

Mutual Mentoring: What Works and Why it is so Valuable

Anne J Cox

Cindy Blaha

Linda Fritz

Barbara Whitten

Eckerd College

Carleton College

Franklin and Marshall College

Colorado College

St Petersburg, FL

Northfield, MN

Lancaster, PA

Colorado Springs, CO

Overview

- Mentoring
- Why is it Important?
- What Works?
- How can you be a part of it?

Mentoring



Robin Wright as General Antiope training the young Wonder Woman played by Emily Carey

<http://thenerdybird.com/wp-content/uploads/2017/06/Screen-Shot-2017-06-13-at-6.50.46-PM.png>

Mentoring



Robin Wright as General Antiope training Wonder Woman played by Gal Gadot

http://i.dailymail.co.uk/i/pix/2017/05/21/23/40A33C8800000578-4528276-image-m-65_1495407262961.jpg

Mentoring?



Wonder Woman played by Gal Gadot

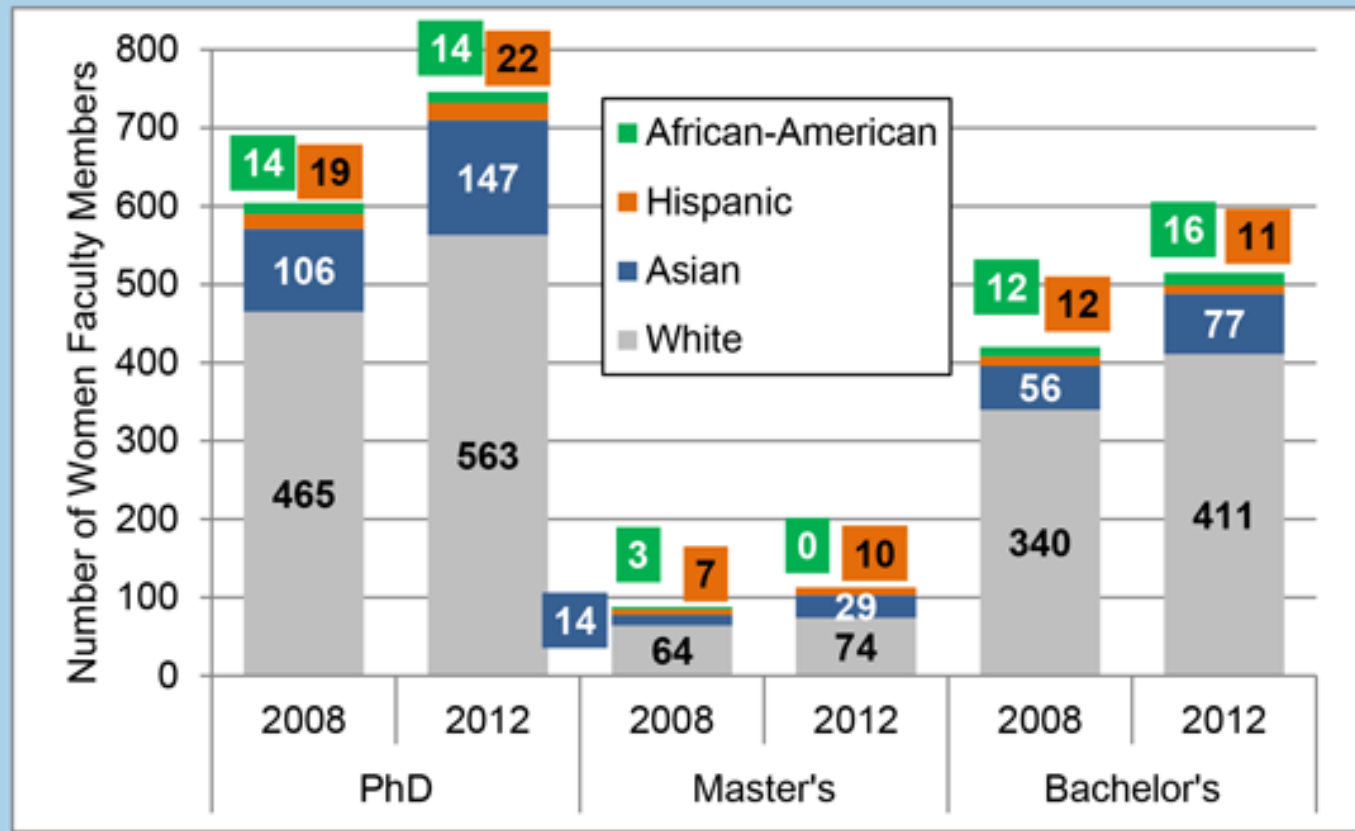
<https://misteriosdomundo.org/wp-content/uploads/2017/01/Esse-s%C3%A3o-os-filmes-mais-esperados-pelo-p%C3%BAblico-que-ser%C3%A3o-lan%C3%A7ados-em-2017-0.jpg?w=640>

