

ADVANCE

FOR THE ADVANCEMENT OF WOMEN IN ACADEMIC SCIENCE AND ENGINEERING CAREERS



# COLLABORATIVE RESEARCH FOR HORIZONTAL MENTORING ALLIANCES

*Facilitating the advancement of senior women chemistry and physics faculty members at liberal arts institutions to the highest ranks of academic leadership*

**National Science Foundation ADVANCE Partnerships for  
Adaptation, Implementation, and Dissemination (PAID) Award**

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**October 2006 - September 2010**

**[www.hmc.edu/nsfadvance](http://www.hmc.edu/nsfadvance)**

# PRINCIPAL INVESTIGATORS

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**KERRY KARUKSTIS, HARVEY MUDD COLLEGE, CLAREMONT, CA**

**BRIDGET GOURLEY, DEPAUW UNIVERSITY, GREENCASTLE, IN**

**LAURA WRIGHT, FURMAN UNIVERSITY, GREENVILLE, SC**

**MIRIAM ROSSI, VASSAR COLLEGE, POUGHKEEPSIE, NY**

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*Left to right:*  
**Miriam Rossi,  
Laura Wright,  
Bridget Gourley, &  
Kerry Karukstis**



# SUMMARY OF INITIATIVES

This NSF-ADVANCE-PAID project focuses on the distinctive environments of undergraduate liberal arts institutions and the challenges faced by senior women faculty on these campuses to attain leadership roles and professional recognition. Our project involves the formation of five-member alliances of senior women faculty members at different institutions. Three of the alliances focus on full professors in chemistry, the fourth involves full professors in physics. We have formed these alliances to test a “horizontal mentoring strategy” that aims to enhance the leadership, visibility, and recognition of participating faculty members.

Alliance members participate in discussions, workshops, and activities focused on career and leadership development. We are particularly interested in exploring how this mentoring strategy operates differently, and perhaps more effectively, for women from liberal arts colleges as compared to women faculty members at Ph.D.-granting institutions. We will share our findings on horizontal mentoring strategies for academic women in a variety of venues, including a summit meeting in Washington, D.C. on June 3-5, 2010.

[www.hmc.edu/nsfadvance](http://www.hmc.edu/nsfadvance)

