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Women in Science and Engineering

# 2010-2011

# Program Report


**Women in Science and Engineering**

Office of the Provost

University of Southern California

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Compiled by Sarah Fried-Gintis, PhD

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## *Executive Summary*

The Women in Science and Engineering Program (WiSE) continues to be USC's premiere diversity initiative, serving as a model within the University, as well as across the country and internationally. Since its inception in 2000, WiSE has helped to increase the number of women faculty in WiSE-eligible departments from a total of fifteen, twelve in the six departments of the USC Dana and David Dornsife College of Letters, Arts, and Sciences and three in the eight departments of the USC Viterbi School of Engineering, to forty-three, twenty-three in the USC Dornsife College and twenty in the Viterbi School of Engineering. In just over a decade, WiSE has helped to nearly triple the number of tenure and tenure track women in WiSE-eligible departments.

The 2010-2011 academic year was a transformative year for WiSE. With the departure of Vice Provost Jean Morrison and Associate Provost Nicole Hawkes, WiSE attained a new Director, Professor Leana Golubchik, and a new Program Manager, Dr. Sarah Fried-Gintis. Professor of Computer Science and Electrical Engineering, Golubchik has served as the Chair of the Viterbi School of Engineering WiSE Committee, served for many years on the WiSE Advisory Board, and was Associate Chair for PhD Programs in the Department of Computer Science. A graduate of USC's PhD program in history and certificate program in Gender Studies, Fried-Gintis specializes in the histories of women and culture in the nineteenth and twentieth-centuries. After a temporary relocation to the Lot in the summer 2011 semester, WiSE will assume new quarters in Fall 2011 in Grace Ford Salvatori Hall (GFS 304). In addition to newly renovated administrative offices, the WiSE Suite will include a common area for use by the WiSE Advisory Board, USC Viterbi and USC Dornsife Committees, WiSE Faculty Networking Group, WiSE Graduate and Undergraduate Cohorts, and several WiSE sponsored student and postdoctoral organizations. (Appendix 1)

In addition to its suite of grant-making programs designed to support women scientists and engineers at all levels from undergraduate students to senior faculty, WiSE focuses nearly half of its annual budget on support for hiring and retaining tenured and tenure-track faculty in the USC Dana and David Dornsife College of Letters, Arts and Sciences and the USC Viterbi School of Engineering. Hiring of tenured and tenure-track WiSE faculty continues to be the program's primary goal. In 2010-2011 WiSE successfully helped recruit two new faculty members to the Viterbi School of Engineering: Minlan Yu will join the USC Computer Science Department in Fall 2012 as an Assistant Professor, following one year as a postdoctoral fellow at the University of California, Berkeley, and Professor Mahta Moghaddam will join the USC Ming Hsieh Department of Electrical Engineering in Spring 2012 at the rank of full professor. In the USC Dornsife College, Dr. Sami Assaf will join the Department of Mathematics at the rank on Assistant Professor. Total number of WiSE faculty in the natural science and math fields in USC Dornsife College and the Viterbi School of Engineering now number 43. (See Appendix 2)

WiSE plays an active role in helping to increase the representation of women faculty candidates by hosting meetings with department chairs and search committees to outline strategies for broadening the scope of searches for outstanding diversity candidates. WiSE leadership also actively meets with women faculty candidates during campus visits. During the 2010-2011 academic year, WiSE participated in meetings with thirty formal candidates during their campus visits (eighteen in Viterbi and twelve in Dornsife). (See Appendix 3)

In order to further encourage the recruitment of women faculty, WiSE implemented a new program in 2010-2011: WiSE Support for Facilitating Diversity in Faculty Searches offers competitively awarded grants of up to $5,000 per academic year to WiSE-eligible Departments that propose and implement creative ideas for "casting the net widely." (See Appendix 4) During its first year, the new program awarded one grant to the department of Earth Sciences, which resulted in a position being offered to Dr. Abigail Swann, the Giorgio Ruffolo Post-doctoral Fellow in Sustainability Science at Harvard University. Though Dr. Swann ultimately declined USC's offer, faculty in the Department of Earth Sciences reported that funding from the new WiSE program was a huge success in helping to cast the net widely and in identifying a stellar woman candidate.

Current WiSE faculty continues to distinguish themselves with campus-wide and national level recognition for their research. (See Appendices 5 and 6) For example, in November 2010 Assistant Professors Michelle Povinelli (Electrical Engineering) and Andrea Armani (Chemical Engineering and Materials Science) won the U.S. government's highest award for scientists and engineers beginning their independent careers, the Presidential Early Career Award for Scientists and Engineers (PECASE).

**Figure 1: Assistant Professors Andrea Armani and Michelle Povinelli.**

**Figure 2: Assistant Professor Andrea Armani with President Barack Obama.**

**Figure 3: (December 13, 2010) Andrea Armani is immediately to the right of the President Obama in the first row; Michelle Povinelli is in the second row, fifth from the left.**

In January 2011, Professor Maja Matarić (Computer Science, Neuroscience, and Pediatrics) received the Presidential Mentoring Award from President Barack Obama. In May 2011, Professor Ellis Meng (Biomedical Engineering) was recognized by the Viterbi School of Engineering with the 2011 Award for Use-Inspired Research.

**Figure 4: Professor Maja Mataric with President Barack Obama.**

WiSE faculty also consistently receives recognition for their contributions to the surrounding community. In 2011, WTS-LA, an organization dedicated to the professional advancement of women in transportation, awarded Leana Golubchik, USC Professor of Computer Science and Electrical Engineering and WiSE Director, its WTS –LA Diversity Award, which recognizes an individual or organization that demonstrates outstanding initiative in the development of opportunities for women and minorities. Susan Forsburg, USC Professor of Biological Sciences received the 2011 Roche Diagnostics Alice C. Evans Award from the American Society of Microbiology for contributions to the advancement of women in science. In March 2011 Professor Ana Krylov gave a presentation entitled "Personal account of cultural and societal obstacles facing women pursuing careers in science" at the annual conference of the American Chemical Society in Anaheim, CA (March 27-21, 2011).

**Figure 5: Professor and WiSE Faculty Director, Leana Golubchik, receives the 2011 WTS-Diversity Award.**

In 2010-2011 five tenure track faculty were promoted, including Leana Golubchik from Associate to Full Professor of Computer Science, Elena Pierpaoli from Associate to Full Professor of Physics and Astronomy, Eva Kanso from Assistant to Associate Professor with tenure of Aerospace and Mechanical Engineering, Ellis Meng from Assistant to Associate Professor with tenure of Biomedical Engineering, and Wiebke Ziebis from Assistant to Associate Professor with tenure of Biological Sciences (Marine Environmental Biology). In September 2010, Assistant Professor Andrea Hodge was named the Philip and Cayley MacDonald Early Career Chair in Aerospace and Mechanical Engineering, and, in April 2011, Dorit Hochbaum, Professor of Industrial Systems Engineering, was installed as the first Daniel J. Epstein Chair.

In conjunction with WiSE's stated mission to build a supportive environment for women within the University, WiSE Faculty mentor women at all levels – ranging from undergraduate to graduate students to postdoctoral scholars. (See Appendix 7) Ten faculty members from Viterbi and USC Dornsife mentored students through the WiSE Undergraduate Research Grant Program. A few accomplishments of students and postdoctoral scholars working with WiSE Faculty include: Dr. Ksenia Bravaya, recipient of a WiSE PhD Merit Award, who worked as a postdoctoral scholar with Professor Anna Krylov, won a prestigious ACS PHYS postdoctoral recognition award; Dr. Heather Hunt, a recipient of a 2011 WiSE Merit Award for Excellence in Postdoctoral Research, who worked as a postdoctoral scholar with Professor Andrea Armani, has accepted a tenure-track position in the University of Missouri Biological Engineering Department; Anja Volk, who was a WiSE postdoctoral fellow in Professor Elaine Chew's Music Computation and Cognition Laboratory from 2003-2005, was awarded a highly competitive Vidi grant by the Netherlands Organization for Scientific Research (NWO). Dr. Volk joined the University of Utrecht's Department of Information and Computing Sciences in the Netherlands to co-lead the NWO-funded WITCHCRAFT project from 2006 to the present; Rebecca Courter, a PhD student in Mathematics advised by Susan Montgomery, has accepted a tenure-track job at Pasadena Community College. Elaine Chew's Music Computation and Cognition Lab summer student KatieAnna Wolf was selected as one of six female finalists for the highly selective Computing Research Association Outstanding Undergraduate Award. Wolf was a 2010 DREU undergraduate research student, one of 70 such fellows selected nationally from more than 500 applicants. Susan Montgomery's undergraduate student in mathematics, Katherine Wittig, has been accepted to a prestigious Research Undergraduate Program (REU) at Cornel University.