Mentoring?



Physics Departments

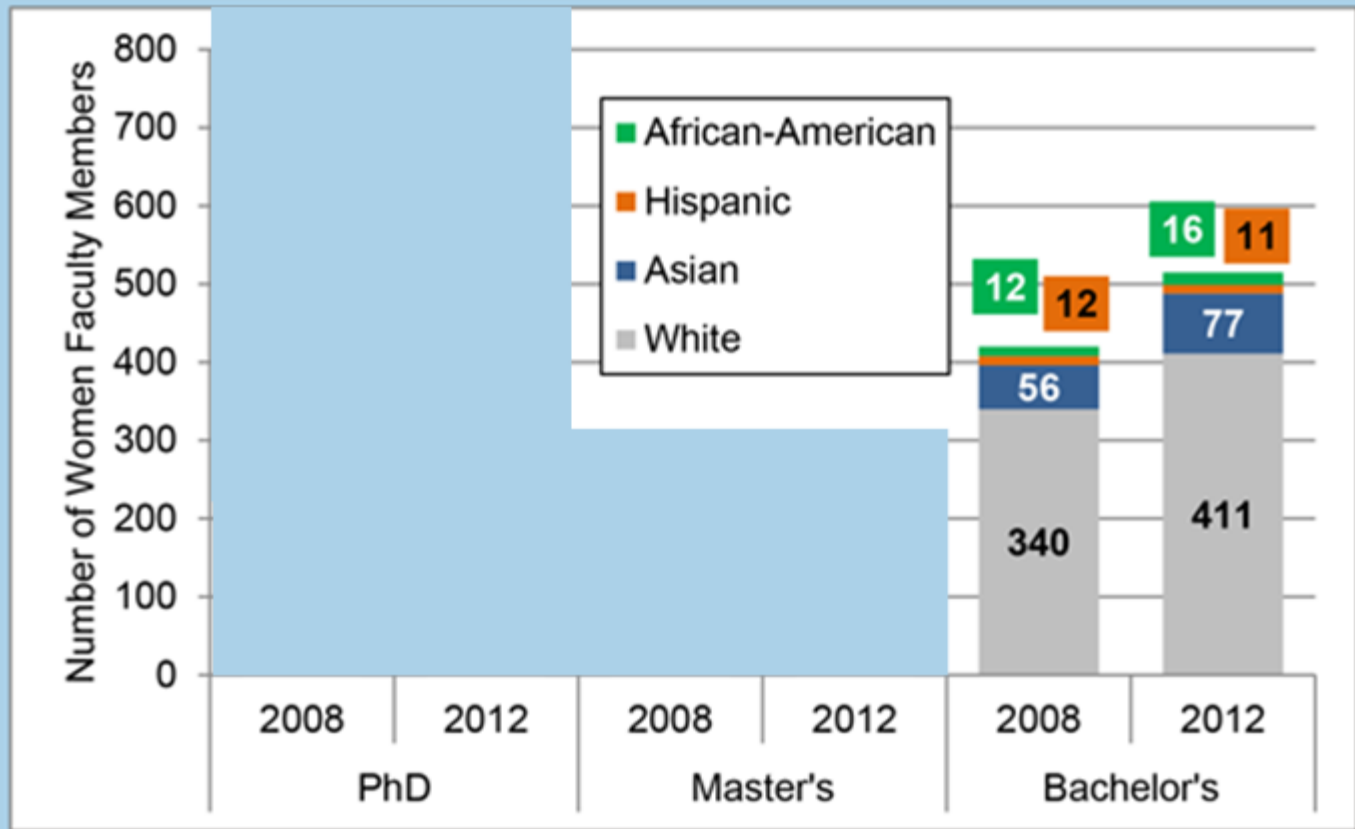
**Number of Women in Physics and Astronomy Departments, 2012
by Race and Highest Degree Awarded**