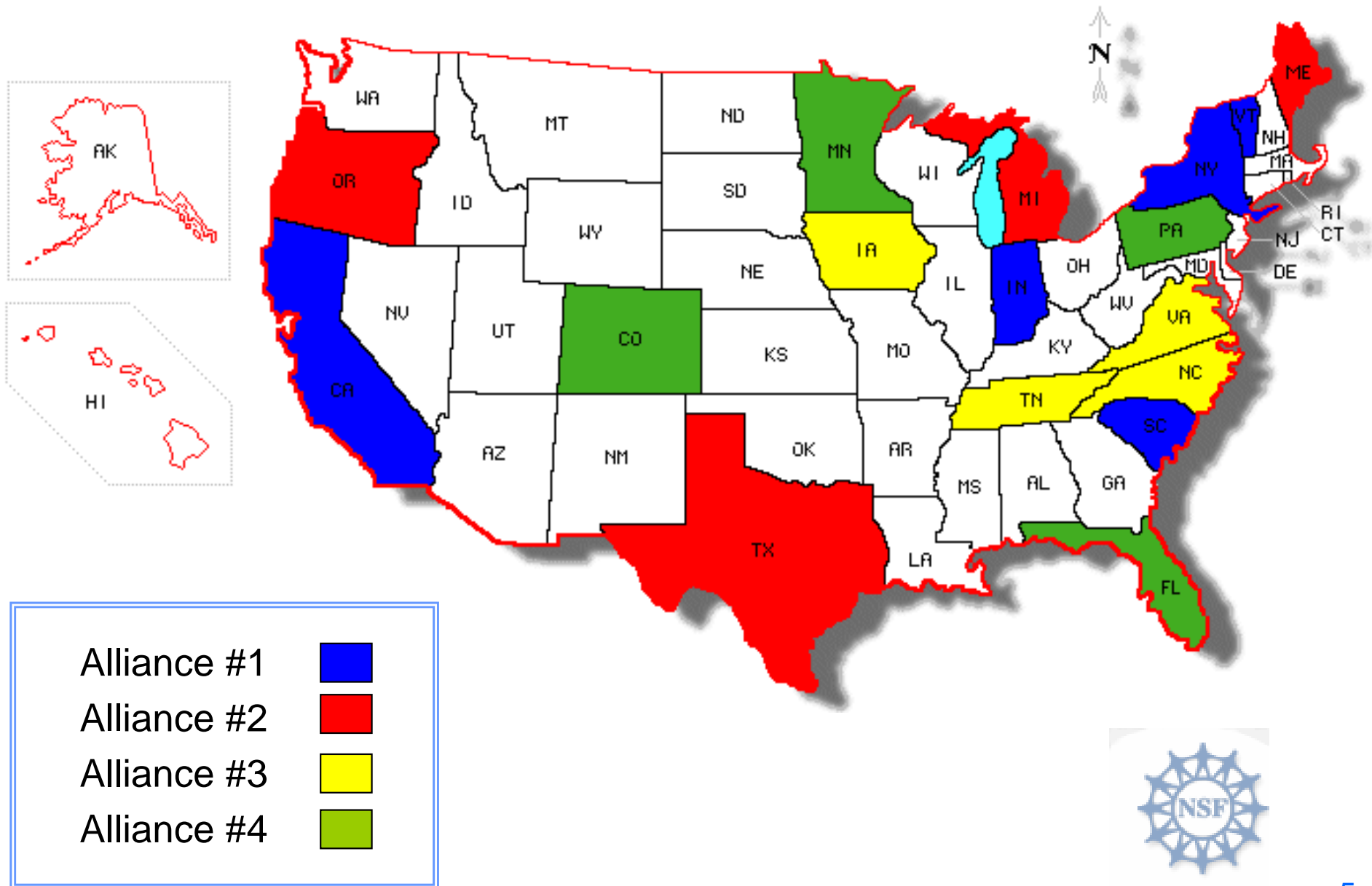
# ALLIANCE PARTICIPANTS

Alliance #1	Chemistry	Alliance #2	Chemistry
Sunhee Choi	Middlebury College	Janis Lochner	Lewis and Clark College
Bridget Gourley	DePauw University	Julie Millard	Colby College
Kerry Karukstis	Harvey Mudd College	Nancy Mills	Trinity University
Miriam Rossi	Vassar College	Joanne Stewart	Hope College
Laura Wright	Furman University	Melissa Strait	Alma College

Alliance #3	Chemistry	Alliance #4	Physics
Ruth Beeston	Davidson College	Cindy Blaha	Carleton College
Jill Granger	Sweet Briar College	Amy Bug	Swarthmore College
Darlene Loprete	Rhodes College	Anne Cox	Eckerd College
Leslie Lyons	Grinnell College	Linda Fritz	Franklin & Marshall College
Carol Ann Miderski	Catawba College	Barbara Whitten	Colorado College



# GEOGRAPHICAL DISTRIBUTION OF ALLIANCE MEMBERS



# ALLIANCE MEETINGS TO DATE

Alliance #	Date	Location
1	January 12-14, 2007	Claremont, CA
	March 22-24, 2007	Chicago, IL
	February 29 - March 2, 2008	Dallas, TX
	October 19-20, 2008	Chicago, IL
	May 29 - June 1, 2009	Seattle, WA
2	March 24-25, 2007	Chicago, IL
	June 22-26, 2007	Portland, OR
	October 19-21, 2007	San Antonio, TX
	June 20-22, 2008	Chicago, IL
	July 24-26, 2009	Waterville, ME
3	January 4-6, 2008	Davidson, NC
	March 20-22, 2009	Salt Lake City, UT
	June 11-13, 2009	Memphis, TN
4	April 12-13, 2008	St. Louis, MO
	June 24-26, 2008	Buena Vista, CO
	March 13-15, 2009	Philadelphia, PA
Network Gathering	April 5, 2008	New Orleans, LA
	March 22, 2009	Salt Lake City, UT