**Figure 6: Professor Elaine Chew with Undergraduate KatieAnna Wolf.**

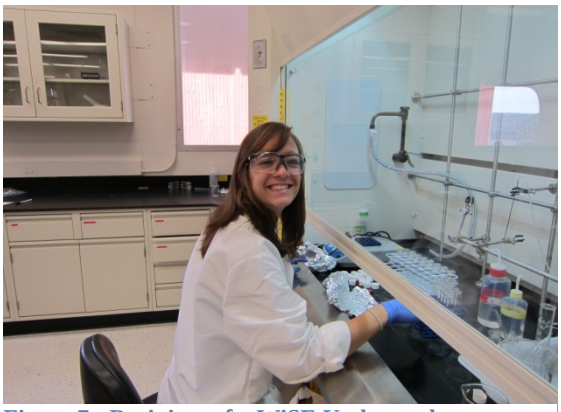


**Figure 7: Recipient of a WiSE Undergraduate Research Grant, Alexa Sieracki, in the lab of Professor Sarah Feakins.**

WiSE students and postdocs continue to win prestigious awards. Recipient of the WiSE Merit Fellowship for Current Doctoral Students in 2010-2011, Yi Gai, PhD Candidate in Electrical Engineering-Systems in the Viterbi School of Engineering, received the Graduate Student Prize from the Center for Applied Mathematical Sciences at USC. Savimol "Ming" Sangtatumvong, graduate student in Biomedical Engineering, was selected as an Open Finalist in the Student Paper Competition at the 2010 Engineering in Medicine and Biology Conference, August 31 – September 4, 2010 (Buenos Aires, Argentina).

To further motivate women graduate students and postdoctoral scholars to participate in national conferences, WiSE has revised its eligibility requirements for travel grants. In the past students were eligible to apply for an award once every twelve months. As of the 2011-2012 year, students and postdocs will be eligible to win one award per fiscal year. The new guidelines are similar to those related to WiSE Supplemental Faculty Support and will allow students greater flexibility in planning conference travel.

By facilitating conversations with prominent women scientists and engineers, WiSE continues to provide professional development and networking opportunities for women. Owing to the success of the 2009-2010 WiSE Distinguished Lectures Series, planned in celebration of the 10th Anniversary of WISE and in conjunction with WiSE-eligible departments across the Viterbi School of Engineering and USC Dornsife College, WiSE has elected to make the sponsorship of a distinguished lecture series a permanent part of its annual programs. By sponsoring social events in tandem with talks that feature prominent women scholars, the WiSE Distinguished Lecture Series hopes to present the USC community with cutting-edge research; to stimulate discussion among faculty, postdoctoral scholars, graduate and undergraduate students, and staff; to motivate young women to pursue academic careers; to create opportunities for networking among junior scholars; and to promote collegiality within the academic community more generally. (See Appendix 8)

To further encourage and prepare women undergraduate students for careers in the academy, WiSE also now requires all recipients of WiSE Undergraduate Research Awards to prepare a science poster under the guidance of their faculty mentor for entry in the annual Undergraduate Symposium for Scholarly and Creative Work, organized by the Office of Undergraduate Affairs. (See Appendices 9 and 10)

The WiSE Advisory Board met twice per semester in 2010-2011 and continues to work with program administration to hone its recruitment and support programs for maximum impact. Areas of particular focus this year included discussions of how the university can improve its policies for dealing with “dual career hires” and potential reform and expansion of the USC Childcare Program.

Enhanced communication efforts with WiSE campus constituencies were furthered in 2011 with the continuance of the WiSE listserv and the WiSE bi-weekly newsletter, which condenses and publicizes campus and national news items, opportunities, and events information. In 2011, production of the WiSE Newsletter moved to new software allowing for a more professional layout. (See Appendix 11) Faculty listings on the WiSE website were also reconfigured and consolidated to allow for greater ease of information. One easy to navigate page now contains information on all faculty, including photographs, office hours, contact information, research interests, and links to both personal and departmental webpages. (See Appendix 12) Finally, in an effort to maximize interaction between WiSE and other USC community organizations, WiSE Program Manager Dr. Sarah Fried-Gintis also met with more than a dozen campus representatives during her first semester at USC, including representatives of Women in Engineering, the Center for Engineering Diversity, the Academy for Polymathic Study, Female Undergraduates Educating and Leading in Science (FUELS), USC Women in Mathematics, USC Ph.D. Women in Electrical Engineering, the Office of the Dean of Diversity and Strategic Initiatives, the Office of Undergraduate Programs, the McNair Program, and the Engineering Library.

## *WiSE Leadership*

A critical aspect of the success of WiSE is the direct involvement of men and women faculty, at all career levels and from both USC Dornsife and the Viterbi School of Engineering, in planning, evaluating, and guiding the program's development.

With the guidance of its diverse committees, WiSE programs have grown and evolved in response to changing needs. Continued evaluation of the success and utility of programs have helped to keep them relevant and effective.

### WiSE Advisory Board

The Advisory Board held four meetings in 2010-2011: two during the Fall semester (10/7/10) and (11/30/10) and two during the Spring semester (2/4/11) and (4/20/11). The board focused its attention on discussing potential policies for the treatment of dual career hires and on childcare services. The first meeting in the Spring semester is joint with the USC Dornsife College and Viterbi School committees. This year Michael Quick, USC's Executive Vice Provost, was a special guest at this meeting. The Advisory Board also reviews applications for Major Support for Current Faculty and Merit Awards for Postdoctoral Research.

On the subject of dual career hires, the Board recommended the establishment of a general university policy. Potential policies under the Board's discussion include (1) the Dean's Office or Provost's Office paying an initial portion of the partner's salary, and (2) the addition of funds for partner hires to the start-up packages of faculty candidates. The Board also recognized the need for better advertising of available positions. They acknowledged the importance of preserving the autonomy of Departments during the hiring process, while also encouraging them to "cast the net" widely. Finally, the Board affirmed dual career hires as not being just a "woman's issue," noted that partners are not always academic bound, and commented on the necessity of allowing partners access to resources such as career services.

On the subject of childcare, the Board concluded that University childcare needs to be significantly expanded. The program – particularly the infant program—does not meet the needs of the University. Given that more and more young faculty are having children, the need for dependable childcare at USC is rapidly increasing. WiSE provides subsidies to students and faculty, but waitlists at USC childcare range from twelve to eighteen months. The University needs to respond to this need in order to competitively recruit more young women.

In 2010-2011, the Board reviewed two existing programs. In response to concerns raised by faculty during the nomination process, the Board voted to continue nominating and ranking students for Graduate Top-Off Awards by Department, except in the case of the Department of Biological Sciences, where candidates are nominated by Divisions. The Board also voted to make a small change to the eligibility requirements of the Merit Fellowship for Current

Doctoral Students. In the past students were only eligible for nomination following passage of their qualifying exams. The current guidelines now require students to be in *at least* their fourth year or passed their qualifying exams. (See Appendix 13)

2010-2011, WiSE Advisory Board

Hanna Reisler, Chair
Professor, Department of Chemistry
USC Dornsife College of Letters, Arts & Sciences

Suzanne Edmands
Professor, Department of Biological Sciences, Marine Biology Section
USC Dornsife College of Letters, Arts & Sciences

Henryk Flashner
Professor, Department of Aerospace and Mechanical Engineering
USC Viterbi School of Engineering

Susan Forsburg
Professor, Department of Molecular Biology
USC Dornsife College of Letters, Arts & Sciences

Susan Montgomery
Professor, Department of Mathematics
USC Dornsife College of Letters, Arts & Sciences

Geraldine Peters
Professor, Space Sciences Center
USC Dornsife College of Letters, Arts & Sciences

Paul Rosenbloom
Professor, Department of Computer Science
USC Viterbi School of Engineering

Kathy Shing
Professor, Department of Chemical Engineering
USC Viterbi School of Engineering

## USC Dornsife WiSE Committee

Committees composed of faculty in each school serve as advisors on grant-making by reviewing and evaluating the applications and making recommendations for funding.

