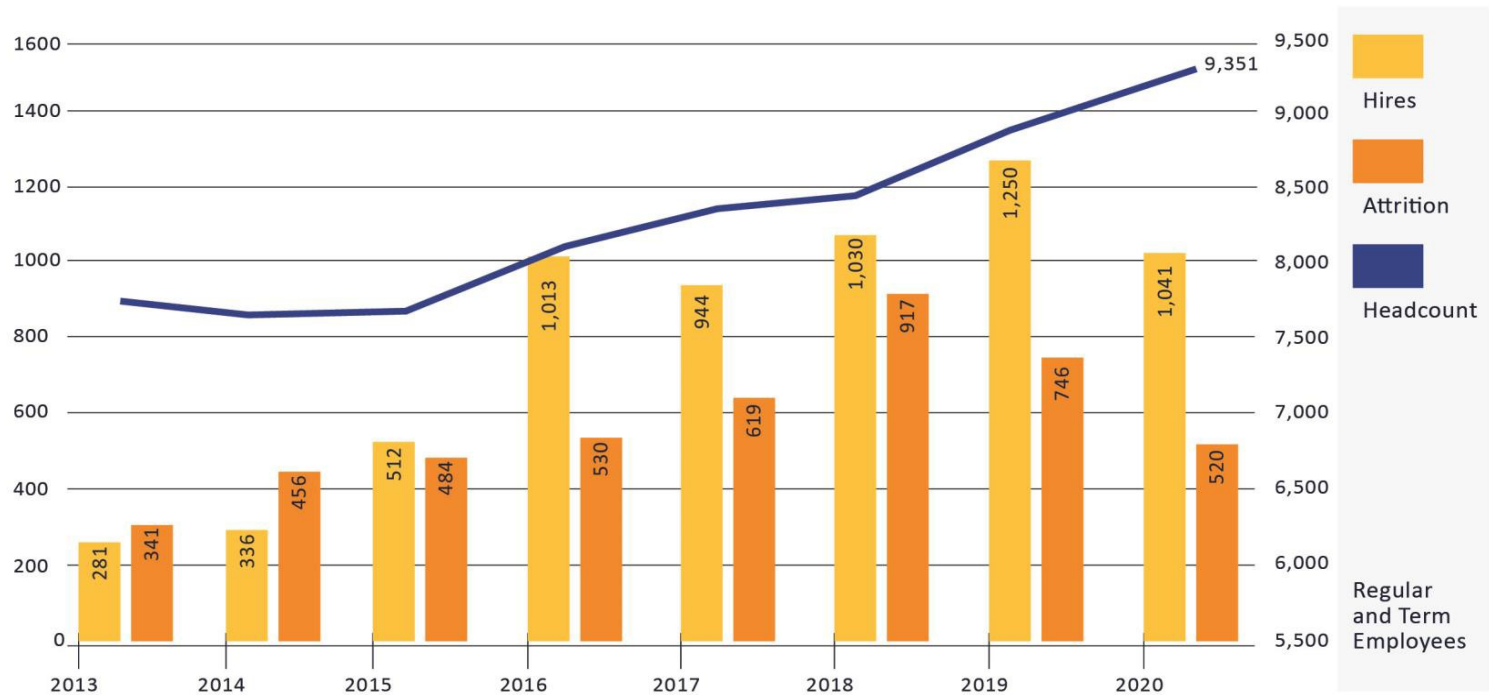
Postdoc Conversions compared to Non-Management PhD Technical Staff Hires *FY '15 thru FY '20 Q3*



Many jobs and many job types are available.

Overall hiring at LANL:

LANL Hires and Attrition - FY13-20



Many jobs and many job types are available.

Postdoc positions at LANL:

Consider the numbers. For 500 postdocs currently at Los Alamos, ~ 170 physics postdocs, $\sim 170/3 \approx$ at least 50 physics postdocs hired per year at Los Alamos alone. About half would be theorists, about half experimentalists.

Physics Division hires many experimental physics postdocs, but the majority of physics experimentalists are hired by a combination of other organizations.



Many jobs and many job types are available.

Postdoc positions at LANL:

A look at the LANL jobs site, from a prospective postdoc point-of-view. Thank you, Karl.



Gravedigger, not Polonius!

Many jobs and many job types are available.

A word of caution:

You need to apply individually for each position you want to be considered for. The hiring committees may or may not talk to each other.



Reaching out to individual researchers

How do you respond to a job ad?

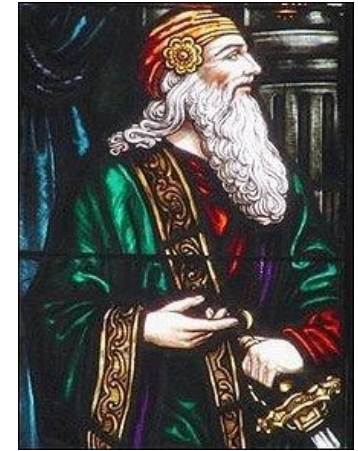
Read the job ad carefully; at a minimum include a resume/CV and a cover letter.

Initial sorting is usually done with individuals judging applicants against criteria included in the job ad – your cover letter or resume/CV should address each criterion, even if it gives your letter a clumsy structure.

It is okay to contact the person who will be doing the hiring directly. Sometimes this is listed in the ad, but sometimes the “contact” in the ad is an HR person.



Reaching out to individual researchers



How do you find contacts?

Read job ads with an open mind.

Do research. Look at web sites to find news articles, They can be old news.

People who hire students might be more likely to hire postdocs.

Get contact names from recent publications in areas of interest to you.

Ask your contact to pass your information to others who might be interested in hiring.
(It's okay to like ice cream and also like French fries.)

If you are at a loss about an organization, contact group leaders to see if teams in their group anticipate hiring a postdoc. Your cover letter should still be customized!

Start your job search early



Start your search for your dream jobs first, and early enough to leave adequate time to search for your practical jobs later.

Final words on moving on in your career

It's time for you to get a shave, get a haircut, and get a job

L.W. Anderson, University of Wisconsin



Ghost, not Polonius!

Final words on moving on in your career

Yet here, Laertes!

...

The wind sits in the shoulder of your sail

...

Farewell: my blessing season this in thee!



And a summary:

National labs have lots of jobs.

Good jobs for you might not be obvious without research.

Hiring at national labs has some old-fashioned aspects; it helps to address each opportunity individually.

Reaching out may uncover unexpected possibilities.

Start your job search early, looking for your dream job, before you apply for your most realistic opportunities.

