



Postdoc Interviewing Skills Workshop

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The Fermilab Secret Code



- Associate Scientist
 - Entry level to permanent track.
- Don't be fooled by:
 - “5 year term” or “3 year term”.
- These really are permanent track:
 - Mid-term review during second year.
 - Promotion to position “without term limit” in 5th year.
- Within a division: CD, AD, TD, PPD.
- Often targeted for a particular technical skill:
 - Take strongest overall from among those above threshold on a that skill.

My Background



- Undergrad summer student – 3 years.
 - Assembly and survey of TRIMUF TPC; built test stands.
- PhD 1991, U Toronto on ARGUS
 - Discovery of $D_{s1}(2536)$
 - Tracking hardware and software.
- Postdoc 1992-1996, UCSB, CLEO II and II.V
 - $B \rightarrow (\rho, \omega) l \nu$; charm spectroscopy and Dalitz plots
 - Kalman filter and misc tracking/vertexing software.
 - Analysis Coordinator: Sept. 1995 to Sept. 1996.

My Background II: FNAL 1996 - now



- FOCUS: 1996 and still going!
 - Charm spectroscopy and Dalitz plots.
- BTeV: 1996-2005
 - Detector and trigger design.
 - Infrastructure software; tracking/vertexing software.
- Accelerator Instrumentation: 2004-2007
 - TeV and MI BPM upgrades.
- SiD detector: 2007 - 2008
- Mu2e: 2008 ...
 - Experiment design;
 - Infrastructure and tracking software.

Fermilab



- DOE National Lab; no classified programs.
- Funding from DOE Office of Science.
 - + in-kind contributions from NSF & foreign agencies.
 - Budgeting: year to year.
 - FY2008 was a disaster.
 - FY2009 + stimulus is good.
 - FY2010 and 2011 guidance: flat-flat.
- DOE's vision:
 - lab = sum of its projects + generic R&D.
 - All new efforts flow via generic R&D.

Hiring Outlook



- Stimulus money is a one-shot:
 - No permanent hires with stimulus money.
- Flat-flat for 3 years:
 - Will not expand staff over this time.
 - There will be retirements and other attrition.
- When TeV shuts down Oct 1 2010 or 2011,
 - Lots of people come off operations.
 - Lab is planning where they land.
 - Expect to use contractors to fill holes until this time.
- Hiring of named fellows will continue at 3/year.

Applying to Fermilab



- Jobs advertised in all the usual places.
- Main employment page:
 - <http://wdrs.fnal.gov/employ/index.html>
 - “Scientific” category in left panel.
- Named fellowships:
 - <http://www.fnal.gov/pub/forphysicists/fellowships/index.html>
 - Permanent track: Wilson and Peoples Fellows.
 - Deadlines: Oct 31 (Wilson)
 - I am on Wilson Fellow committee

Legalese



- No **tenure** at FNAL.
 - There are appointments “**without term limit**”.
- For scientific appointments without term limit:
 - Must be approved by the board of overseers (BOO).
 - Involuntary termination requires approval of the BOO.
- Research fraction vs “lab job”
 - 50/50 for all (most?) Scientist positions.
 - “You have a 50% research fraction but the lab gets the first 40 hours each week.” – attributed to Bob Wilson

Job Categories



- Positions without term limit
 - Scientist I, II, III
 - Applied Scientist I, II, III
 - Materials Scientist I, II
 - Applications Physicist I, II
 - Computing professionals and engineering
 - Many physicists in these positions. Won't say more.
- Permanent track but with term limit:
 - Associate Scientist ; Wilson and Peoples Fellows.
- Research Associate: term appointment.

University “Equivalent Ranks”



- Associate Scientists and named Fellows
 - “Assistant Prof” (5 to 6 years)
- Scientist I
 - “Associate Prof” (5 to 6 years); no term limit.
- Scientist II
 - “Full Prof”; terminal rank for most.
- Scientist III
 - “Distinguished/University Prof”

Other Scientific Positions



- Applied Scientist I, II, III
 - For those who did little science during their Associate Scientist phase but who did important technical work.
 - Usually a smaller research fraction.
- Materials Scientist I, II
 - Not sure if this is like Scientist or Applied Scientist.
- Applications Physicists I, II
 - Some are hired directly into this position.
 - Rarely land here after Associate Scientist.
 - Research fraction (0 - 10%).

What are we Looking For



- **Science**
- **Technical.**
 - Hardware or hard core calibration.
 - Software that is game changing.
- **Leadership.**
- **Scientist: All 3 above threshold and excel at 2.**
- **Applied Scientist and Applications Physicists**
 - Allowed to be weaker.
 - But many are actually great in all 3; they just got caught in the numbers game.

Hiring Process



- Ad hoc or standing committee: 5 to 8 people.
- Evaluation of CV and letters.
 - We may ask for head to head comparisons.
- Interview list: typically 4 or 5.
- The Interview – often over 2 days
 - Presentation to the committee (public or private).
 - 1 hour 1-on-1 interview with each committee member.
- Committee votes
 - Recommends candidate to director.
- You hear in O(4-6 weeks) after last interview.

CV and Publication Lists



- Focus on big picture items.
 - What experiments did you work on for how long.
 - Science you did on that experiment.
 - Major technical accomplishments.
 - Major leadership roles (if appropriate).
- Don't pad the lists with many small things.
 - If they are important put them in an "appendix".
- Publication lists:
 - Call out the 10 or so most important papers.
 - Then kill trees or provide a url.
- Give letter writers a copy of your CV.

Your Presentation



- Ask about the level of the presentation and the desired mix of science/technical material.
- Talk about systematic errors.
 - Have lots of backup material on them.
- You are telling a story:
 - Make sure the parts are connected.
 - Pick something to say and say it clearly.
 - Be careful with jargon.
- My pet peeves:
 - Too much material.
 - Unreadable axis labels and axis values.

Questions to Be Ready For

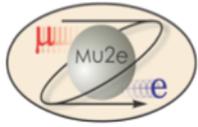


- What would you do to improve your detector so that it could do a better job on your recent measurement?
- When you look at the next few years, what do you see as decision points in the field? in your career?
- What are the lessons learned, both good and bad, from a recent project that you will take to your next project.
- Do you have questions for me?
 - Do you homework about who is interviewing you.

Final Comments



- Dress? I don't care. Some others do.
 - “Professional”
- Tie breaker: it will be one of breadth or enthusiasm (they often are correlated).
- What skills are we looking for:
 - The full spectrum of what it takes to mount a broad HEP program: data analysis, hardware, software, project management.



Backup Slides