2010-2011, USC Dornsife WiSE Committee

Jill McNitt-Gray, Chair
Professor, Department of Kinesiology, Biological Sciences and Biomedical Engineering

Elena Pierpaoli
Professor, Department of Physics & Astronomy

David Bottjer
Professor, Department of Earth Sciences

Xianghong Jasmine Zhou
Associate Professor, Department of Biological Sciences (Molecular & Computational)

A summary of the reviews conducted by the USC Dornsife Committee during the academic year follows:

**USC College Committee Reviews 2010-2011**

| Program | Deadline | Number of Applicants | Number of Awards |
|---|---|---|---|
| Undergraduate Research | 28-Aug-10 | 7 | 5 |
| Undergraduate Research | 16-Jan-11 | 6 | 5 |
| Graduate Merit | 3-Mar-11 | 4 | 2 |
| Graduate Top-Off | 3-Mar-11 | 8 | 4 offered / 4 awarded |
| Undergraduate Research | 1-Apr-11 | 6 | 5 |

## USC Viterbi WiSE Committee

Committees composed of faculty in each school serve as advisors on grant-making by reviewing and evaluating the applications and making recommendations for funding.

2010-2011, USC Viterbi School of Engineering WiSE Committee

Urbashi Mitra, Chair
Professor, Ming Hsieh Department of Electrical Engineering

Andrea Armani
Professor, Mork Family Department of Chemical Engineering and Materials Science

Michelle Povinelli
Professor, Ming Hsieh Department of Electrical Engineering

Francisco Valero-Cuevas
Professor, Department of Biomedical Engineering

A summary of the reviews conducted by the USC Viterbi Committee during the academic year follows:

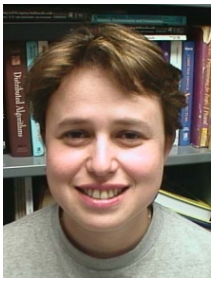
**USC Viterbi School Committee Reviews 2010-2011**

| Program | Deadline | Number of Applicants | Number of Awards |
|---|---|---|---|
| Undergraduate Research | 1-Aug-10 | 7 | 5 |
| Undergraduate Research | 15-Nov-10 | 7 | 4 |
| Graduate Top-Off | 15-Feb-11 | 7 | 4 offered / 2 awarded |
| Graduate Merit | 3-Mar-11 | 4 | 2 |
| Undergraduate Research | 1-Apr-11 | 10 | 5 |

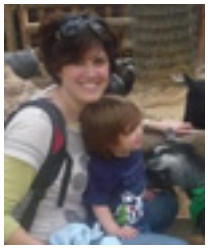
(See Appendices 14 and 15)

## Provost's WiSE Program Office and Staff

The WiSE Program is housed in the Office of the Provost. Its physical offices have traditionally been located in Grace Ford Salvatori Hall, Suite 315 (GFS-315). In Spring 2011, during the renovation and reorganization of Provost's Office, the WiSE offices temporarily moved to GFS 338. For the summer 2011 semester, they are located in the Lot. In Fall 2011, WISE will move into a permanent suite in Grace Ford Salvatori Hall, GFS 304, which will include offices for the Director and Program Manager and a small common area to be used for Advisory Board Meetings, Networking Luncheons, seminars for members of the graduate and undergraduate research cohorts, and WiSE sponsored graduate, undergraduate, and postdoc organizations.



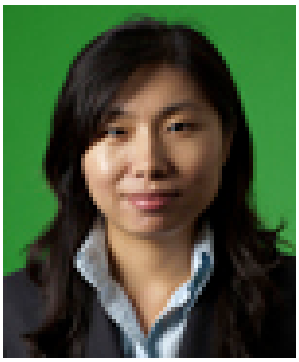
Leana Golubchik, Professor of Computer Science and Electrical Engineering in the Viterbi School of Engineering serves as Director of the WiSE Program. Golubchik was appointed as Director in September 2010.



Assisting with program development and administration as well as coordination of committees, Dr. Sarah Fried-Gintis, serves as the WiSE Program Manager. Fried-Gintis joined WiSE in February 2011.

## *New WiSE Faculty*

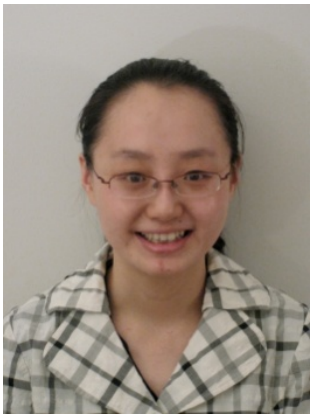
For the Fiscal Year 2010-2011, several offers to WiSE faculty candidates have been extended and still others are under consideration. A list of all current tenured and tenure-track WiSE Faculty (2010-2011) can be found in Appendix 2. The following new WiSE faculty joined USC in 2010-2011:



**Yan Liu**
Assistant Professor,
Computer Science
Research Staff Member, IBM Research
Ph.D 2007, Computer Science, Carnegie Mellon University
Began USC in August 2010.

The following faculty were successfully recruited in 2010-2011 and will join USC in 2012.

**Mahta Moghaddam**
Professor,
Ming Hsieh Department of Electrical Engineering
Professor of Electrical Engineering, Computer Science, and Applied Physics, University of Michigan, Ann Arbor
Ph.D 1991, Electrical Engineering, University of Illinois, Urbana
Joins USC in Spring 2012.



**Minlan Yu**
Assistant Professor,
Department of Computer Science
Postdoctoral Fellow,
University of California at Berkeley
Ph.D. 2011, Computer Science,
Princeton University
Joins USC in Fall 2012.

Sami Assaf
Assistant Professor,
Department of Mathematics
C.L.E. Moore Instructor, Massachusetts Institute of Technology
Ph.D. 2007, Mathematics, University of California Berkeley
Joins USC in Fall 2012.

## *WiSE Financial Awards, 2010-2011*

### Formal Program Awards

| Program | # Awards |
|---|---|
| Faculty Recruitment / Faculty Retention | 8 |
| Major Support for Current Faculty | 1 |
| Lloyd Armstrong, Jr. Chair | 1 |
| Supplemental Faculty Support | 24 |
| Merit Award for Excellence in Postdoctoral Research | 2 |
| Graduate Top-Off | 7 |
| Merit Fellowship for Current Ph.D. | 4 |
| Travel Grants | 72 |
| Undergraduate Research Grants (See: Appendix 9) | 29 |
| Child Care Subsidies | 12 |
| Support for Faculty Pregnancy / Childbirth / Adoption | 0 |
| Support for Ph.D. and Postdoc Pregnancy / Childbirth / Adoption | 5 |

### 10-11 Recipients of Major Faculty Support for Current Faculty

| Name | Title | School | Proposal |
|---|---|---|---|
| Karla Heidleberg | Assistant Professor of Biological Sciences | USC Dornsife | An evaluation of the effects of ocean acidification on temperate coral growth and associated microbial community diversity |

*Discretionary Awards*

In addition to its formal suite of grant-making programs, costs were incurred in support of program activities (such as receptions, lecturers, website maintenance, etc.) and administrative expenses. WiSE also awarded several discretionary grants to support activities that work toward the goal of increasing the representation of women in science and engineering. In 2010-2011, these include:

| Group | Purpose |
|---|---|
| Department of Computer Science (Viterbi School) | To share expenses for 10 students to attend the "Grace Hopper Celebration of Women in Computing" event in Atlanta, Georgia (September 28 – October 2, 2010) |
| Women in Electrical Engineering Ph.D. Group (Viterbi School) | To support the annual activities of the networking and professional development group among graduate women in electrical engineering. |
| Department of Computer Science (Viterbi School) | OurCS research workshop, 50% travel award split with CS |
| Viterbi School of Engineering | To support the attendance of two Viterbi students to the 2011 Emerging Leaders Global Summit. |
| Women in Physics (USC Dornsife) | To share expenses for the Annual Conference for Undergraduate Women in Physics at USC (January 2011). |
| Women in Mathematics (USC Dornsife) | To support the annual activities of the networking and professional development group among graduate and undergraduate women in math. |
| Departments of Earth Sciences (USC Dornsife) | To support the "USC Young Researchers Program," a Summer Research Experience devised and executed by USC graduate students Carie Frantz and Laurie Chong for USC-Area High School Students in Earth Science and Marine Environmental Biology. |