www.aip.org/statistics

Isolation

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by Race and Highest Degree Awarded**



www.aip.org/statistics

Isolation

Basic Data on Faculty Members in Degree-Granting Physics Departments

Highest Physics Degree Awarded	Bachelor's
Smallest Department (# of faculty members)	1
Median Size (# of faculty members)	4
Largest Department (# of faculty members)	27
Women's Representation among Professorial-Rank Faculty Members	16%
Departments That Have No Women	47%
Departments That have No Men	1%
Number of Departments (2010)	503

www.aip.org/statistics

Susan White and Rachel Ivie, *Number of Women in Physics Departments: A Simulation Analysis*, AIP Report, 2013.

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Basic Data on Faculty Members in Degree-Granting Physics Departments

Highest Physics Degree Awarded	Bachelor's	PhD
Smallest Department (# of faculty members)	1	3
Median Size (# of faculty members)	4	22
Largest Department (# of faculty members)	27	75
Women's Representation among Professorial-Rank Faculty Members	16%	11%
Departments That Have No Women	47%	8%
Departments That have No Men	1%	0%
Number of Departments (2010)	503	192

www.aip.org/statistics

Susan White and Rachel Ivie, *Number of Women in Physics Departments: A Simulation Analysis*, AIP Report, 2013.

Isolation

Basic Data on Faculty Members in Degree-Granting Physics Departments

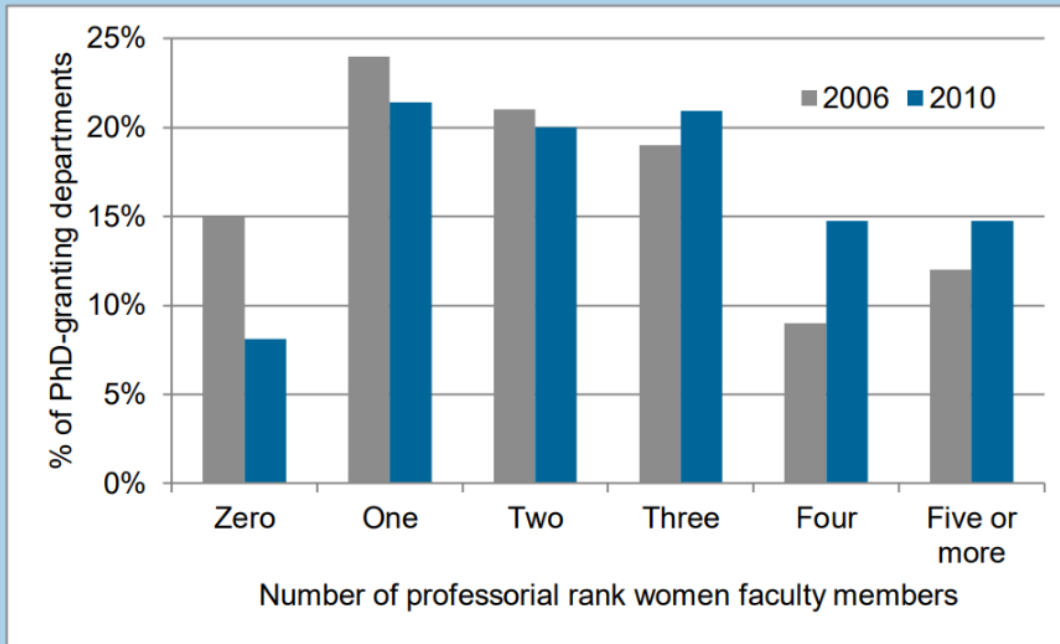
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www.aip.org/statistics

Susan White and Rachel Ivie, *Number of Women in Physics Departments: A Simulation Analysis*, AIP Report, 2013.

