Fermilab

Managed by Fermi Research Alliance, LLC for the U.S. Department of Energy Office of Science

Summary: Scientist Issues

Laura Fields

Fermilab All Scientists Retreat

7 February 2017

Introduction

- This half of the summary talks is on “Scientist Issues”
  - Basically: **What is keeping you from doing good science** / fulfilling the lab’s mission?
- Topics in this category **frequently come up in SAC** (Scientists Advisory Council) meetings
  - But that’s just a small group of scientists
  - This is an **opportunity to hear the opinions of a larger subset** of the Fermilab scientist community

Introduction

- The **outcome of today's discussion will be a report** from SAC on issues currently affecting scientists and recommendations for solutions
  - Will **focus on topics we have some hope of changing**
- And this will not be the end of the discussion. Please **continue to bring issues to the attention** of your SAC representatives:

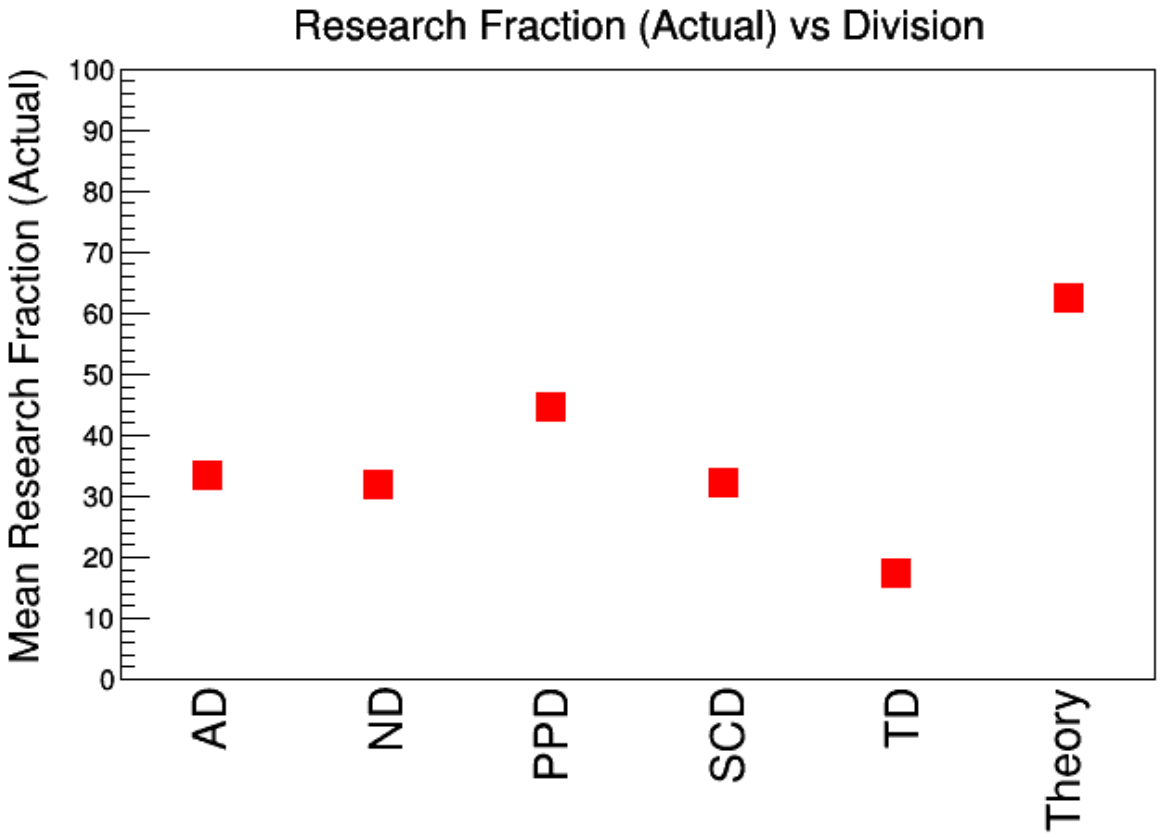
John Campbell
Harry Cheung
Mary Convery
Laura Fields
Patrick Fox
Debbie Harris
Dan Hooper
Sergo Jindariani
Sam Posen
Kiyomi Seiya
Marcelle Soares-Santos
Erica Snider
Michelle Stancari
Thomas Strauss
Sasha Valishev
Julie Whitmore

Research Fraction

- **First topic: research fraction**
  - History: SAC heard a few accounts of scientists wanting to do research, but not being allowed to
  - A desire to collect data on this subject was **the origin of the recent survey**
- One problem: it is difficult to **define research fraction**
  - From the survey: “We would like to get data on how happy scientists are with their research fraction, and if not what are the obstacles. Since different scientists define research differently, for the purpose of this survey research is **defined as whatever you think research is for you**, since the goal is to find out how happy you are with your research work. “

Research Fractions

- What fraction of time do you spend on research?



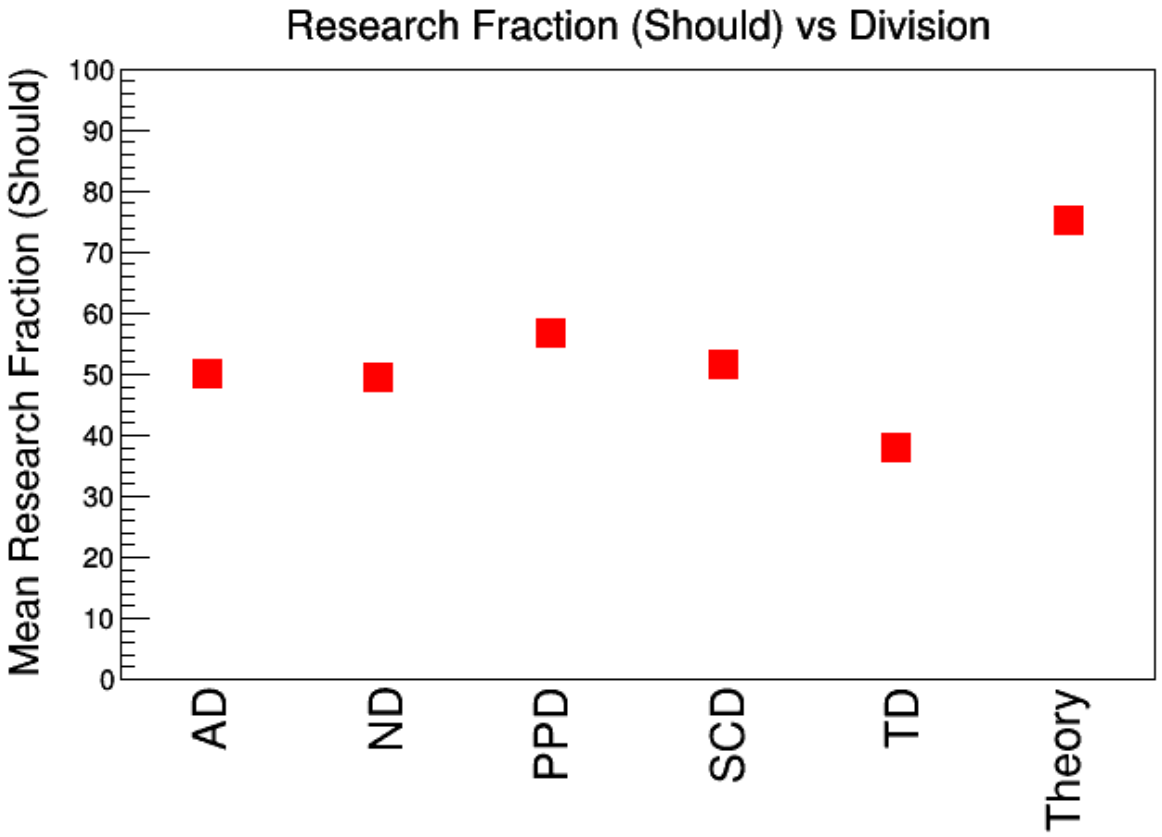
Average reported **Research Fraction** of divisions **is 35%**