## Total Number of Awards

## *WiSE Activities*

Based on the success of prior programs, USC Science Librarians, Jean Crampon, Najwa Hanel, and Norah Xiao presented a library tour and orientation hosted by the WiSE program for the fourth year on September 16, 2011. The librarians provided an introduction to the available electronic resources and library facilities to assist faculty and students at various points in the research process. Participants in the program enjoyed lunch and conversation in the 2nd floor library conference room following the formal presentation. (See Appendix 16)

In keeping with past years, the WiSE Networking Group continued to meet on the last Thursday of every month, beginning the year with a formal luncheon at the University Club on September 30, 2011. On September 30, WiSE thanked Vice-Provost Jean Morrison for her years of service to WiSE with a statue/trophy. While wishing Dr. Morrison well as she began her career as Provost of Boston University, WiSE also welcomed Professor Leana Golubchik as the new WiSE Director. On December 9, WiSE bid a second farewell to Associate Provost and WiSE Program Manager, Nicole Hawkes, sending her off to her new position as Associate Provost of Boston University with a USC blanket. Other Networking luncheons included brief research presentations by faculty, including Professors Leana Golubchik, Anna Krylov, and Dorit Hochbaum. On January 27, the WiSE Faculty Networking Group welcomed Dr. Sarah Fried-Gintis as the New Program Manager of WiSE.

On Wednesday, May 18, 2011, in conjunction with the department of Earth Sciences, WiSE hosted a luncheon for Assistant Professor Brandy Toner, following her talk, "Integrated nested-scale biogeochemistry of hydrothermal plumes at a back-arc spreading center," as part of the Ridge 2000 Distinguished Lecture Series. Assistant Professor at the University of Minnesota, Dr. Toner studies the biogeochemical processes that move metals through pristine and contaminated environments. Dr. Toner's primary research fields, and her work places special emphasis on mineralogy and metal speciation. As a National Research Council Associate and NASA Postdoctoral Fellow at Woods Hole Oceanographic Institution, she turned her interest in mineral surface chemistry to investigations of iron biogeochemistry of mid-ocean ridges. She is particularly interested in the mineralogy and chemistry of hydrothermal plumes.[1] Attended by more than 20 students, faculty, and postdoctoral scholars, Dr. Toner's lunch provided an informal environment for the discussion of her research and her experiences in the University. (See Appendix 17)

[1] This abbreviated description of Dr. Toner's interests is taken from, http://www.ridge2000.org/dls/speaker_list.php.

## *WiSE Faculty Achievements and Special Activities*

Articles featuring WiSE faculty are continuously assembled in a chronological archive on the WiSE website and are included in the WiSE bi-weekly newsletter in order to chart their achievements and activities. It is the hope that highlighting the outstanding work of WiSE faculty at USC will continue to contribute to the program's recruitment goals. (See Appendix 5)

## *APPENDIX 1:*

### *WiSE Sponsored Student, Faculty, and Postdoctoral Organizations and WiSE Related Groups*

- USC WISE Faculty Networking Group
- USC WiSE Postdoctoral Networking Group
- FUELS (Female Undergraduates Educating and Leading in Science)
- WiSE Parents Group (MiSE)
- USC Women in Physics
- USC Women in Chemistry
- USC Women in Mathematics
- USC Women in Physics
- USC Women in Kinesiology
- USC Graduate Women in Biology
- USC Ph.D. Women in Electrical Engineering
- USC WiSE Undergraduate Floor, New Residential College
- Women in Engineering (WIE) at the Viterbi School of Engineering
- USC WiSE Viterbi Graduate Women's Networking Group
- Society of Women Engineers, University of Southern California

## *APPENDIX 2:*

### *Current WiSE Faculty 2010-2011 (Tenured and Tenure-Track)*

**USC Dornsife College**

**Life Sciences**

| | | |
|---|---|---|
| Sarah Bottjer | Professor | Biological Sciences (Neuro) |
| Katrina Edwards | Professor | Biological Sciences (Marine) |
| Susan Forsburg | Professor | Biological Sciences (MCB) |
| Suzanne Edmands | Associate Professor | Biological Sciences (Marine) |
| Judith Hirsch | Associate Professor | Biological Sciences (Neuro) |
| Emily Liman | Associate Professor | Biological Sciences (Neuro) |
| Xianghong Zhou | Associate Professor | Biological Sciences (MCB) |
| Samantha Butler | Assistant Professor | Biological Sciences (Neuro) |
| Liang Chen | Assistant Professor | Biological Sciences (MCB) |
| Karla Heidelberg | Assistant Professor | Biological Sciences (Marine) |
| Xuelin Wu | Assistant Professor | Biological Sciences (MCB) |
| Wiebke Ziebis | Associate Professor | Biological Sciences (Marine) |
| Jill McNitt-Gray | Professor | Kinesiology |
| Lorraine Turcotte | Associate Professor | Kinesiology |

**Physical Sciences / Mathematics**

| | | |
|---|---|---|
| Hanna Reisler | Professor | Chemistry |
| Anna Krylov | Professor | Chemistry |
| Sarah Feakins | Assistant Professor | Earth Science |
| Meghan Miller | Assistant Professor | Earth Science |
| Susan Friedlander | Professor | Mathematics |
| Susan Montgomery | Professor | Mathematics |
| Sami Assaf | Assistant Professor | Mathematics |
| Jia Grace Lu | Associate Professor | Physics & Astronomy |
| Elena Pierpaoli | Associate Professor | Physics & Astronomy |

**The USC Viterbi School of Engineering**

| | | |
|---|---|---|
| Veronica Eliasson | Assistant Professor | Aerospace and Mechanical Engineering |
| Andrea Hodge | Assistant Professor | Aerospace and Mechanical Engineering |
| Eva Kanso | Associate Professor | Aerospace and Mechanical Engineering |
| Ellis Meng | Associate Professor | Biomedical Engineering |
| Katherine Shing | Associate Professor | Chemical Engineering & Materials Science |
| Andrea Armani | Assistant Professor | Chemical Engineering & Materials Science |
| Malancha Gupta | Assistant Professor | Chemical Engineering & Materials Science |
| Burcin Becerik-Gerber | Assistant Professor | Civil and Environmental Engineering |
| Amy Rechenmacher | Assistant Professor | Civil and Environmental Engineering |
| Maja Matarić | Professor | Computer Science |
| Leana Golubchik | Professor | Computer Science |
| Yan Liu | Assistant Professor | Computer Science |
| Minlan Yu | Assistant Professor | Computer Science |
| Mahta Moghaddam | Professor | Electrical Engineering |
| Urbashi Mitra | Professor | Electrical Engineering |
| Alice Parker | Professor | Electrical Engineering |
| Michelle Povinelli | Assistant Professor | Electrical Engineering |
| Dorit Hochbaum | Professor | Industrial and Systems Engineering |
| Elaine Chew | Associate Professor | Industrial and Systems Engineering |
| Shinyi Wu | Assistant Professor | Industrial and Systems Engineering |

## *APPENDIX 3:*

### *Faculty Candidates Interviewed on Campus*

USC | wise
Women in Science and Engineering

## *APPENDIX 4:*

### *WiSE Support for Facilitating Diversity in Faculty Searches*

**WiSE Support for Facilitating Diversity in Faculty Searches**

| | |
|---|---|
| **Deadline:** | September 30 and January 15 (in the event that a deadline falls upon a weekend or a university holiday that deadline will move to the first workday following the posted date). |
| **Award Amount:** | Up to $5,000. Requests for more than $5,000 must be approved by the WiSE Program Director prior to submission. |
| **Directions:** | Submit online application |

The WiSE Program provides competitively awarded support to WiSE-eligible departments at USC that propose and implement creative ideas for "casting the net widely," thus increasing the representation of women in science and engineering faculty searches. Activities for which funding may be requested are expected to vary from department to department, as effective approaches would depend on individual disciplines. Proposals should include a brief description of the departmental plan to increase diversity in faculty hiring and a strong justification of why and how receipt of funds will serve to cast the net widely to increase the representation of women in science and engineering faculty searches. Departments may submit no more than one application per academic year.

