PUTTING ONE FOOT IN FRONT OF THE OTHER…

Building a Research Program

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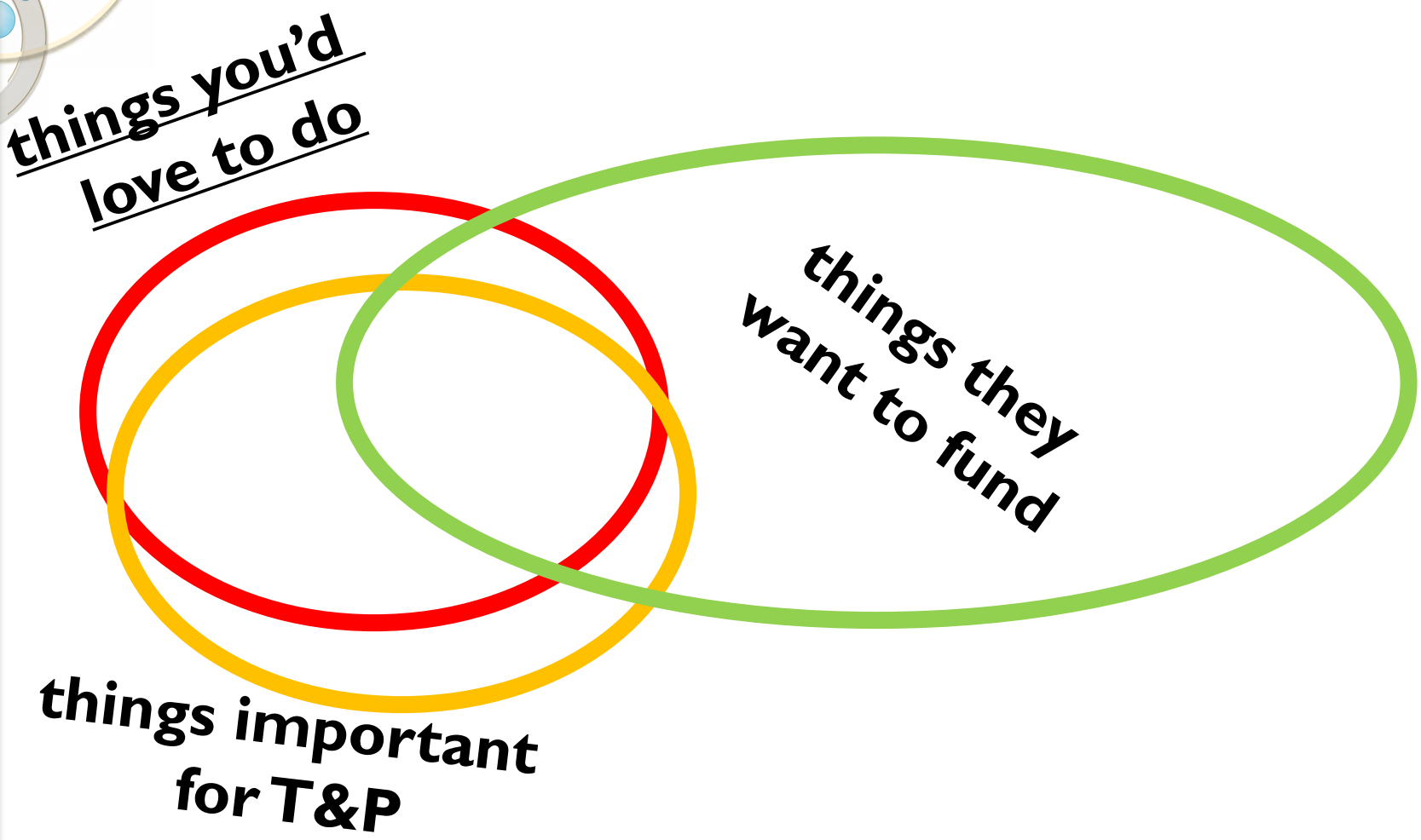
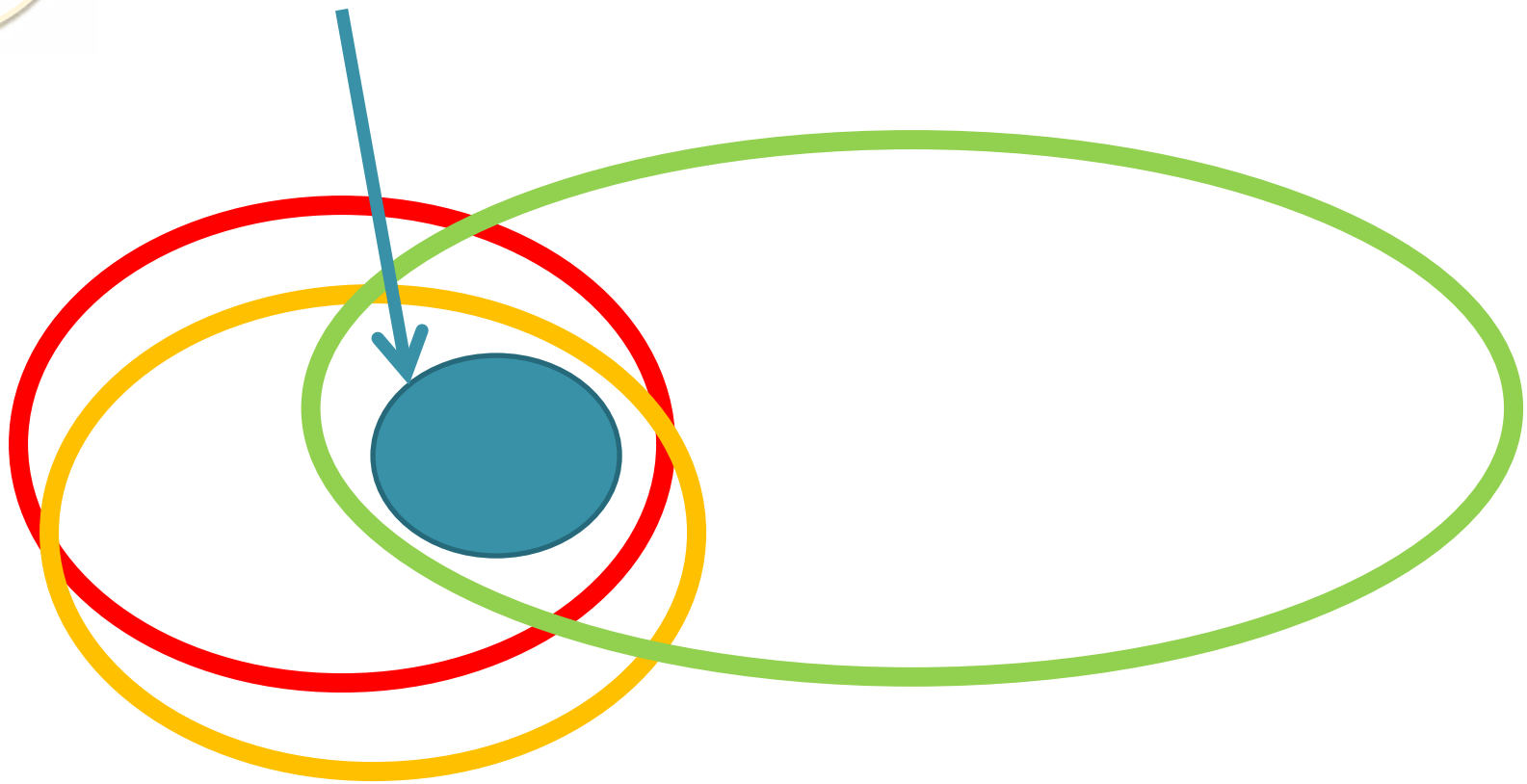
Grants Aren't Just About You