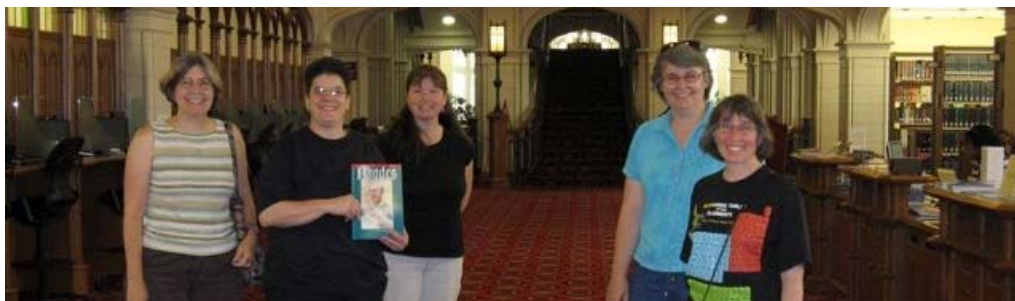


**Alliance #1 in Chicago, October 2008**

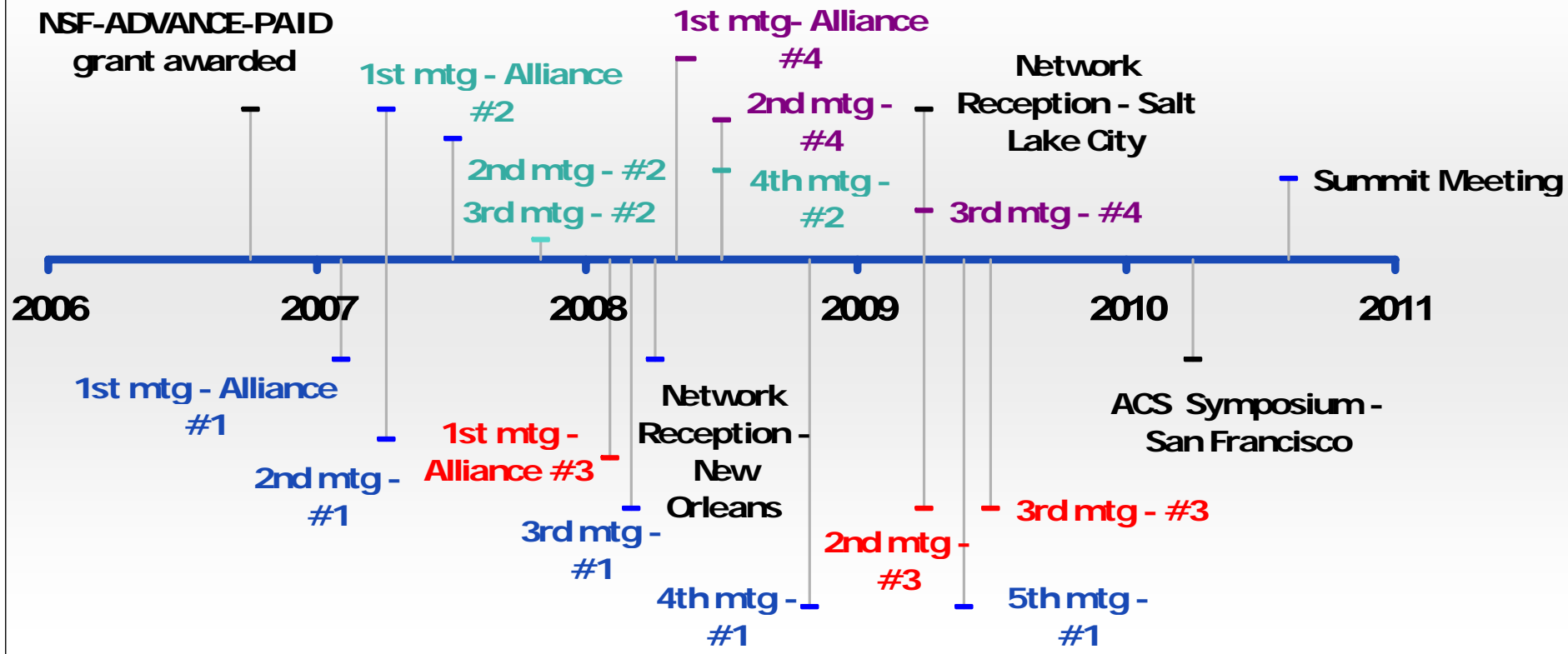


**Alliance #2 in Portland, June 2007**

**← Alliance #3 in Memphis, June 2009**



## NSF-ADVANCE Alliance & Network Events

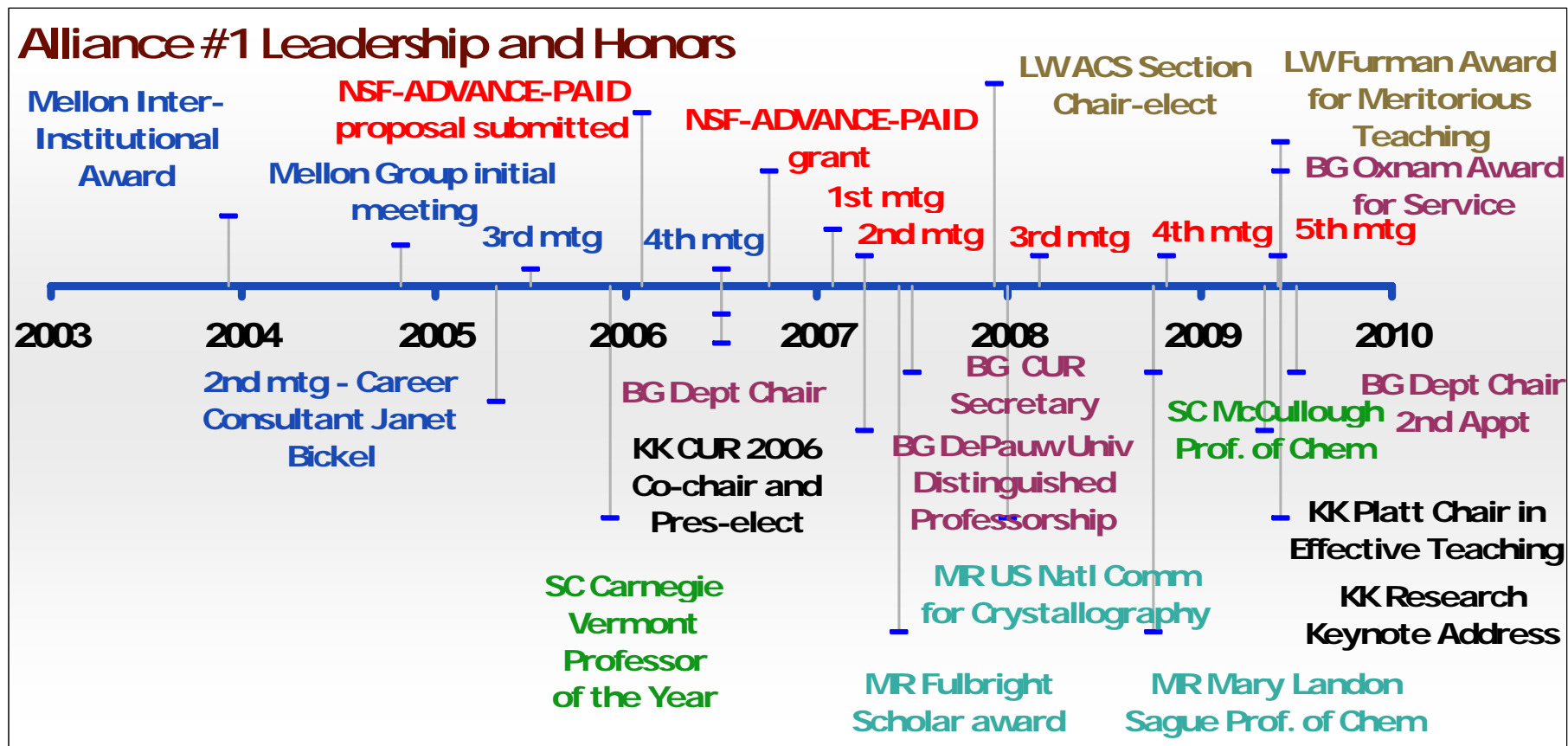


**Left** – Network gathering at the American Chemical Society meeting in New Orleans in March 2008

**Right** – At the ACS meeting in Salt Lake City in March 2009



# Professional Development Focus