## *APPENDIX 5:*

### *WiSE Faculty Accomplishments*

WiSE faculty continued to receive many contracts and grants, and in particular many took advantage of the stimulus grants awarded by several funding agencies. Below we list additional accomplishments, honors, and special activities by WiSE Faculty reported in 2010-2011.

## Tenure and Tenure Track Faculty

| Name | Title | School | Department | Achievements |
|---|---|---|---|---|
| Katrina Edwards | Professor | Dornsife | Biological Sciences, Earth Sciences, and Environmental Sciences | Fellow, American Association for the Advancement of Science, 2011. |
| | | | | Fellow, American Academy of Microbiology, 2010. |
| Susan Forsburg | Professor | Dornsife | Biological Sciences - Molecular and Computational Biology | Received, 2011 Roche Diagnostics Alice C. Evans Award, American Society of Microbiology. For contributions to the advancement of women in science. 2011. |
| Leana Golubchik | Professor | Viterbi | Computer Science | Received, WTS-LA Diversity Leadership Award, WTS-LA, 2011. |
| Dorit Hochbaum | Professor | Viterbi | Daniel J. Epstein Department of Industrial and Systems Engineering | Plenary speaker, Society of Industrial and Applied Mathematics (SIAM) conference on Optimization, Darmstadt, Germany, 2011. |
| | | | | Tutorial talk, Institute for Operations Research and the Management Sciences (INFORMS) conference, Austin, Texas, Fall 2010. |
| Anna Krylov | Professor | Dornsife | Chemistry | Invited Talk, "Personal account of cultural and societal obstacles facing women pursuing careers in science," American Chemical Society Annual Conference, Annaheim, CA, March 2011. |
| Maja Mataric | Professor | Viterbi | Computer Science, Neuroscience, and Pediatrics | Received, Presidential Award for Excellence in Science, Math, and Engineering Mentoring (PAESMEM), January 2011. |
| | | | | Received, USC Provost's Mentoring Award, April 2011. |
| | | | | Elected, Fellow, Institute of Electrical and Electronics Engineers (IEEE), November 2010. |

| | | | | |
|---|---|---|---|---|
| Jill McNitt-Gray | Professor | Dornsife | Biological Sciences - Human and Evolutionary Biology | Recipient, Mellon Mentoring Award, 2010.<br>President, American Society of Biomechanics. |
| Susan Montgomery | Professor | Dornsife | Mathematics | Gave the Noether Lecture at the annual Joint Mathematics Meetings, (AMS and MAA), New Orleans, LA, January 2011. |
| Elena Pierpaoli | Professor | Dornsife | Physics and Astronomy | Recipient, NASA Group Achievement award for the Planck Project in 2010 and 2011. |
| Lorraine Turcotte | Professor | Dornsife | Biological Sciences- Human and Evolutionary Biology | Named Associate Editor for the Canadian Journal of Physiology and Pharmacology. |
| Elaine Chew | Associate Professor | Viterbi | Industrial and Systems Engineering, Electrical Engineering, and Music | Delivered keynote lecture, “De-mystifying Music and Its Performance through Science and Technology,” Association for Technology in Musical Instruction Conference, Minneapolis, MN, Sep 25, 2010.<br>Delivered keynote lecture, "Music, Mathematics, and Computing," STEM event at the Mirman School for Gifted Children, March 23, 2011. |
| Suzanne Edmands | Associate Professor | Dornsife | Biological Sciences - Marine and Environmental Biology | Appointed as a USC Dornsife Faculty Fellow for 2011-2013. |
| Emily Liman | Associate Professor | Dornsife | Biological Sciences - Neurobiology | Published, Chang, R. B., Waters, H., and Liman, E. R. (2010). A proton current drives action potentials in genetically identified sour taste cells. Proc Natl Acad Sci U S A. Featured Article, "Research Highlights", Nature, 468, 603; 2010; Featured, "This week in PNAS early edition," Faculty of 1000 rated "9," "Must Read." |

| | | | | |
|---|---|---|---|---|
| Ellis Meng | Assosiate Professor | Viterbi | Biomedical Engineering | Published, Biomedical Microsystems (Boca Raton: CRC Press, 2010) |
| | | | | Recipient, Qualcomm/TATRC Wireless Health Innovation Challenge Winner, 2011. |
| | | | | Selected to participate in NAE's Frontiers of Engineering Education Symposium for being an innovative engineering educator. |
| Xianghong "Jasmine" Zhou | Associate Professor | Dornsife | Biological Sciences - Molecular and Computational Biology | Plenary Speaker, International Conference on Computational Biology, Suzhou, September, 2010. |
| Andrea Armani | Assistant Professor | Viterbi | Mork Family Department of Chemical Engineering and Materials Science | Recipient, Presidential Early Career Award for Scientists and Engineers (PECASE), 2010. |
| | | | | Recipient, National Institutes of Health Director's New Innovator Award, 2010. |
| | | | | Recipient, Congressionally Directed Medical Research Program Young Investigator Award, 2010. |
| | | | | Recipient, USC Viterbi Junior Research Award, 2011. |
| | | | | Recipient, USC Mellon Mentoring Award, 2010. |
| Yan Liu | Assistant Professor | Viterbi | Computer Science | Recipient, James H. Zumberge Individual Award. |
| | | | | Recipient, Yahoo Faculty Engagement Award. |
| | | | | Invited talk, 2011 Japan-America Frontiers of Engineering Symposium. |
| Meghan Miller | Assistant Professor | Dornsife | Earth Sciences | Published, Levander, A. Schmandt, B., Miller, M.S., Liu, K., Karlstom, K.E., Crow, R.S., Humphreys, E.D., (2011), Recent Colorado Plateau uplift by delamination and thermo-chemical downwelling of North American lithosphere, Nature, 472, 461-465. |
| Michelle Povinelli | Assistant Professor | Viterbi | Ming Hsieh Department of Electrical Engineering | Received, Presidential Early Career Award for Scientists and Engineers (PECASE), 2010. |

| | | | | |
|---|---|---|---|---|
| Shinyi Wu | Assistant Professor | Viterbi | Daniel J. Epstein Department of Industrial and Systems Engineering | Awarded, $3 million dollar grant, Diabetes-depression Care-management Adoption Trial (DCAT), Office of the Assistant Secretary of Planning and Evaluation of the U.S. Department of Health and Human Services. |
| | | | | Invited Lecture/Workshop, "Chronic Non Communicable Disease: An Introductory Public Health Perspective," World Bank. |

## Research and Teaching Faculty

| | | | | |
|---|---|---|---|---|
| Geraldine Peters | Research Professor | Dornsife | Physics and Astronomy | Served on the Scientific Organizing committees for two symposia sponsored by the International Astronomical Union: Active OB Stars: Structure, Evolution, Mass-Loss, and Critical Limits (IAU SYMPOSIUM No. 272), Paris, France, July 19-23, 2010 and From Interacting Binaries to Expoplanets: Essential Modeling Tools (IAU) Symposium No. 282, Tatranska Lomnica, Slovakia, July 18-22, 2011. |
| Kristina Lerman | Research Associate Professor | Viterbi | Computer Science | Program Committee Member, Twentieth International World Wide Web Conference (WWW11), 2011. |
| Florence Lin | Lecturer | Dornsife | Mathematics | Recipient, USC Fall 2010 Incentive Grant for New Learning Environments (for Technology-Enhanced Learning). |
| | | | | Minisymposium co-organized, Society for Industrial and Applied Mathematics (SIAM) Conference on the Life Sciences, PIttsburgh, PA, July, 2010: "Multidisciplinary approaches in wound healing" |

## *APPENDIX 6:*

### *Examples: WiSE Faculty in the News*

- Professor Ellis Meng won the TATRC/Qualcomm Wireless Health Innovation Challenge Award. The TATRC/Qualcomm Wireless Health Innovation Challenge aims to nurture and accelerate the commercialization of selected wireless health technologies developed in Southern California that have the greatest potential to improve healthcare delivery to U.S. military personnel and their families. "Southern California Wireless Health Innovators Win Funding for Inventions," *Jacob's School, UCSD, Online News* May 12, 2011.

- Researchers at the USC Viterbi School of Engineering have made a significant step in the use of nanotechnologies to mimic brain functions. The team, which was led by professors Alice Parker and Chongwu Zhou in the Ming Hsieh Department of Electrical Engineering, used an interdisciplinary approach combining circuit design with nanotechnology to address the complex problem of capturing brain function. "SC Engineers Use Nanotechnology to Mimic Brain Synapse," *USC Viterbi School of Engineering, News,* April 27, 2011.