Isolation?

Percentage of PhD-Granting Physics Departments
by Number of Women Faculty Members



<http://www.aip.org/statistics>

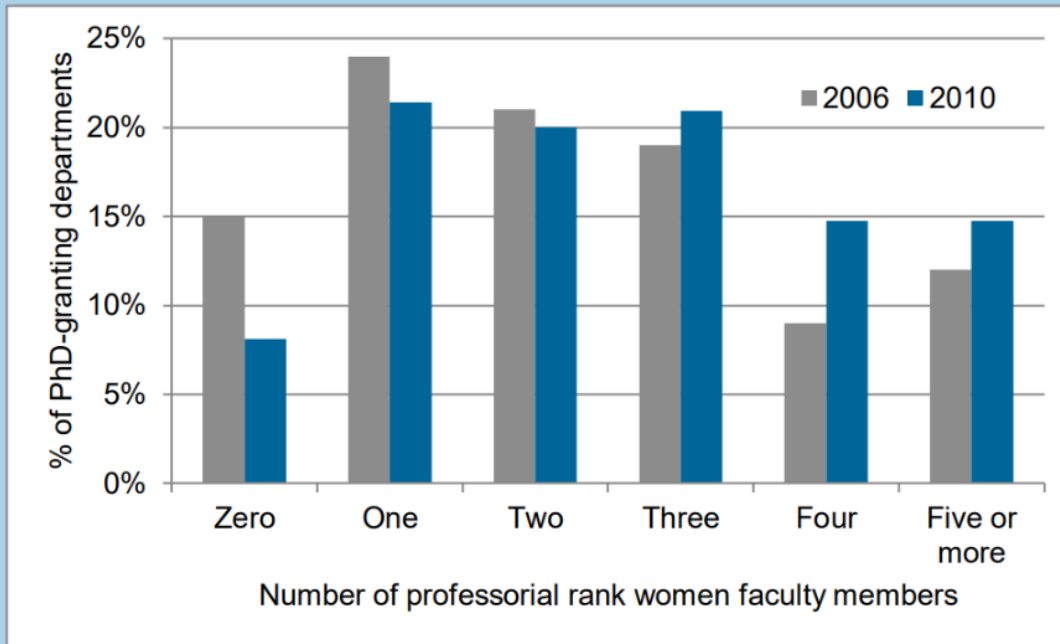
The year refers to the spring semester; for example, 2010 represents the 2009-10 academic year.

About 15% of the PhD-granting physics departments had at least five women faculty members during the 2009-10 academic year.

Rachel Ivie, Susan White, Arnell Garrett, and Garrett Anderson, *Nwomen among Physics & Astronomy Faculty*, AIP Report, 2013.

Isolation

Percentage of PhD-Granting Physics Departments
by Number of Women Faculty Members



<http://www.aip.org/statistics>

The year refers to the spring semester; for example, 2010 represents the 2009-10 academic year.

About 30% of the PhD-granting physics departments had zero or one woman faculty member during the 2009-10 academic year.

Rachel Ivie, Susan White, Arnell Garrett, and Garrett Anderson, *Nwomen among Physics & Astronomy Faculty*, AIP Report, 2013.

Isolation

We must also recognize that having at least one woman among the faculty in more departments results in an increased number of women who are the *only* woman in their department.

Susan White and Rachel Ivie, *Number of Women in Physics Departments: A Simulation Analysis*, AIP Report, 2013.

Mentoring?

one solution to

Isolation?

Peer Mentoring?



Peer Mentoring?

one solution to

Isolation?

Peer Mentoring?



Peer Mentoring: Horizontal Alliances



National Science Foundation



- Grants to **advance** careers of women in science and engineering in higher education.
- Since 2001, it has provided 135 Million USD for over 100 projects.