of Alliance #1 – Leadership and Visibility on Campus and in Professional Societies

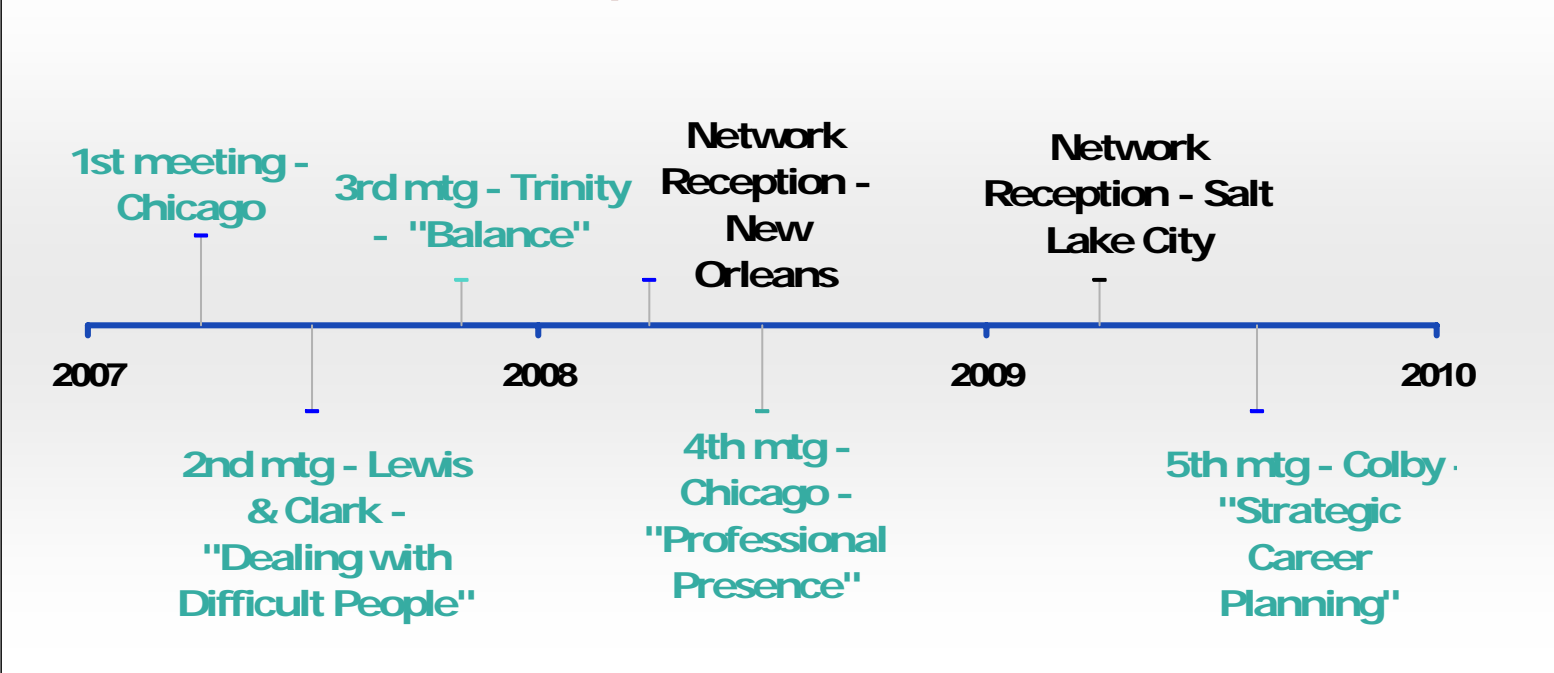


Campus leadership and honors include endowed professorships, a department chair position, a service award, a teaching award, and an research keynote address. Professional leadership includes a Fulbright Award, CUR Presidency and Secretary officer positions, ACS Local Section Chair, Vermont Professor of the Year, US National Committee on Crystallography membership.