- Professors Andrea Armani and Ellis Meng were recognized by the USC Viterbi School of Engineering. "Viterbi School Annual Awards Salute Staff and Faculty Excellence in Service and Research," *USC Viterbi School of Engineering, News Online,* April 30, 2011.

- "Forsburg Lauded for Commitment to Women in Science," Ambrosia Viramontes-Brody, *USC News,* March 3, 2011.

- USC Viterbi School of Engineering professor Maja J. Matarić was among the scholars who received a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring at a White House ceremony Jan. 27. "Maja Matarić Receives Presidential Mentoring Award from President Obama," *USC Viterbi School of Engineering, News,* January 28, 2011.

- WTS-LA presents USC Professor of Computer Science and WiSE Faculty Director Leana Golubchik with the WTS-LA Diversity Leadership Award. "WTS-LA Makes WiSE Choice for Diversity Leadership Award," *wtsinternational.org/ChapterNews.*

- Emily Liman, Associate Professor of neurobiology at USC Dornsife College, and her team have discovered one way that cells responsive to sour tastes detect protons. "Sour Research, Sweet Results," Pamela J. Johnson, *USC News,* November 24, 2010.

- Information Sciences Institute specialist, Research Assistant Professor Kristina Lerman, receives Air Force Office of Science Research funding. Project will bridge gaps between social science, mathematical, and computational approaches to social networks. "Kristina Lerman Team to Study of Social Networking Threats," *USC Viterbi School of Engineering, News,* November 23, 2010.

- Both the rate and direction of axon growth in the spinal cord can be controlled, according to new research by USC Dornsife College professor Samantha Butler and her collaborators. "Speed Heals," Laurie Moore, *USC News,* November 19, 2009.

- Maja Matarić discusses the growing use of kid-friendly 'bots to interest and motivate young students in this CNN video. CNN's 'Edge of Discovery' Features Teaching Robots from the Viterbi School, *USC Viterbi School of Engineering, News,* November 12, 2010.

- Michelle L. Povinelli and Andrea M. Armani have won the U.S. government's highest honor for scientists and engineers beginning their independent careers, the Presidential Early Career Award for Scientists and Engineers (PECASE). "Two Young Viterbi Professors Awarded Top U.S. Junior Faculty Honor in Science and Engineering," *USC Viterbi School of Engineering, News,* November 8, 2010.

- Professor Andrea Armani Armani received the NIH's 2010 New Innovator Award, which recognizes a select group of researchers with "exceptional creativity" and bold approaches that "have the potential to produce a major impact on broad, important problems in biomedical and behavioral research." "NIH taps Viterbi professor to use real-time nanolaser DNA imaging to personalize drug delivery," *USC Viterbi School of Engineering, News,* October 1, 2010.

## *APPENDIX 7:*

### *WiSE Faculty Mentors*

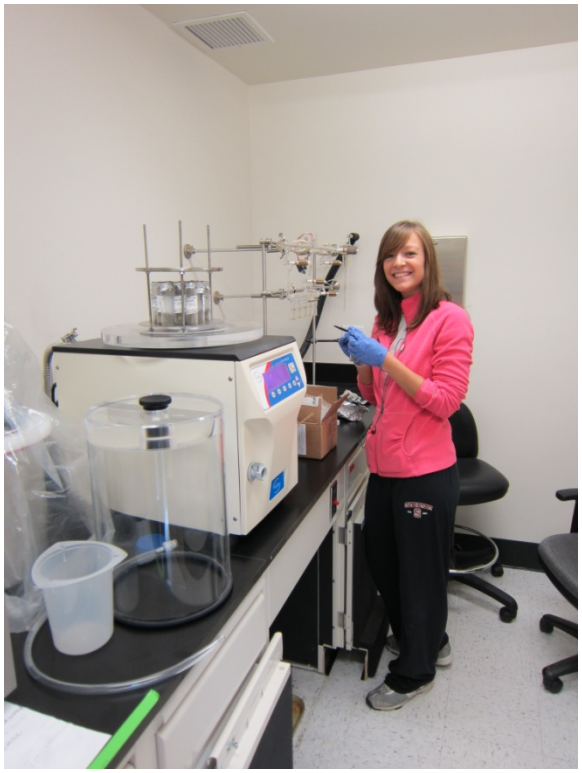


**Figure 2: Undergraduate Alexa Sieracki in the lab of Professor Sarah Feakins.**

**Figure 1: Professor Susan Forsburg with members of her lab.**


**Figure 3: Professor Malancha Gupta with members of her lab.**

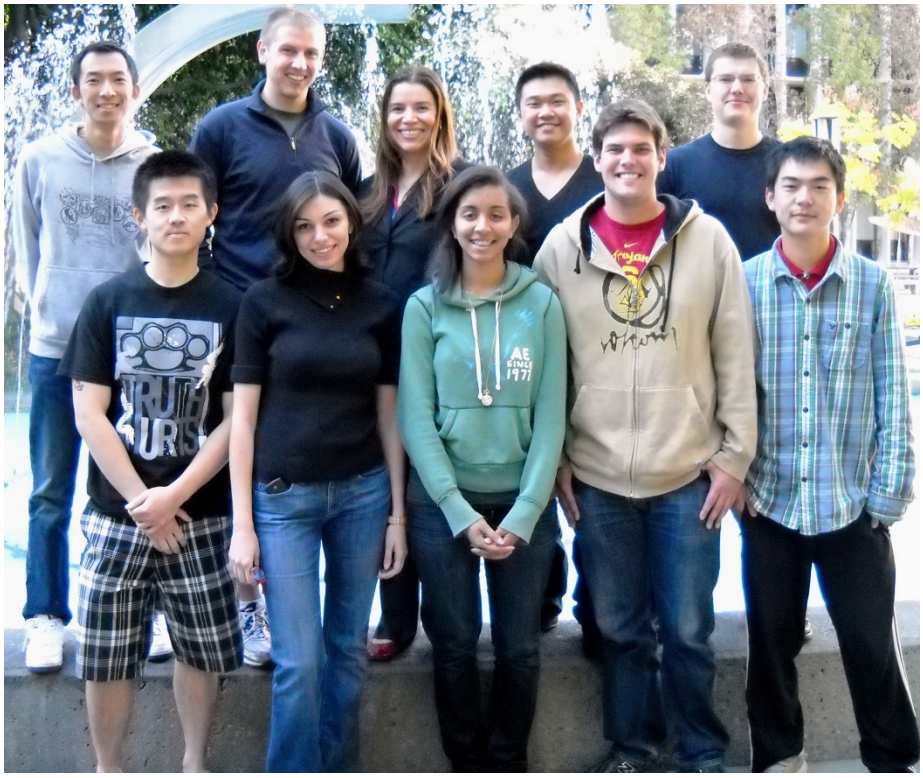


Figure 4: Professor Andrea Hodge with members of her lab.