Theory/PPD more

TD less

Research Fractions

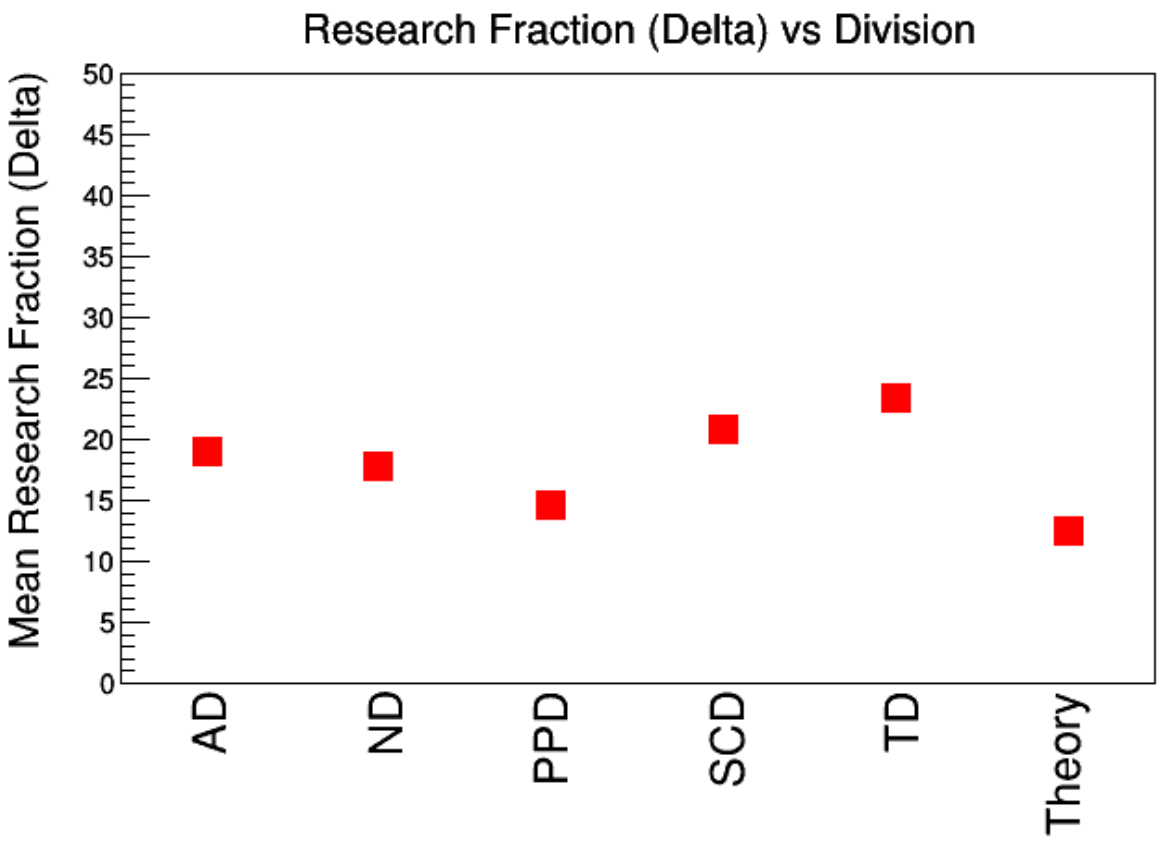
- What fraction of time would you like to spend on research?



Everyone wants more!
On average, we think we **should have a research fraction of 52%**

Research Fractions

- Difference between should and actual:

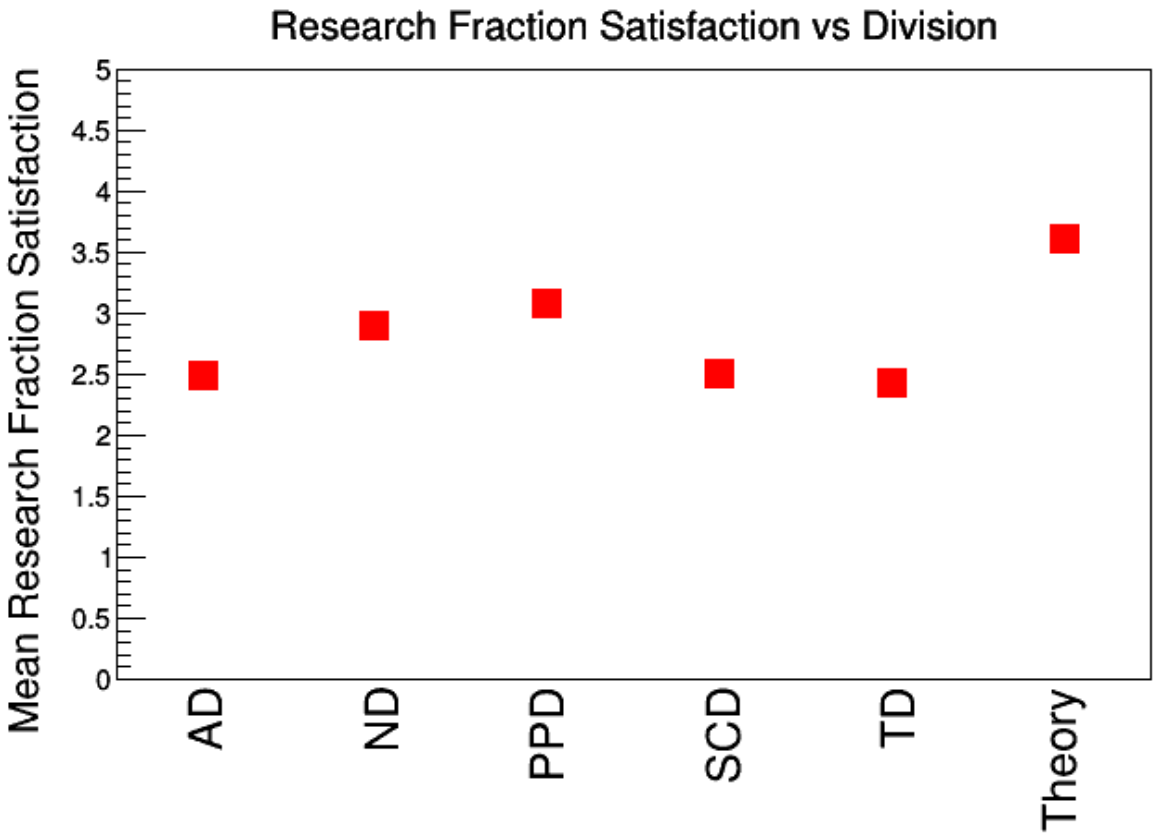


Difference between the research fraction we think we should have and what we actually have is **relatively flat across division**

Small differences are anti-correlated with actual research fraction

Research Fractions

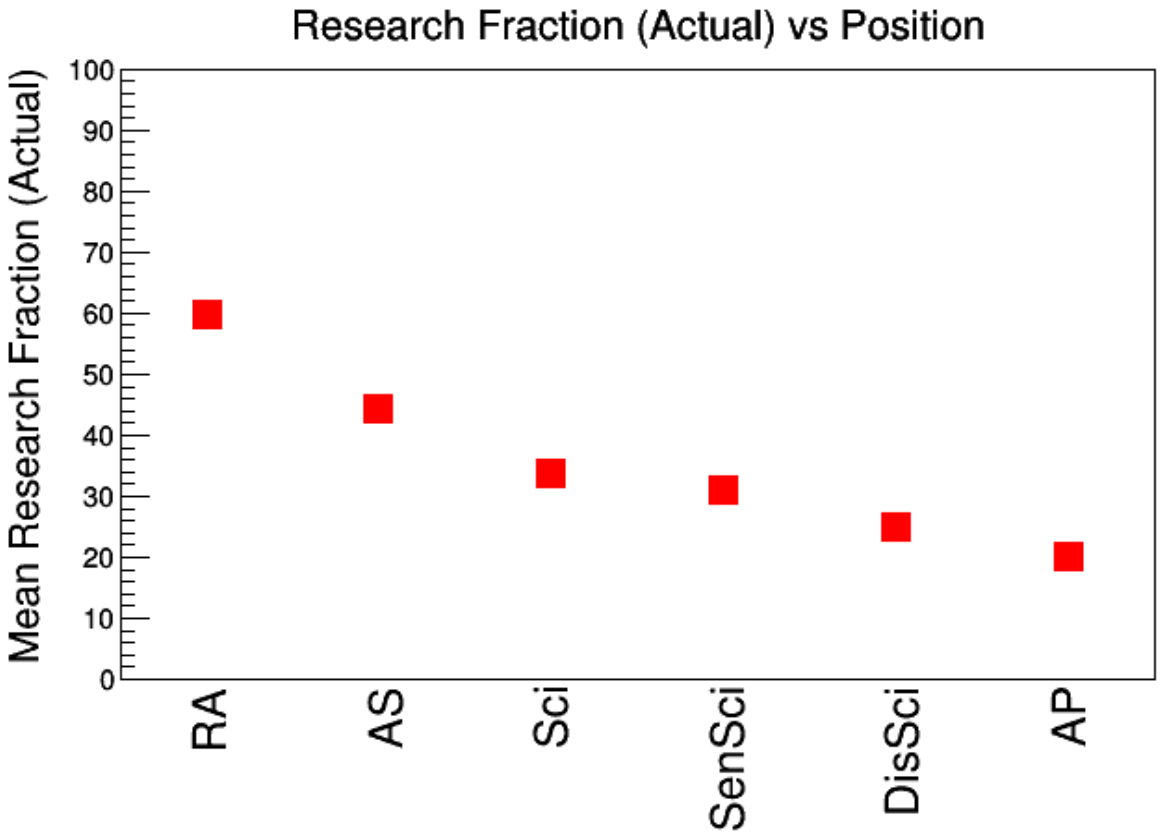
- How satisfied are you with your research fraction:



Divisions with **higher research fraction report more satisfaction**

Research Fractions

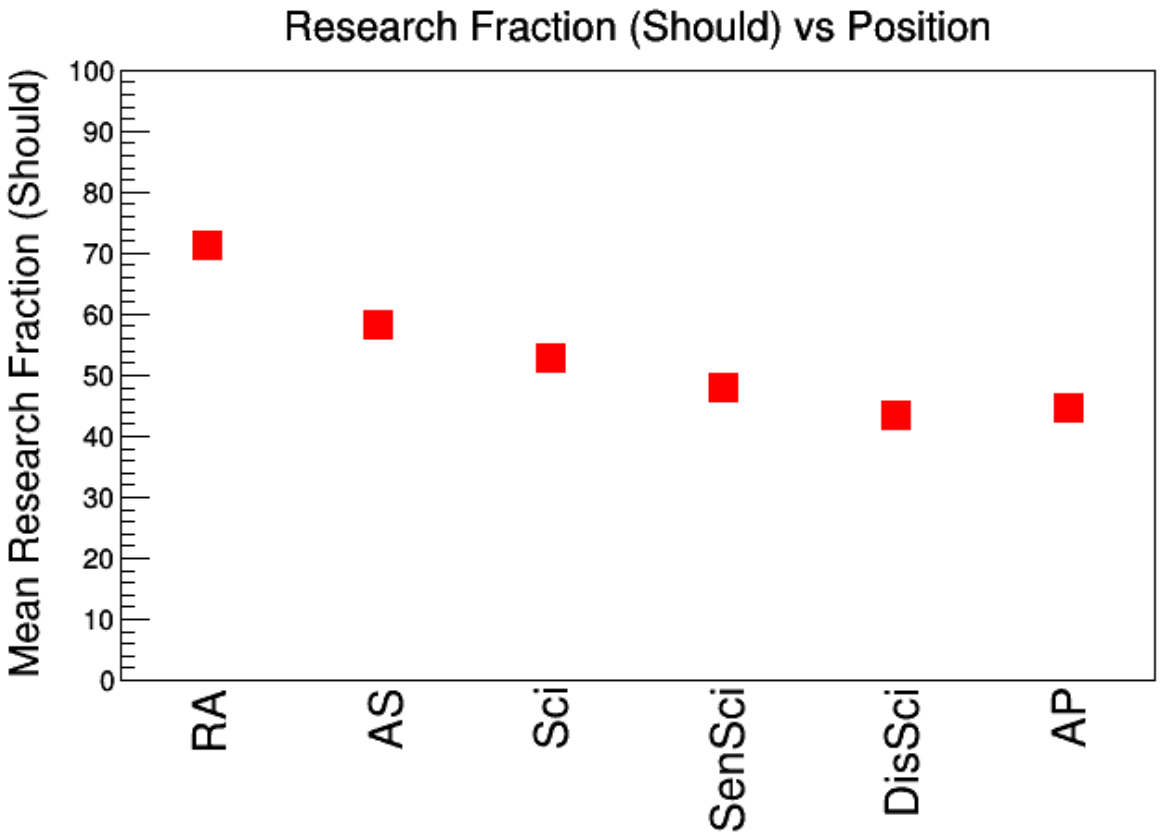
- Actual research fraction for different job titles:



Strong **decline in research fraction as careers progress** (and for Application Physicists)

Research Fractions

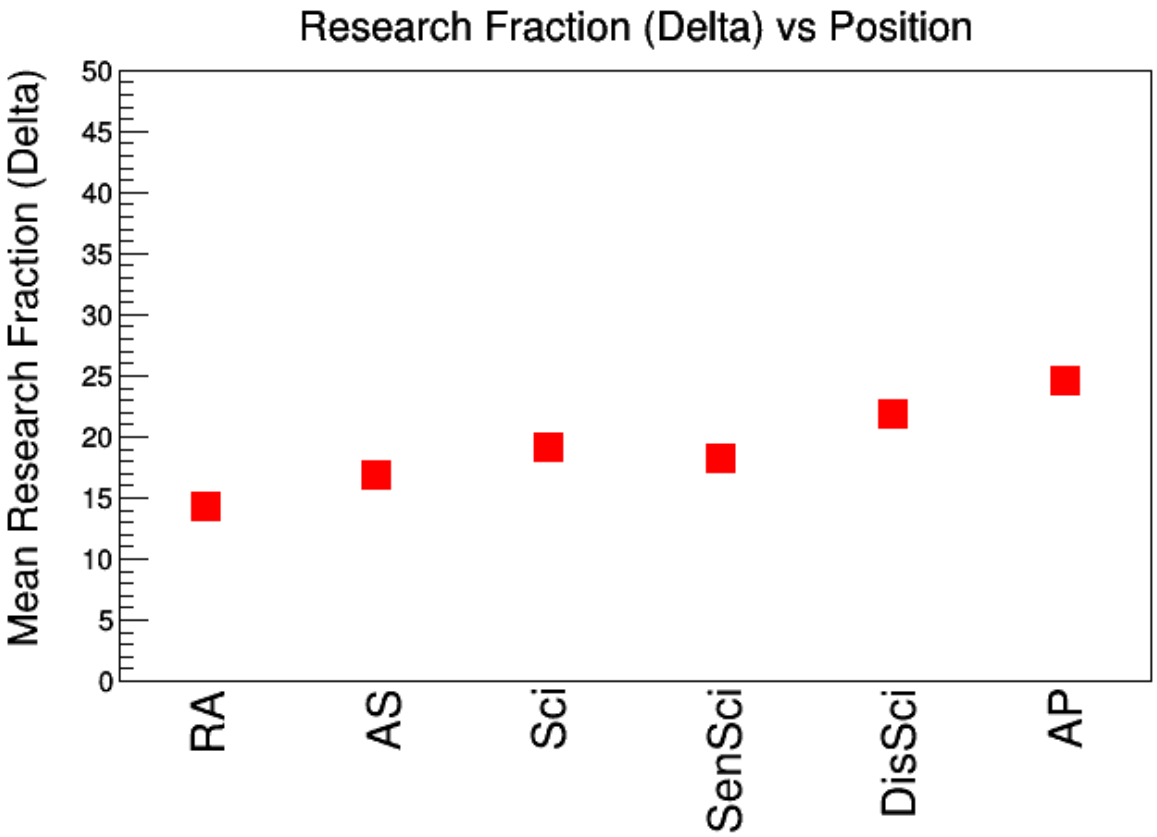
- Research fraction (should) for different job titles:



And again, **everyone wants more**.

Research Fractions

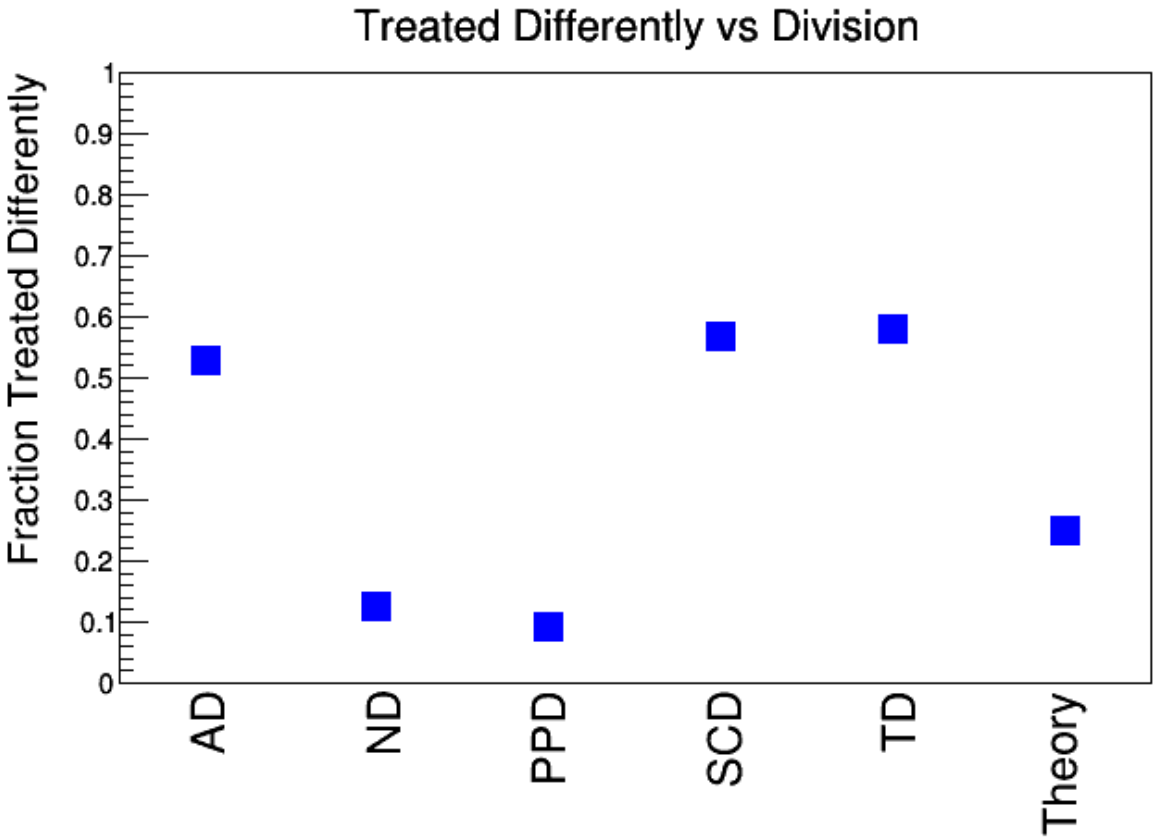
- Difference between should and actual research fraction:



And **the less you have** now, **the more** change **you want**

Research Fractions

- Do some divisions feel they are treated differently?



Yes, AD, SCD and TD definitely feel like they are treated differently

Research Fractions

- How do people feel treated differently?
  - **Not given enough time** to do research (52%)
  - Lack of **travel support** (45%)
  - Spend more time on **operations** (33%)
  - Spend more time on **management** (29%)
  - Spend more time on **committees** (13%)
  - One off responses:
    - "I get better treatment"
    - "Limited opportunities for career advancement (priority given to **younger scientists**)"
    - "**Not enough project management**/responsibility"
    - "**Difference in how time is charged**: needing a specific research project to charge time vs having a general code to charge time "
    - "**Less freedom** on research topics"
    - "CS scientists are **seen as technicians or managers** in a service organization with a corporate culture"
    - "Assigned **office space**"

Research Fractions

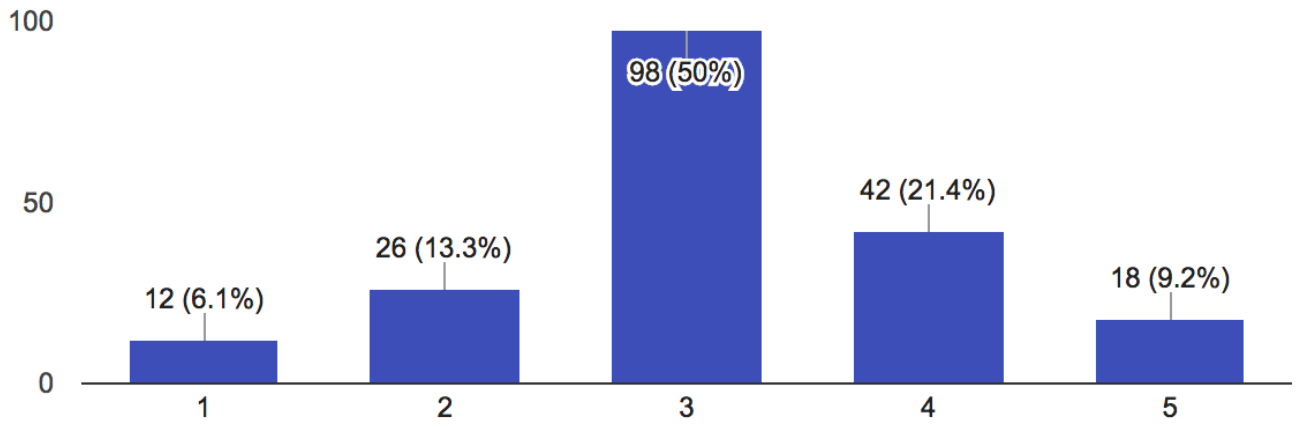
- If not given enough research time, what are the obstacles?
  - No time — too much **lab/project management** (48%)
  - **No budget code** to charge to (44%)
  - **Lack of alignment** with/ interest in research supported by division (35%)
  - No time — too much **operations** work (32%)
  - No time — too much **committee/service work** (17%)
  - Lack of **support from supervisor** (15%)

Research Fractions

- Retreat comments on research fractions:
  - **lack of resources** a bigger issue than research fraction
  - Projects **pressure to deliver is so strong**, that it squeeze out research time to zero, having counter pressure to have research would help, or having 3y project, 1y research might be useful, it should have more freedom to do research or plan. only pressure currently from operation and projects: HAVING A LAB POLICY ON RESEARCH AND A RESEARCH PLAN COULD HELP
  - **Need more transparency** for rights/privileges for app physicists and scientists
  - "**You cannot control brains of a person**"

Internal/External Recognition

- How satisfied are you with the current level of internal recognition of Fermilab scientists?



A lot of people don't have a strong opinion about this

Internal/External Recognition

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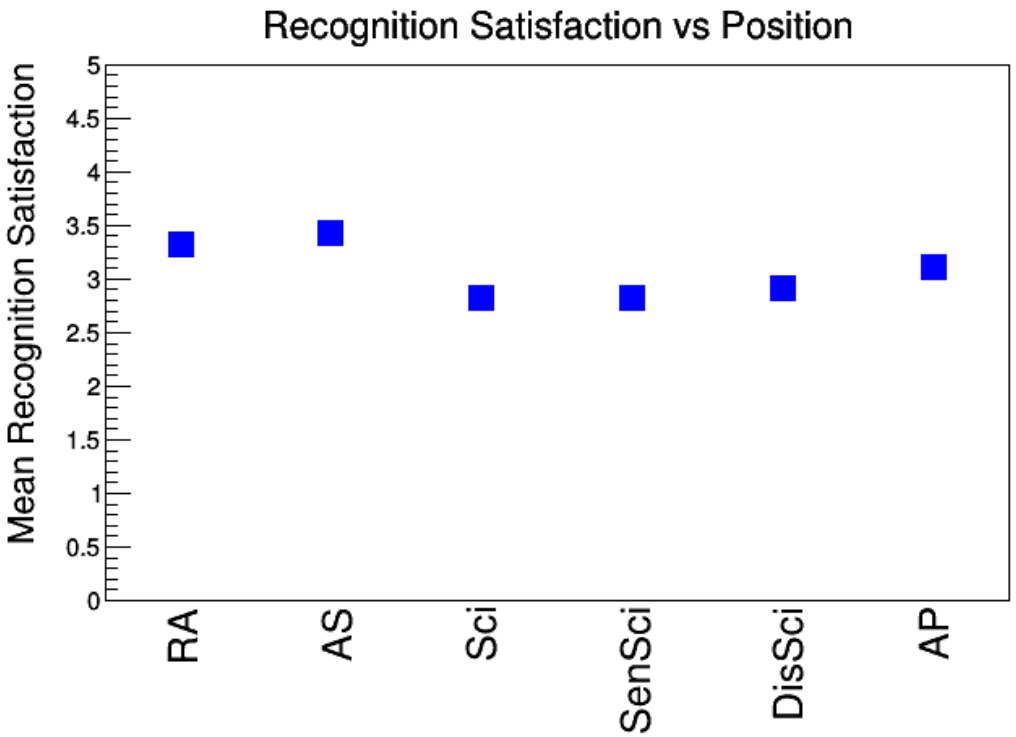