# Professional Development Focus of Alliance #2 – Creation of Career Development Resources

## Alliance #2 Career Development Resources



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*Increasing your Professional Presence*

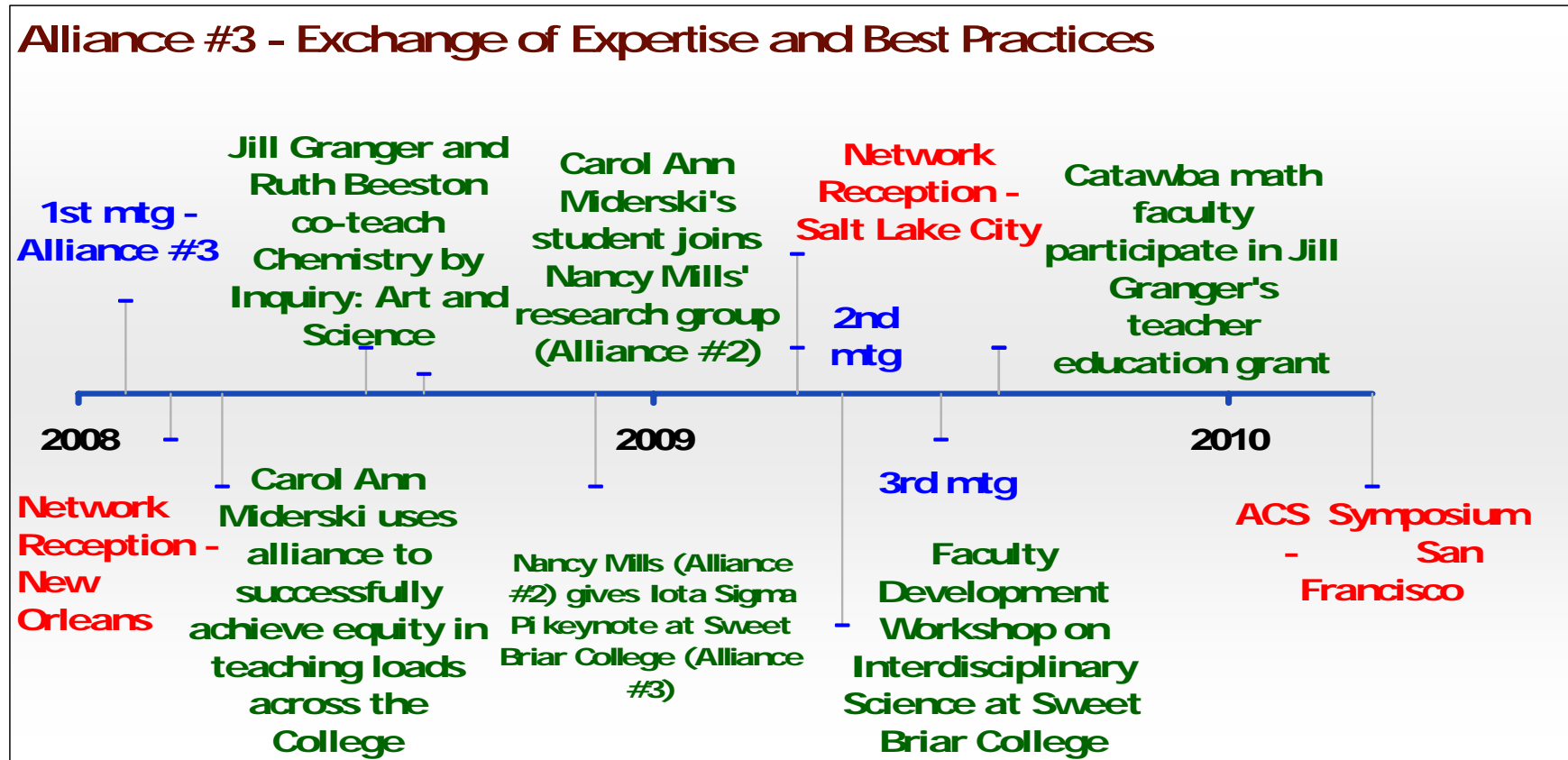


Strategic Career Planning Workshop at Colby College, June 2009

Balancing the Personal with the Professional

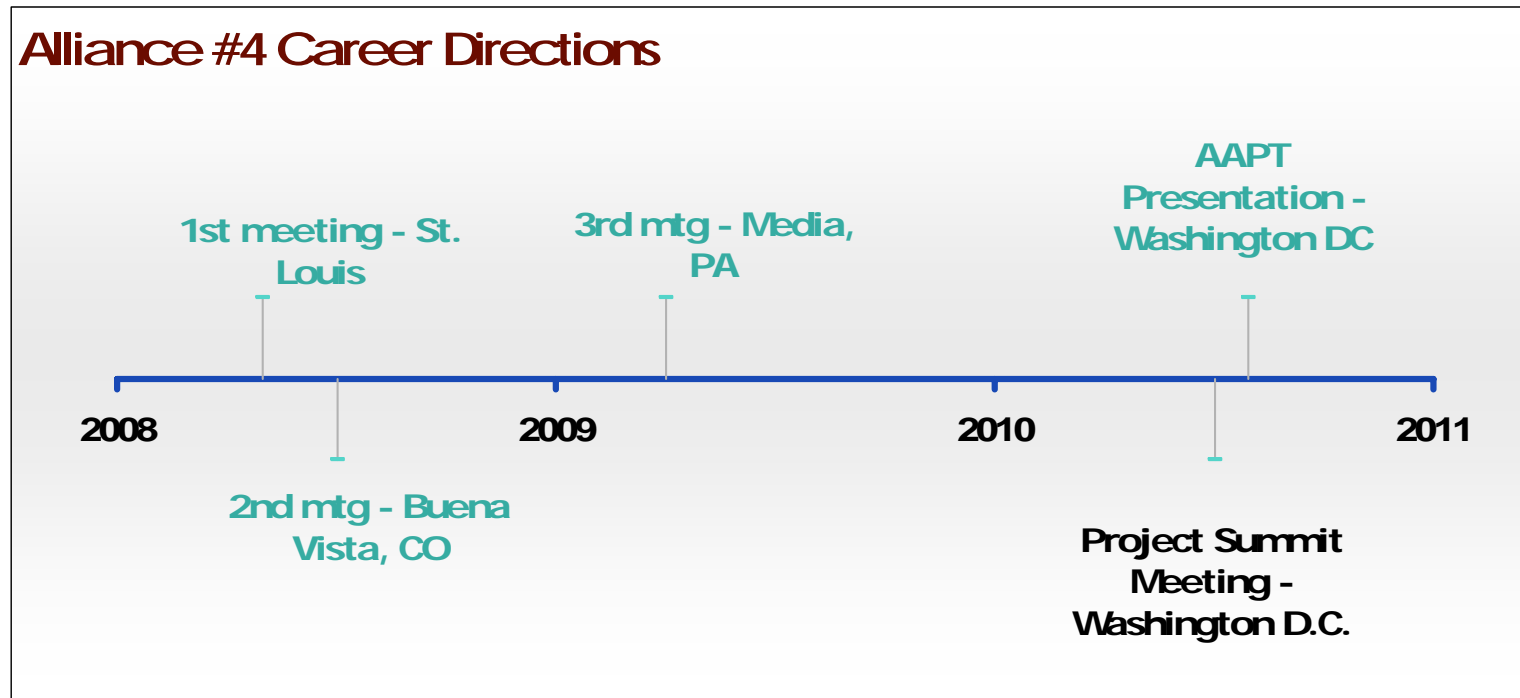
Julie T. Millard

# Professional Development Focus of Alliance #3 – Exchange of Expertise and Best Practices



Personal impacts include the design of new courses and new teacher-outreach efforts from the sharing of expertise. Institutional impacts include a reduction in teaching load for science faculty at Catawba College through sharing of information on contact hours at alliance campuses and new interdisciplinary collaborations at Sweet Briar College following an NSF-ADVANCE-supported faculty development workshop on contemporary research in biology.

# Professional Development Focus of Alliance #4 – Career Directions



Discussions have focused on such issues as:

- Creating an internal rather than external definition of success; having different models of success at a liberal arts college.
- Examining the barriers to changing research directions or getting back into research at a small college.
- Considering alternative career paths for women scientists at liberal arts colleges.