Investigate a range of funding sources at the 'sweet' spot



Know Your Agencies; Read Their Solicitations

Agency	Focus	Review Process	Average Award Size	Average Award Rate
NSF	Fundamental	Panel	$531,300	21%
DOE BES	Fundamental	Ad hoc	$129,500*	15%
ONR	Mission	PM + ad hoc	$510,000	18%
AFOSR	Fundamental	PM + review	$358,600	25%

- Annualized amount
- The above "focus" and "review process" categorizations are examples, and may not represent the process for all programs at those agencies

Sources:

- https://www.nsf.gov/about/budget/fy2016/pdf/04_fy2016.pdf
- http://www.wpafb.af.mil/News/Article-Display/Article/969772/afosr-awards-grants-to-58-scientists-and-engineers-through-its-young-investigat/
- https://science.energy.gov/~/media/bes/pdf/brochures/2018/BESUpdate2017.pdf

Maximize Expected Value

Submit multiple proposals to different sources each year

- Frequent, high-quality shots on goal
- Shoot at several goals and always look for new goals that pop up
- Revise & resubmit; don't give up easily
- Form teams whenever helpful
- Start early in your career! Do not wait to submit grants until "you have a perfect idea": can lead to paralysis

One size does not fit all

- Target the grants that are best suited for you to have the greatest impact
- In certain fields, that may involve steady progress with smaller grants (1-2 PIs); other fields may be more conducive to large teams and grants

Choosing which opportunities to pursue

- Should you go after grants in areas that are only slightly related to your main area of interest?
- Two competing lines of thought:
  - "I really need funding, I will participate in every opportunity presented to me."
  - "I only want to go after things that are directly related to my main area of interest."
- Aim for a middle ground
  - You should want to work on the project if it is funded
  - My experience: often new ideas and directions can come from "offbeat" projects
  - However, when going up for T&P, you also want to "plant your flag" in a specific set of areas, tell a coherent story
    - Make sure you have steady research output in your core area
    - Don't fill up all your time with low-effort low-probability efforts in tangential areas

Building Interdisciplinary, Diverse teams

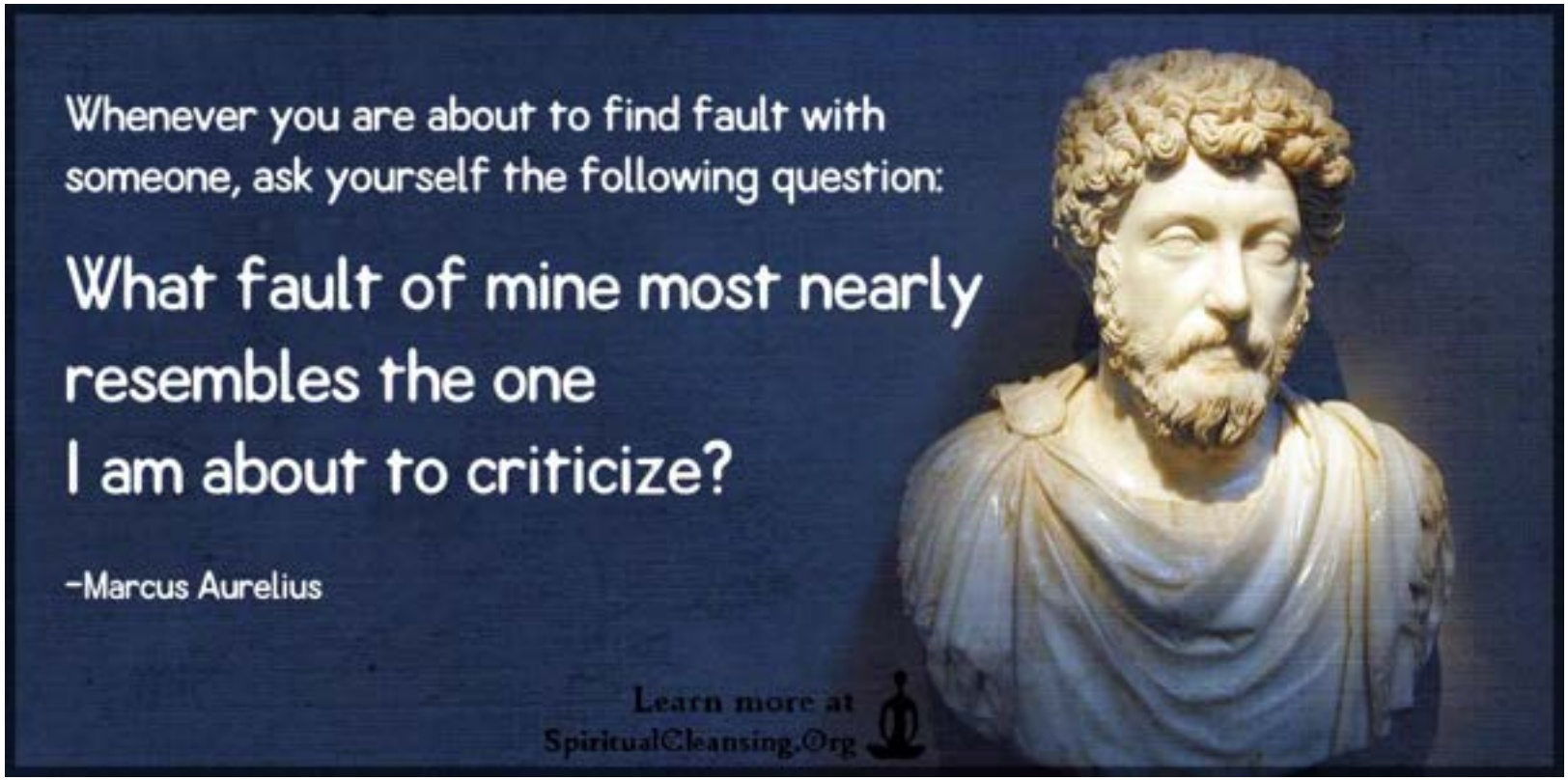
- How many grand challenges can be solved by a single discipline?
- Most funding agencies have increasingly focused $ on interdisciplinary teams
- It's fun and productive to bring new methods and perspectives to your work through a diverse set of collaborators
- It opens up new funding sources and new areas for your interests and talent that would not be possible on your own
- Networking: attend conferences, seminars, etc., to identify potential opportunities for collaboration