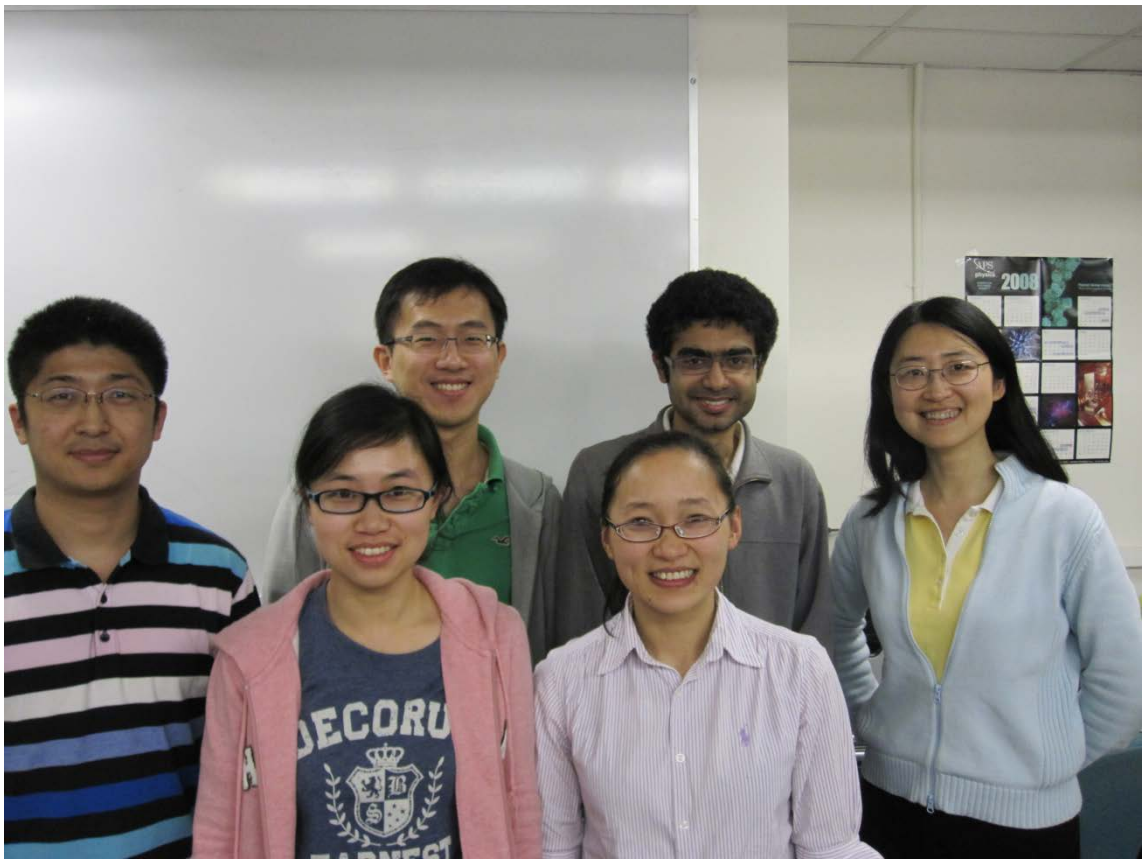


Figure 5: Professor Grace Lu with members of her lab.


**Figure 6: Professor Maja Mataric with members of her lab.**

**Figure 7: Professor Hanna Reisler with members of her lab.**

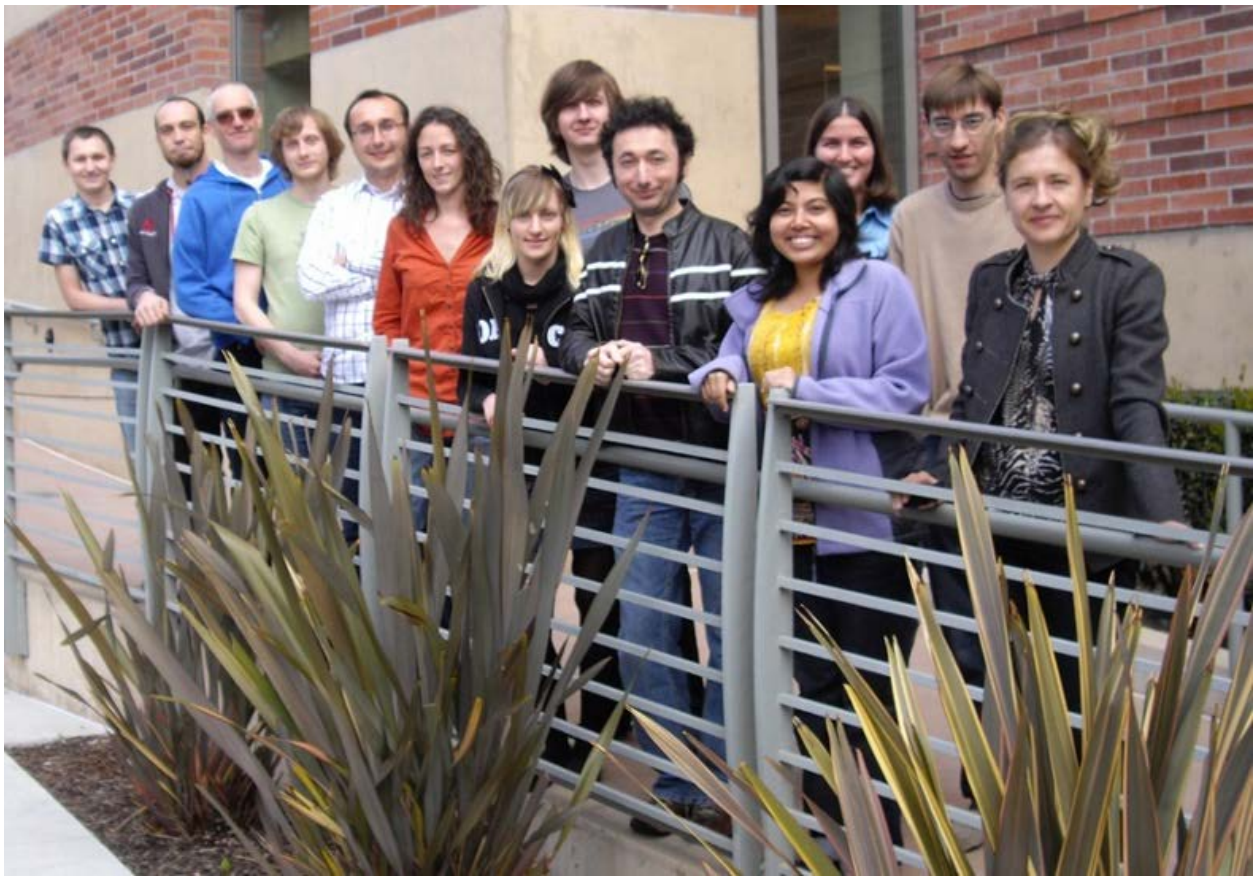


**Figure 8: Professor Anna Krylov with members of her lab.**

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Women in Science and Engineering

## *APPENDIX 8:*

## *WiSE Distinguished Lecture Series*

**WiSE Distinguished Lecture Series**

**Deadline:** No specific deadline

**Award Amount:** Variable

**Directions:** Contact Sarah Fried-Gintis at sfried@usc.edu or 213-740-0996.

In 2009-2010, in celebration of it's 10th Anniversary, the Women in Science and Engineering Program collaborated with departments across the Viterbi School of Engineering and USC Dornsife College to sponsor a series of distinguished lectures featuring prominent women scientists and engineers visiting campus that year. Owing to the program's success, WiSE would like to continue a similar suite of WiSE lectures on an annual basis. The WiSE Program will continue to host our annual WiSE Distinguished Lecturer and other speakers, but we know that many departments have named and distinguished lecture series that feature prominent women scientists. Thus, WiSE invites WiSE-eligible departments to make their distinguished guests also WiSE speakers.

WiSE will advertise such speakers across schools and departments, thus highlighting the many excellent scientists and engineers who visit USC across various disciplines; through advanced promotion we will help increase attendance and widen audiences beyond your field and department. In addition to assisting with advertising, WiSE would like to offer to host luncheons, receptions, teas, and similar events in association with existing lecture series, for WiSE featured speakers.

The mission of WiSE has always been to increase the representation of women in tenure and tenure-track positions within the academy in the disciplines of math, the sciences, and engineering. By sponsoring social events in tandem with talks that feature prominent women scholars, WiSE hopes to present the USC community with cutting-edge research; to stimulate discussion among faculty, postdoctoral scholars, graduate and undergraduate students, and staff; to motivate young researchers to pursue academic careers; to create opportunities for networking among junior scholars; and to promote collegiality within the academic community more generally.

WiSE encourages faculty colleagues and seminar committees to identify outstanding women scientists and engineers and to send us their lists of invited speakers. We look forward to hearing from you and to working with you to plan a successful program!

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Women in Science and Engineering

## *APPENDIX 9:*

### *WiSE Undergraduate Research Awards, Requirements*

**WiSE Undergraduate Research Awards**

**Deadline:** USC Dornsife College: January 16, April 1, & August 28
Viterbi School of Engineering: November 15, April 1, & August 1
(In the event that a deadline falls upon a weekend or a university holiday, that deadline will move to the first workday following the posted date.)

**Award Amount:** Awards during fall and spring offer $2,500 ($2,000 for the student and $500 for advisor support).

Awards during summer offer $5,000 ($4,500 for the student and $500 for advisor support).