# CAMPUS OUTREACH EFFORTS

## **Colby College**

### **Julie Millard - Alliance #2**

A Strategic Career Planning workshop led by Dr. Suzanna Rose of Florida International University was held on July 24 and 25, 2009 for Alliance #2 in the NSF-ADVANCE project in collaboration with Colby's Forum for Women in Science. The workshop included individual career planning meetings with Dr. Rose and sessions on negotiation and brainstorming on critical career issues.

## **Furman University**

### **Laura Wright - Alliance #1**

Lunch for the women STEM faculty in July 2008 to discuss a variety of issues including the low numbers of female STEM junior faculty. As a result of the lunch, the women at Furman began a book discussion group that meets monthly to work on leadership development and to discuss ways to enhance each of their positions at the University.

## **Eckerd College**

### **Anne Cox - Alliance #4**

Reading club of the STEM women during the Fall 2008 semester to discuss the volume *Challenge of the Faculty Career for Women: Success and Sacrifice*. The overall group broke into triads that included two women in the natural sciences and one in the behavioral sciences, with one tenured woman in each group. The triads met every two weeks and the entire group of 12 women faculty members gathered at the end of the semester to reflect on the experience.

## **Swarthmore College**

### **Amy Bug - Alliance #4**

Meeting of the junior and senior women faculty members in STEM fields with the Associate Provost on November 10, 2008 to identify the specific needs of pre-tenure faculty that the institution or senior faculty might be able to fulfill.