RAs and associate scientists are slightly happier with the level of internal recognition

No significant variation across divisions

Internal/External Recognition

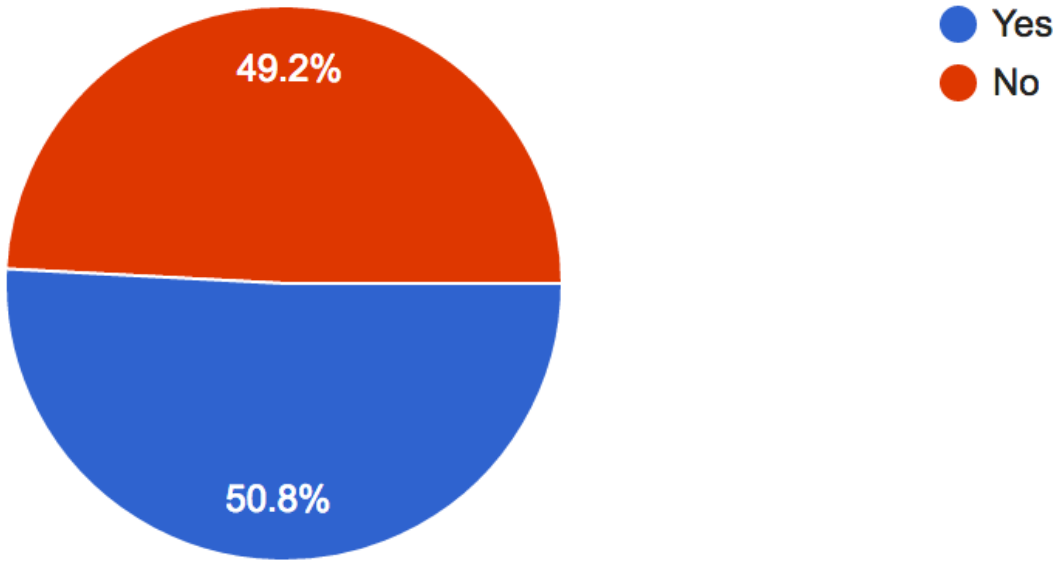
- If you are not satisfied with the current level of internal recognition of Fermilab scientists, please say why not?
  - **Line-management and even scientific supervisors** have no real interest in the research work I do. Awards are given based on perceptions/favors/friendships not achievements.
  - Very **difficult in today's budget climate** to properly reward outstanding people
  - **Physics seems to be viewed "as its own reward"**
  - There seems to be an **organizational reluctance to give out excellent performance reviews** since they are tied to raises
  - We have a mission to enable the user community which usually means at the end of the day, the **users get the bulk of the credit**. Thats fine until we set up promotion systems that require us to have external credit
  - Ya know, I see so-and-so get some award and his picture with the director and I know so-and-so and **he's lucky to have not tied his shoes together in the morning**.

Internal/External Recognition

- If you have suggestions for improving the level of internal recognition of Fermilab scientists, please give them:
  - More freedom in **choice of research topics**
  - More **publicity** should be given to achievements by scientists
  - Consider giving more **EPRA awards for physics/scientific** achievements as well as technical/ management achievements.
  - A **pat on the back from line supervisor** or Divisional management goes a long way
  - The **Scientist III report** made it sound like the only way I would get promoted is by spending half my life attending conferences. That is not the policy but that is the way it was rolled out. That **should be clarified**.
  - **Loosen coupling of performance rating and salary increase** so more scientist can have an excellent rating and still have the pay increases fit within the budget.

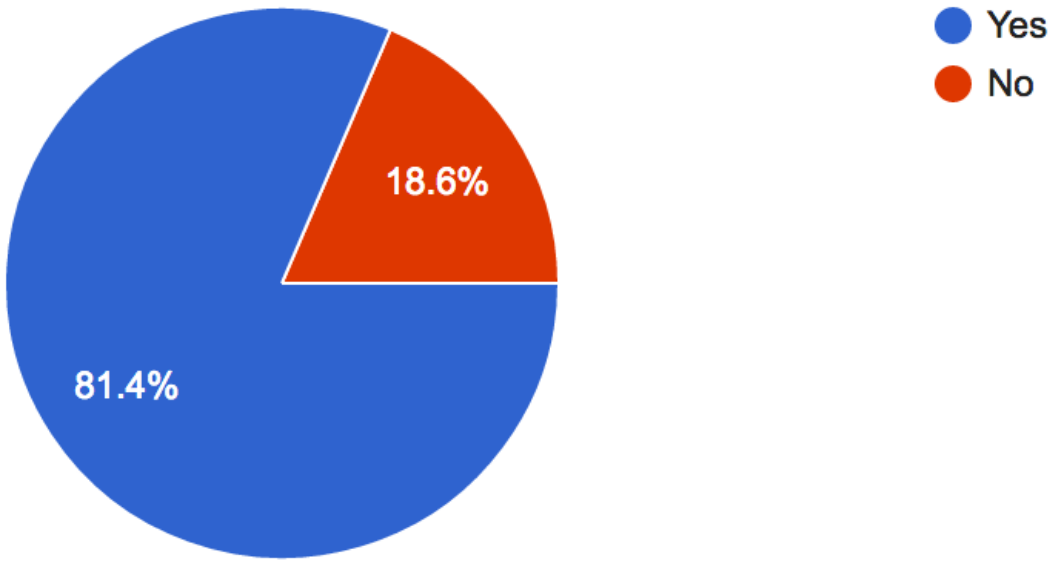
Internal/External Recognition

- Should we have more Fermilab sponsored prizes/awards? (Users would be eligible.)



Internal/External Recognition

- Should we put more people up for external awards/prizes?