Peer Mentoring: Horizontal Alliances



National Science Foundation

Award: HRD-0619150



2007

Partnership for Adaptation, Implementation, & Dissemination
(PAID) Award:

Collaborative Research for Horizontal Mentoring Alliances

Kerry Karukstis et al, Harvey Mudd College, California, USA

4 alliances of chemists plus 1 alliance of physicists

Our Alliance: 2007



Amy Bug

Barbara Whitten

Anne Cox

Cindy Blaha

Linda Fritz

Swarthmore College

Colorado College

Eckerd College

Carleton College

Franklin & Marshall College

Our Alliance

The image features a map of the United States with five callout boxes highlighting specific colleges. Each callout includes the college's name and logo. Red location pins are placed on the map to indicate the geographic location of each college: Carleton College in Minnesota, Franklin & Marshall in Pennsylvania, Colorado College in Colorado, Eckerd College in Florida, and Swarthmore in Pennsylvania.

- Carleton College**: Located in Minnesota.
- FRANKLIN & MARSHALL**: Located in Pennsylvania.
- COLORADO COLLEGE**: Located in Colorado.
- ECKERD COLLEGE**: Located in Florida.
- SWARTHMORE**: Located in Pennsylvania.

Organization

- Initial in-person meeting (National Conference)
- Meals together



Organization

- Initial in-person meeting (National Conference)
- Meals together
- Skype conference calls
 - Book group



Image: http://blogs.skype.com/?attachment_id=56273

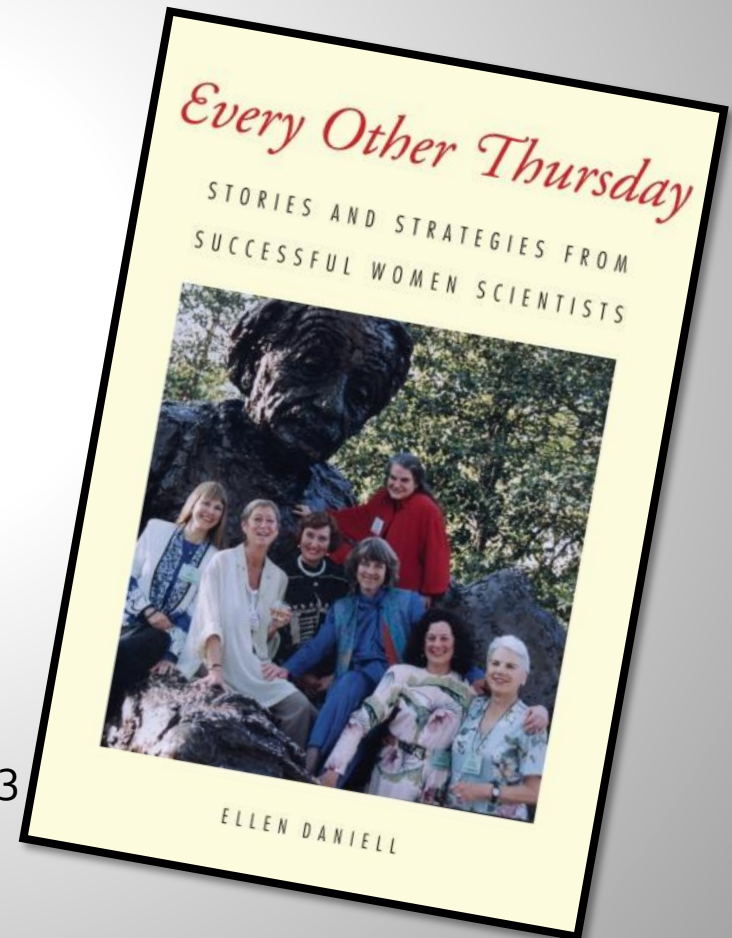


Image: <http://yalepress.yale.edu/yupbooks/images/full13/9780300510843.jpg>

Organization

- Initial in-person meeting (National Conference)
- Meals together
- Skype conference calls
 - Book group
 - Working group: Topic Research in Technical Physics

10 years later...

- Met last 3 times without grant funding
- 4 of 5 original group members talk every other week



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- Topics
 - College politics



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 - Family



10 years later...