# CAMPUS OUTREACH EFFORTS

## Catawba College – Carol Ann Miderski – Alliance #3

### Women Chemists Web: Women Helping Women Make Connections for Success



**Friday, October 9**  
**2:00—5:00 pm**  
**Catawba College**  
**Salisbury, NC**



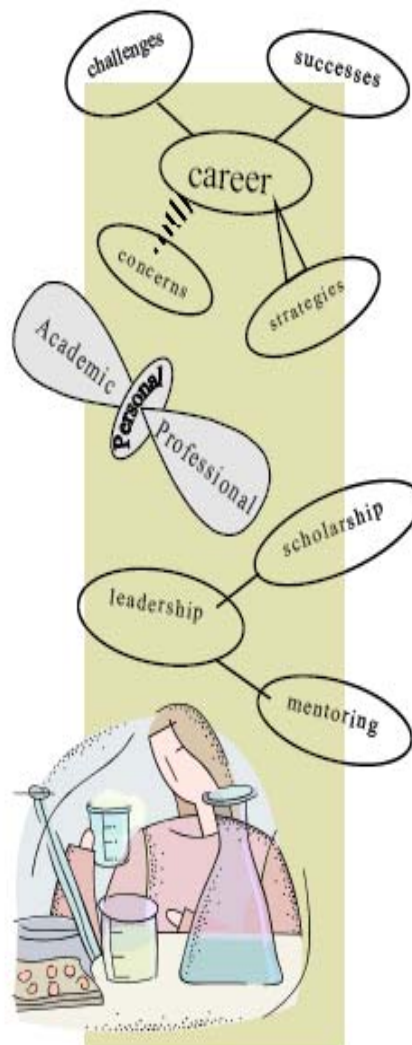
You are cordially invited to join women chemists from local four-year colleges for an afternoon of networking and discussion about career challenges and opportunities.

As women faculty in small Chemistry Departments, we have many opportunities to be "only," such as the only woman in the department or the only one to teach your flavor of chemistry.

This gathering is focused on reducing the "lonely" in being "only" by getting lots of us together from across the region. During the afternoon, we will participate in small group discussions centered around an assortment of career oriented topics.

Hopefully, these conversations will help us get to know one another better and will provide a source of outside perspective, fresh ideas, and alternative strategies for facing the academic, professional and personal challenges encountered in small college environments.

Friday Oct 9, 2-5 pm



Please contact me, Carol Ann Miderski, by e-mail "cmidersk@catawba.edu" to let me know whether or not you will be able to attend.

With your help, I would like to put together a resource network of women chemists in the area with information that you are willing to share.



Catawba College is located off I-85 about halfway between Charlotte and Greensboro. For directions go to <http://www.catawba.edu/about/directions.asp>

We will be meeting in the Center for the Environment, room 300. Signs will be posted showing where to park and guiding you to the meeting room. Following the meeting, guests are welcome to tour the Chemistry Department.

# CAMPUS OUTREACH EFFORTS

## Harvey Mudd College

### Kerry Karukstis - Alliance #1

Gathering of the women STEM faculty on July 17, 2008 to listen to the Inside Higher Ed Audio Conference “Faculty Careers for Women” presented by Maïke Ingrid Philipsen, author of *Challenges of the Faculty Career for Women: Success and Sacrifice* (Jossey-Bass, San Francisco, 2008). Monthly lunch meetings of the women STEM faculty during the Fall 2009 semester to discuss *Challenges of the Faculty Career for Women: Success and Sacrifice* and possible faculty development implementation plans on campus. As part of this initiative, a questionnaire was created to explore issues cited in *Challenges of the Faculty Career for Women*.

## Sweet Briar College

### Jill Granger - Alliance #3

Science faculty expressed a concern that campus programs and senior faculty were not keeping up with the growing interdisciplinary nature of science. A decision was made to invite an external speaker to campus to provide professional development for faculty in the form of information about significant contemporary interdisciplinary research questions and to highlight career paths and internship opportunities for students. Dr. Brett Tyler, Professor of Plant Pathology and Physiology and Chair of the Admissions Committee for the Interdisciplinary Ph.D. Program in Genetics, Bioinformatics, and Computational Biology (GBCB) at the Virginia Bioinformatics Institute (VBI), visited on April 6, 2009. He presented a talk entitled Transdisciplinarity: The face of modern biology. How you can prepare for it. A subsequent discussion meeting of the science faculty was held on April 16, 2009 to develop an action plan to increase opportunities for interdisciplinary collaboration between departments for curriculum development, faculty research, and student mentoring.