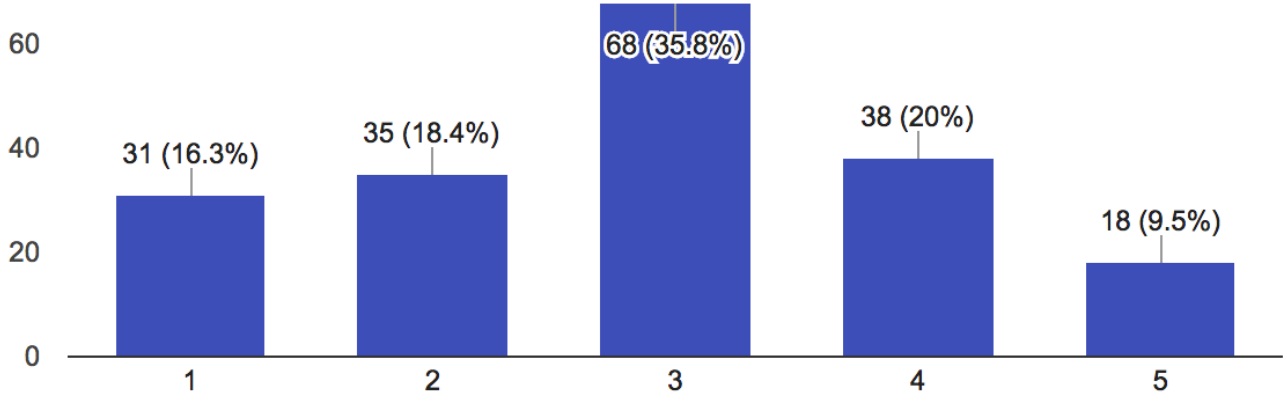


Internal/External Recognition

- Retreat comments on Recognition
  - **Primakov**, FNAL doing poorly, SLAC doing much better --> FNAL should be promoting our own people.
  - **Showcase how many awards FNAL has gotten in the last 50 years** to encourage people.
  - **EPRA awards not known**, slightly less known with younger people
  - Recognition not uniform across divisions - **maybe encourage/remind division heads**, so that people don't fall through cracks
  - Having scientists reach **Scientist-II (a terminal position) at mid-career makes it difficult to reward**. Scientist-III is still reserved for a very few people and does not appear to be open to most of the lab. Everybody gets tied up at Scientist-II.

Number of Postdocs

- Do you support an increase in the number of Fermilab Research Associates at the expense of a reduction in scientists?



There were a lot of disparate opinions on this subject, and no strong trends across division/ position

Number of Postdocs

- Fermilab currently has 50-60 RAs, **how many do you think we should have**?
  - **More**
  - More, but not at the expense of scientists
  - **Seems about right.**
  - I don't have an exact number. What I need to know as a lab scientist is that when I need an RA, the lab will support me in getting one. As a member of SCD, it has been difficult to get RA requests through the lab process. There have also been times in the not too distant past when **members of other divisions actively discouraged candidates from taking RA positions in SCD.** This is not a culture that makes one believe that the lab values your work on science.
  - 30-40
  - 150-200

Number of Postdocs

- Do you have any comments on such a change?
  - My real concern is **career advancement for the RAs**. There are few permanent jobs. Opening up more RAs means that more people will have to delay their transition out of physics.
  - RA stage is very important in a scientific career, and **Fermilab is a great host institution** for such roles, for its visibility to Universities and its breadth of topics and options for the RAs.
  - **Under no circumstances the increase in RA/scientist ratio can be achieved by layoffs**, only by natural attrition (this is most cost-effective too).
  - **we need to be both younger and more agile** -- adding PD's does this
  - If there is a significant reduction in permanent scientist jobs, we need to be **better at training the RAs to move into industry**.
  - **the situation in the Accelerator division is absolutely dire**. There are only 6 RA's.
  - This has the potential to be **incredibly disruptive** to the lab, especially since we're on the hook to deliver for several high-profile projects in the 5-10 year range

Number of Postdocs

- Retreat comments
  - Some report that they would like to **work with postdocs** in order to be more closely connected to physics
  - Should the **postdoc fraction be constant across lab**? Probably not.
  - We have the **opportunity to work with university postdocs**. Sometimes this works out well; sometimes it doesn't.
  - Postdocs **need mentoring and good supervision**
    - A postdoc mentoring committee has been launched
  - Problem of **limited jobs for postdocs will exist regardless** of Fermilab's FA numbers
  - Perhaps we should follow the lead of universities who "sell" their students to industry via **job fairs**, etc
    - Some postdocs are come to the end of their term and "basically get out a telephone book" to find out what to do next
    - Career consultant for postdocs?
    - Make use of APS resources?