But don't you have to be a solo PI for promotion & tenure (P&T)?

No, not always; in fact, a mix is best

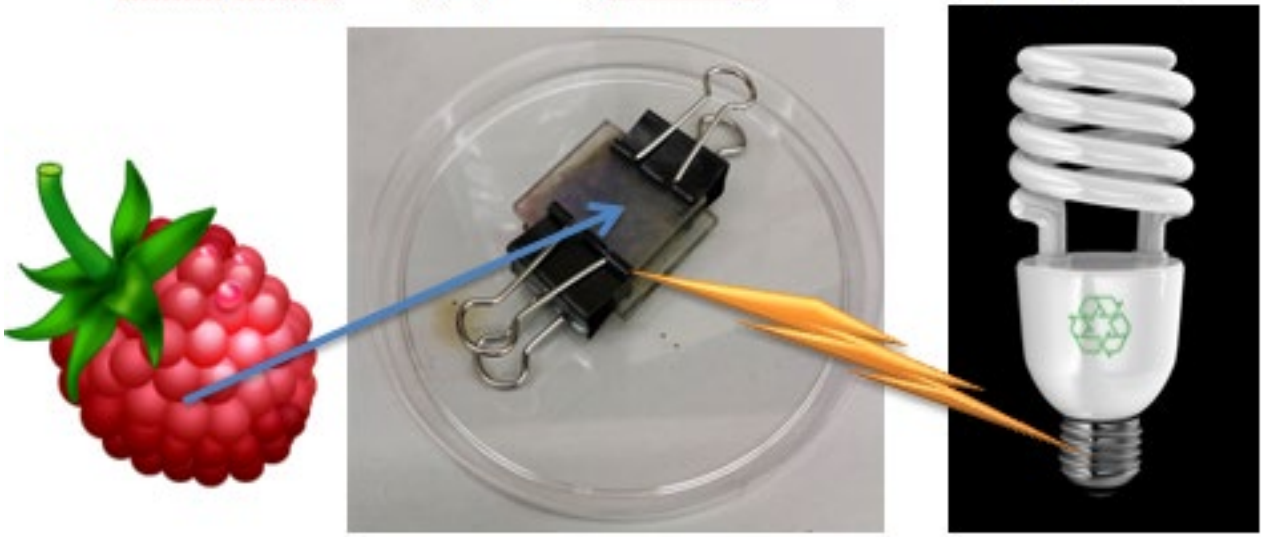
Volunteer to review proposals

Why?



Consider Linking Research, Teaching, and Service

Even if it is not required, it can be a significant competitive advantage and is often helpful for P&T.



Persist

- New grad student: "Will I ever get a paper published?"
- New faculty member: "Will I ever get a grant funded?"

- Going after funding at the start of your career can be challenging, frustrating, stressful, demoralizing…
- But: **You Are Not Alone!**
  - Use the fantastic resources available at Purdue
  - Get feedback from other faculty on your drafts (especially for Early Career Awards); also helps you get drafts done earlier
  - Don't give up: try to talk to program managers to get feedback on the grants

Then one day: "Congratulations, your grant has been recommended for funding."

Summary: Develop a Research Vision

- Understand your unique strengths (and weaknesses!) as a researcher
- Establish unique, long-term research goals
- Apply to opportunities that fit in with those goals
- Ensure that goals can provide enough resources to hire students and meet your tenure & promotion needs
- Establish collaborations as appropriate

- Persist, revise, learn from rejections: you will get there!

Sources:
https://intranet.bloomu.edu/documents/research/ebook-funding.pdf

Additional Resources

- HHMI: Making the Right Moves
- Drs. Cronin & Deckard: New Faculty Guide to Competing for Research Funding
- Lewis-Burke Associates: How to Engage with Federal Research Funding Agencies
- Dr. Rob Porter: What Do Grant Reviewers Really Want, Anyway?
- MSU Libraries: Grants and Related Resources