# Impact of a Single Campus Outreach Effort

Harvey Mudd College women faculty participate in **Inside Higher Ed Audio Conference** on “**Challenges of the Faculty Career for Women: Success and Sacrifice**” by Maïke Ingrid Philipsen – June 17, 2008

**Questionnaire** developed to explore issues cited in “Challenges of the Faculty Career for Women”

**Questionnaire completed at meetings of alliances #1, 3, & 4 in 2008-09**

**Women faculty at 4 campuses complete questionnaire and participate in related outreach activities during 2008-09**

## **Sweet Briar College**

SMET Women design Faculty Development Workshop on Interdisciplinary Curricula

## **Swarthmore College**

Women faculty meet with associate provost to discuss climate for women

## **Harvey Mudd College Eckerd College**

Women faculty organize discussion group on Philipsen book

## **Harvey Mudd College**

July 2009 - A new listserv is established to open communications among the HMC community on children and parenting

## **Eckerd College**

July 2009 - Questionnaire results are considered in design of new faculty orientation, particularly to aid faculty in developing research plans

# SAMPLE PROJECT FINDINGS TO DATE

From initial surveys and in-depth formative interviews with alliance members by our project evaluator Anne-Barrie Hunter, Co-Director, Ethnography & Evaluation Research, UC-Boulder, some findings to date include:

## REASON FOR PARTICIPATING

- The majority of alliance members (73%) cited the opportunity to **get advice from other senior women science faculty** as their prime motivation for participating in the initiative. Taking advantage of “**an incredible opportunity**”, aiming to overcome a “**feeling of isolation**”, and participating as a means to “**mentor other women in science**” were also cited.

## PREVIOUS MENTORING EXPERIENCE

- Three-quarters of participants noted that **no formal mentoring program existed when they were hired** by their institution. Just over **half of the institutions have recently established a mentoring program**. Several individuals experienced **informal mentoring with varied degrees of success**. Some noted institutional cultures that discourage mentoring. Several had **male colleagues who made a concerted effort to help them early on in their academic careers**.



# SAMPLE PROJECT FINDINGS TO DATE

## VALUE OF THE HORIZONTAL MENTORING EXPERIENCE

- Alliance members overwhelmingly view their horizontal mentoring experience as **highly valuable**. Participants feel as though they are “**among equal peers**” with the “**sharing of advice and ideas**”; they experience “**genuine support**” for both their “**professional and personal lives**”; they “**face the same challenges**”; they value hearing a “**different perspective, an outside viewpoint**”; alliance members have “**become friends**”, they “**trust one another**”. Horizontal mentoring is “**a different kind of mentoring you don't get anywhere else**”. Participation has “**increased their confidence**” and encouraged them to think about their own professional development.

## MAINTAINING COMMUNICATION

- Three of the four alliances rely on **regular electronic communication** between alliance meetings.

## SATISFACTION WITH CAREER

- The majority of participants are **happy with their careers** and **appreciate the liberal arts context**: its intellectual breadth, the mix of teaching and research it afforded, and working closely with students.

# PRESENTATIONS & PUBLICATIONS

**NITLE SUMMIT** - April 3-5, 2008. “**Real-Time Collaboration for the Liberal Arts Community**”, Bridget Gourley

**Southeastern Regional Meeting of the American Chemical Society**- November 14, 2008, "**Horizontal Mentoring Alliances to Enhance the Academic Careers of Senior Women Chemists at Liberal Arts Institutions**", Kerry Karukstis, Laura Wright, Bridget Gourley, Miriam Rossi

K. K. Karukstis, “**Women in Science, Beyond the Research University: Overlooked and Undervalued**,” *The Chronicle of Higher Education* **55** 41 p. 23 (2009).  
<http://chronicle.com/article/Women-in-Science-Beyond-th/46984/>

L. Wright, “**Strength in Numbers**”, *Furman Magazine*, Summer 2009, pp. 8-9  
<http://www.furman.edu/fumag/summer09/summer2009.pdf>

**Statement Submitted for the Record, House Science and Technology Committee, Subcommittee on Research and Science Education, **Hearing on Encouraging the Participation of Female Students in STEM Fields****, July 21, 2009.  
Contributions from Kerry K. Karukstis. Published in the Congressional Record.

**Southeastern Regional Meeting of the American Chemical Society** - October 22, 2009, “**Horizontal Mentoring, It's Not Just for Students Anymore**”, Carol Ann Miderski  
<http://acs.confex.com/acs/serm09/webprogram/Paper75602.html>

# UPCOMING DISSEMINATION ACTIVITIES

## **239<sup>th</sup> American Chemical Society National Meeting March 21-25, 2010, San Francisco**

The co-principal investigators of this project have organized the symposium “Successful Mentoring Strategies to Facilitate the Advancement of Women Faculty”. The event is co-sponsored by the Division of Chemical Education, the Women Chemists Committee, and the Younger Chemists Committee of the American Chemical Society.

## **ADVANCE Project Summit Meeting June 2-4, 2010, Washington D.C.**

The purpose of the summit meeting will be to create recommendations on enhancing the visibility and leadership of senior STEM women faculty at liberal arts institutions. A monograph will be prepared including white papers written in advance of the meeting as well as summaries of summit discussions and recommendations; this publication is intended to contribute to the national knowledge base on practices that can enhance the career advancement of women in academic science and engineering careers.

# ACKNOWLEDGMENTS

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0619027, 0619052, & 0619150**

**Project Evaluator Anne-Barrie Hunter, Co-director, Ethnography  
& Evaluation Research, University of Colorado, Boulder**

**DePauw University, Harvey Mudd College, Furman University,  
and Vassar College**



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