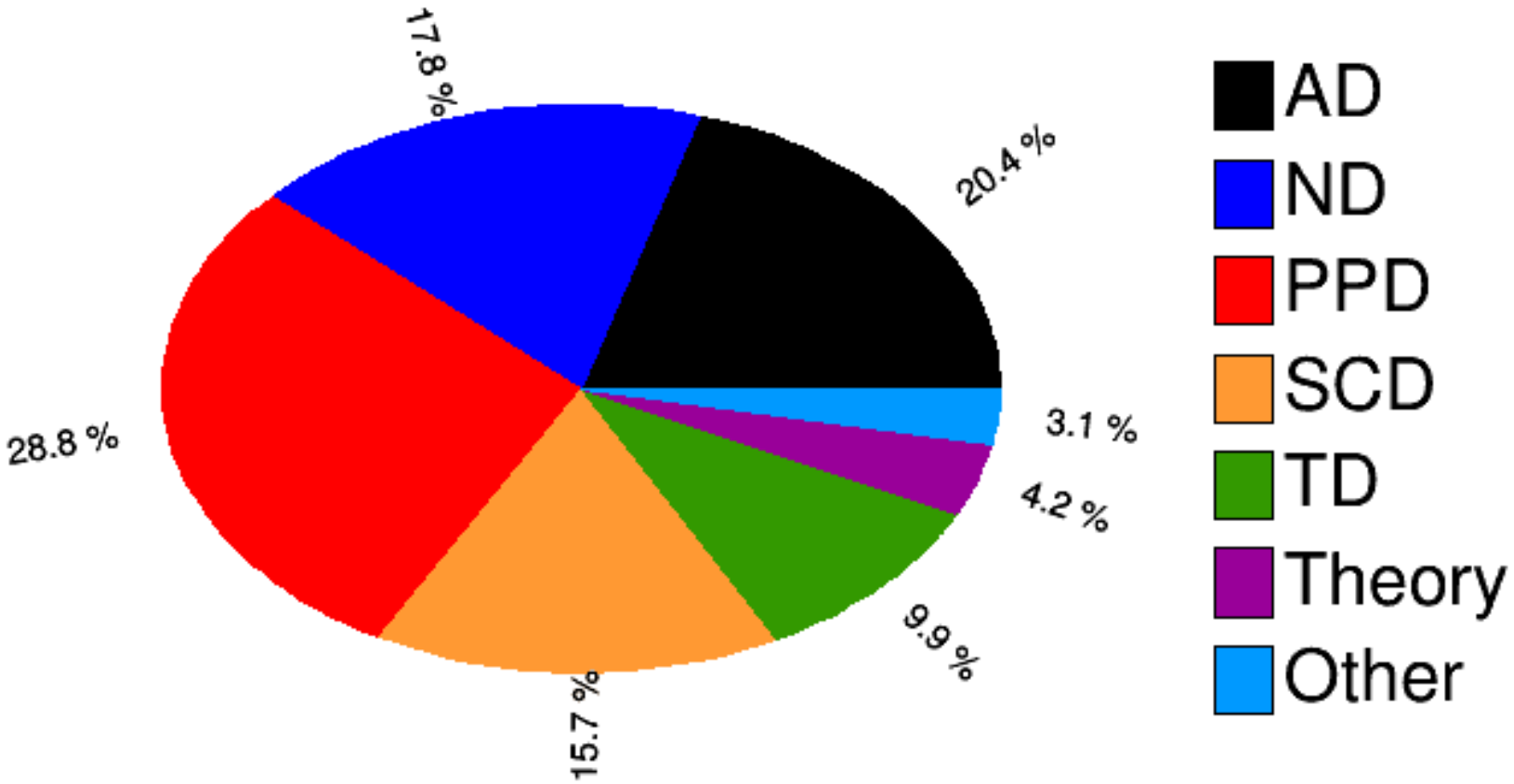
Conclusion

- One of my favorite answers to the survey:
  - **“Jesus Mary and Joseph people you know what a biased sample is. You know what an uncontrolled variable is. Don't give us those crap numbers and imagine that they mean a damn thing. What the hell kind of scientists are you?”**
  - This was about a diversity question
    - **Over to Harry!**

Backup

Some Demographics

- Who answered the survey (as of last Monday):



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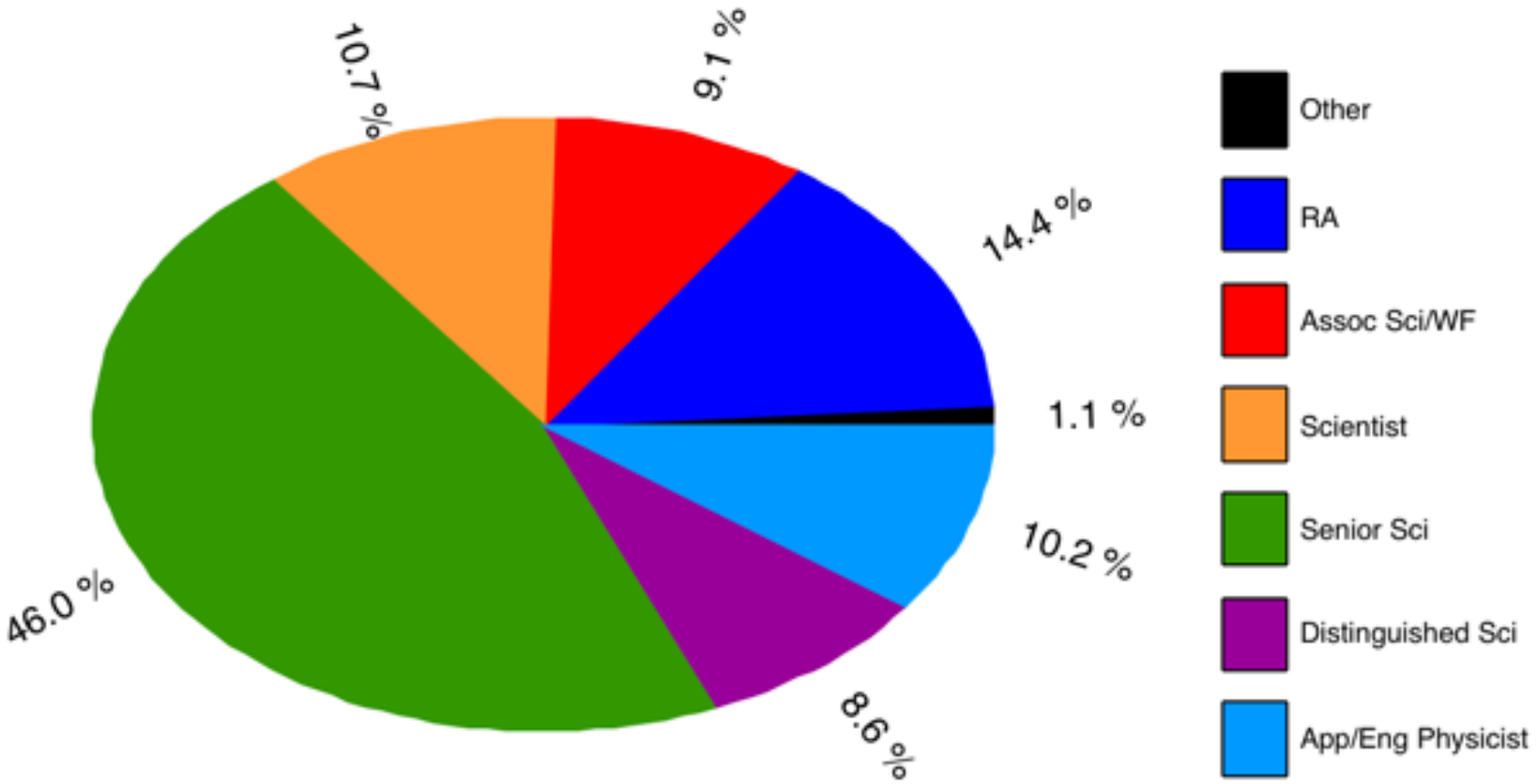

Some Demographics

- Participation Rate (As of Last Thursday):

	Survey Responses	Total	Participation Fraction
AD	39	72	0.54
ND	34	46	0.74
PPD (Inc Theory)	63	123	0.51
SCD	30	42	0.71
TD	19	31	0.61
RA	27	61	0.44
Associate Sci / WF	17	28	0.61
Scientist	22	35	0.63
Senior Scientist	87	141	0.62
Dist. Scientist	16	23	0.70
App/Eng Physicist	20	35	0.57