- Met last 3 times without grant funding
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- Topics
 - College politics
 - Family
 - New projects

LETTER OF INTENT (LOI) TO THE NATIONAL SCIENCE FOUNDATION

LOI ID L02331424	LOI SUBMITTED DATE N/A	LOI DUE DATE 10/05/2012	PROGRAM SOLICITATION TITLE the Participation and Advancement of Women in Academic Science and Engineering Careers
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PROGRAM SOLICITATION TITLE
NSF

10 years later...

- Met last 3 times without grant funding
- 4 of 5 original group members talk every other week
- Topics
 - College politics
 - Family
 - New projects

What are you going to give-up
to make room for that new
project?

10 years later...

- Met last 3 times without grant funding
- 4 of 5 original group members talk every other week
- Topics
 - College politics
 - Family
 - New projects
 - Accountability

April 2014

Sun	Mon	Tue	Wed	Thu	Fri
30 7th grade Marine Camp trip 2:30p PYS	31 2p Taylor 3p Taryn +2 more	Apr 1 3p Clayton lecture and Cor	2 NAS Student Symposium 11:40 Danielle +2 more	3	4 1p GE Meeting 3:10p EJ 3:30p OK rehearsal 4p Ian
6	7 11:50 Tale 1p EC Open House- wa 3:30p OK rehearsal	8 11:40p OK rehearsal 2p NSF Advance	9 1:40p NAS meeting 5p Violin lessons	10 3:30p OK rehearsal	11 1p GE Meeting
13 Thomas Jefferson's Birth 2:30p PYS	14 1:30p Thea 3p Feldman	15 1:30p Maggie ortho	16 1:40p Faculty 5p Violin lessons	17 12p OK rehearsal 1p Math candidate	18 No classes Easter Break 10 OK rehearsal 1p GE Meeting
20 Easter Sunday	21 Easter Break 10 OK rehearsal	22 2p NSF Advance	23 12p TLC at PDR 3:30p OK	24 OK Show-- 7:30 show, 5:30 call time	25 1p GE Meeting 3:30p FCC Tenure
27 2:30p PYS	28	29 1:30p Satterfield committe	30 8:30p	May 1	

Key aspects...

- Initial in-person meeting
- Frequent conference calls
- Periodic in-person meetings

April 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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27 2:30p PYS	28	29 1:30p Satterfield committe 3p Andrew	30 9:30 Amanda 9:30 Andrew test makeup 12p Lunch w Laura 5p Violin lessons	May 1	2 9:30 Amanda 1p GE Meeting 1p MPC walk-through 5:30p Matthews retirement	3

Key aspects...

- Initial in-person meeting
- Frequent conference calls
- Periodic in-person meetings
- Credibility of National Organization

Please come back at 4pm
on a conference call for the
National



Science
Foundation

Key aspects...

- Initial in-person meeting
- Frequent conference calls
- Periodic in-person meetings
- Credibility of National Organization

Please come back at 4pm
on a conference call with
Old Lady
Physicists

Key aspects...

- Initial in-person meeting
- Frequent conference calls
- Periodic in-person meetings
- Credibility of National Organization
- Commitment to Alliance
 - Similar situations

Key aspects...

- Initial in-person meeting
- Frequent conference calls
- Periodic in-person meetings
- Credibility of National Organization
- Commitment to Alliance
 - Similar situations
 - Relevance

Elder care
Department Chair
Teacher
Mentor
Parent
Researcher
Mother of the Bride
Sabbatical
Retirement

Key aspects...

- Initial in-person meeting
- Frequent conference calls
- Periodic in-person meetings
- Credibility of National Organization
- Commitment to Alliance
 - Similar situations
 - Relevance
 - Honest discussion
 - No competition (different fields)
 - No evaluation (different institutions)
 - Topics beyond work encouraged

Peer mentoring

Best evidence that it is helpful...

Peer mentoring

Best evidence that it is helpful...

we continue to make it a priority at the beginning of each semester to schedule our calls every other week.

Peer mentoring

Best evidence that it is helpful...

we continue to make it a priority at the beginning of each semester to schedule our calls every other week.

we wanted to share the effectiveness of peer mentoring with other women faculty

AAPT + NSF ADVANCE = eAlliances!

eAlliances.aapt.org



NSF ADVANCE: PLAN D Award HRD-1500529

eAlliances is an NSF-sponsored faculty development project for women in physics and astronomy designed to create peer-mentoring alliances with women who share similar experiences.

eAlliances.aapt.org

eAlliances

NSF ADVANCE: PLAN D

- AAPT sets up eAlliance match service
- Electronic meetings
- In-person meetings at AAPT, APS, AAAS conferences
- Summit meeting of eAlliances: Summer 2018

eAlliances.aapt.org



Home

Resources

Join

Contact

FAQ



eAlliance Co-PI's

Left to Right - Anne Cox- Eckerd College, Beth Cunningham- AAPT, On Computer: Cindy Blaha- Carleton College, Idalia Ramos - University of Puerto Rico - Humacao, Barbara Whitten - Colorado College

eAlliances.aapt.org

Register on site...



[Home](#) [Resources](#) [Dashboard](#) [Join](#)

Registration — Step 1

Already an eAlliance member? [Sign in now](#)

Membership Status

Are you a member of:

- AAPT**
- APS**
- AAS**
- I am not a Member of either of these organizations**

NEXT

eAlliances.aapt.org

Manage your information...

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YOUR EALLIANCE CONTROL PANEL

[Dashboard](#)[Profile](#)[Message
Center](#)[Invitation
Center](#)[Your Alliances](#)[Logout](#)

Signed in as Cindy Blaha

eAlliances Dashboard

To assist you with finding the right match please complete your Attribute selection

Alliances

Search, view, or create an alliance

Message Center

To do

Content on suggestions on forming an alliance

Check for duplicates

eAlliances.aapt.org

Rank cohort attribute preferences...

YOUR EALLIANCE CONTROL PANEL

 Dashboard

 Profile

 Message
Center

 Invitation
Center

 Your Alliances

 Logout

Signed in as Cindy Blaha

Your Profile (Cindy Blaha)

InComplete
Display stage 2

Please indicate **three to five factors** that are important to you in forming your alliance.
Assign a **total of 10 points** to these factors to indicate the **relative importance** of each.

I want to form an alliance with some colleagues who are ...

...in a department similar to mine (institution type, highest degree offered). [set 1]

...in a similar position (academic rank, tenure status). [set 2]

...doing similar research. [set 3]

...in a similar personal situation (sexual identity, marital status, family situation). [set 4]

...with a similar racial or ethnic background. [set 5]

...with similar religious beliefs. [set 6]

...with similar disabilities. [set 7]

Answer attribute questions...



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YOUR EALLIANCE CONTROL PANEL

[Dashboard](#)

[Profile](#)

[Message Center](#) 1

[Invitation Center](#)

[Your Alliances](#)

[Logout](#)

Signed in as Cindy Blaha

Alliances

[+ CREATE AN ALLIANCE](#)

[VIEW YOUR ALLIANCES](#)

Your Match Results

[REFRESH LIST](#)

Please use the options below to send a message to people of interest.

Name	View Profile	Send Message
NA	View	Send
NA	View	Send
NA	View	Send
NA	View	Send
NA	View	Send
BC	View	Send
BC	View	Send

Look
for
potential
matches

Form Cohort Based on Match Results



What Can Cohort Members Expect?

During the first year cohort members will:

- Fill out on-line profile, attributes
- Form a cohort of 4-5 members based on AAPT match service results
- Hold regular electronic meetings with other cohort members
- Apply for ADVANCE support to travel to AAPT, AAS or APS conference for in-person meeting
- Fill out electronic journal questions twice per year
- Attend Summit Meeting Summer of 2018
- Participate in summative program evaluation

Current Status

3 1/2 cohorts:

- Recently tenured or soon to be up for tenure
- PER at mid to large institutions
- Newly entered tenure-track positions
- Young astronomers

eAlliances and Beyond

Broader aims:

- The match service will help facilitate mentoring networks for physicists of all gender identities and employment sectors
- The mentoring matching algorithm will serve as a model for other scientific communities

eAlliance Mentoring Networks

You should try it some time...

eAlliances.aapt.org



HRD-1500529