**Responsibilities of Student Participants:**

Student recipients of the Fellowship are expected to work on their research project at least 12 hours per week during the academic semester in which they receive the award. For the summer, the expectation is about 300 hours or the equivalent of 8 weeks of full-time work. Students must confer regularly with their faculty sponsors and, upon the sponsor's recommendation, participate in safety training, meetings, seminars, journal clubs, discussion groups, and other scholarly activities of the host laboratory, department or research group. At the end of the Fellowship period, students must, under the guidance of their faculty mentor, prepare and submit a science poster. Students must also present the results of their research at the Undergraduate Symposium for Scholarly & Creative Work held in April each year.

## *APPENDIX 10:*

### *WiSE Undergraduate Research Awards, Example Science Poster*

In this Section

- History
- Advisory Board
- USC Dornsife WiSE Committee
- Viterbi School of Engineering WiSE Committee
- Faculty
- Contact

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## Science Poster Requirements

At the end of the Fellowship period, students must, under the guidance of their faculty mentor, prepare and submit a science poster. The posters should be emailed to WiSE Program Manager, Sarah Fried-Gintis, at **sfried@usc.edu** by the conclusion of the semester in which the research was completed and will be displayed online on the USC website. While the faculty mentor will be the best source of information on the expectations, structure, and formatting of a science poster, the following websites may be useful:

**How to Make and Effective Poster**

**Design of Scientific Posters**

**Advice on Designing Scientific Posters**.

It is expected that the costs of printing the poster will be covered by the funds granted to faculty for supplies to support the student's research. Students and faculty should discuss plans to print the poster at the conclusion of the student's research.

Here are some examples of successful posters submitted by prior recent Wise Undergraduate Award recipients:

- **Catherina Ticsay's Science Poster**
- **Audrey Harker's Science Poster**

Women in Science and Engineering Program
3601 Watt Way - GFS 315
Los Angeles, CA 90089-1695

(213) 740-0996
(213) 740-5509
wiseprog@usc.e

## *APPENDIX 11:*

## *WiSE Newsletter*

May 27, 2011
Issue 2: 21

Women in Science and Engineering

www.usc.edu/programs/wise

WISEPROG@USC.EDU

## Congratulations!

**Wiebke Ziebis (Marine Biology) has just been promoted to Associate Professor with tenure.

**Andrea Hodge (Aerospace and Mechanical Engineering) has been awarded a 3-year Humboldt Research Fellowship.

Andrea Hodge, holder of the Philip and Cayley MacDonald Early Career Chair and an assistant professor in the Aerospace and Mechanical Engineering Department, was awarded a three-year Humboldt Research Fellowship. Prof. Hodge's research will be carried out at the Institute of Nanotechology at Karlsruhe Institute of Technology in Karlsruhe, Germany. The goal of the research project will be to "develop and characterize new materials that have nanoscale features with engineered grain boundaries and interfaces, which can then be used for a variety of applications ranging from micro-electronics to engines," explained Hodge. The Alexander von Humboldt Foundation awards such fellowships "solely on the basis of academic record." Selection criteria include quality and number of academic publications in internationally-reviewed journals and books; expert statements from scholars around the globe on the candidate's profile and potential; and the academic quality and feasibility of the research proposal submitted by the candidate.

## IN THIS ISSUE

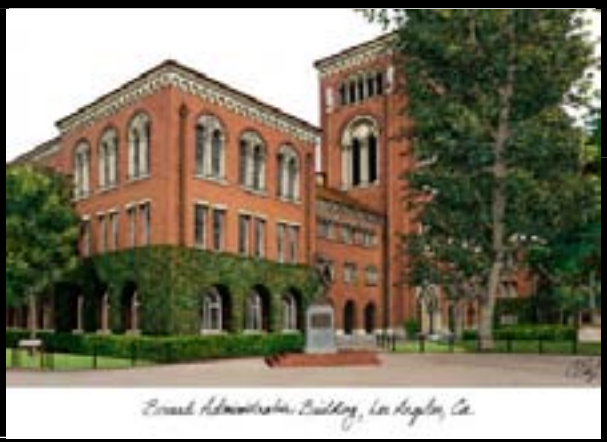


## WISE PROGRAM UPCOMING DEADLINES

Fall Undergraduate Research Awards

Dornsife: August 28

Viterbi: August 1



To see all the USC WiSE Grant Programs, including ongoing grants without specific deadlines, please click here.

## UPCOMING WISE EVENTS

### Wise Faculty Networking Meeting

Meetings held the last Thursday of the month at 12pm in HNB 107; Thursday, June 30, 2011; Bring you own lunch. Cookies, coffee, tea provided.

THEME: "WHAT IF…?"
Oregon Convention Center
Portland, Oregon
NOVEMBER 9-12, 2011

The Grace Hopper Celebration of Women in Computing is a series of conferences designed to bring the research and career interests of women in computing to the forefront. Presenters are leaders in their respective fields, representing industrial, academic and government communities. Leading researchers present their current work, while special sessions focus on the role of women in today's technology fields, including computer science, information technology, research and engineering.

Past Grace Hopper Celebrations have resulted in collaborative proposals, networking, mentoring, and increased visibility for the contributions of women in computing.

For more information, click here.


## CRA-W to Hold Career Mentoring Workshop at FCRC 2011

June 4-5, 2011
San Jose, CA

Deadline to apply for travel support: March 25th
Notification about travel support: April 15th
Early registration ends - on or around May 5th
(check FCRC site for updates)

The CRA Committee on the Status of Women in Computing research (CRA-W) will sponsor a Workshop on Research Career Mentoring for Women in Computer Science and Computer Engineering at the 2011 Federated Computing Research Conference.

For more information about the workshop and to apply for financial support to attend, click here.

# IN THE NEWS

## USC Engineers Use Nanotechnology to Mimic Brain Synapse

April 27, 2011 —

Alice Parker, seated, with Chih-Chieh Hsu, center, and Jonathan Joshi Researchers at the USC Viterbi School of Engineering have made a significant step in the use of nanotechnologies to mimic brain functions. They have built a carbon nanotube circuit whose behavior in tests reproduces the function of a neuron input, the synapse, a key building block of the brain.

The team, which was led by professors Alice Parker and Chongwu Zhou in the Ming Hsieh Department of Electrical Engineering, used an interdisciplinary approach combining circuit design with nanotechnology to address the complex problem of capturing brain function.

In a paper published in the Proceedings of the Life Science Systems and Applications Workshop in April 2011, the USC engineers detailed how they were able to use carbon nanotubes to create a synapse. Carbon nanotubes are molecular carbon structures with walls one carbon atom thick. They are extremely tiny, with a diameter a million times smaller than a pencil point. These nanotubes can be used in electronic circuits, acting as metallic conductors or semiconductors.

For the full story, click here.

## Ranking the States in Producing Women Graduates in STEM Fields

WIA Report
May 06, 2011

Data analyzed by WIAReport from the U.S. Department of Education shows that in 2009 American women earned 134,634 degrees in the so-called STEM fields of science, technology, engineering. and mathematics. This was 31 percent of all degrees earned in these fields. The percentage of all degrees in STEM fields earned by women actually declined from 32.9 percent in 2001 to 31.0 percent in 2009.

Some states did a far better job in steering women toward degrees in STEM fields than other states. As shown in the table, South Carolina led the list. In 2009, women earned 38.4 percent of all STEM degrees earned in the state. Other states where women showed a strong performance were Mississippi, Alaska, North Carolina, and the District of Columbia.

For the full story, click here.

## Where are all the women scientists?

Becky Oskin
NewScientist
April 26, 2011

When Amy Csizmar Dalal was hired as an assistant professor of computer science at Carleton College in Northfield, Minnesota, she received anonymous phone calls harassing her at work for several years. She is still sometimes the only woman in the classroom during her lectures and she feels that some of her students treat her differently to her male colleagues, questioning her logic and judgment more often.

Her story sounds like a throwback to several decades ago, but she was hired in 2003.

"Most days, I absolutely love my job," says Csizmar Dalal, who was the first female faculty member hired in her department. "There are also days when I compose my resignation letter in my head."

Her experience isn't an anomaly. A plethora of studies have shown that women in science still face more obstacles than men. The number of women in senior positions is not in line with the number of women qualified for the role, despite evidence showing that when women do apply, they are at least as likely as men to get hired (see bit.ly/gRPgLx for a summary). So why do women drop out of science before they can fill the top jobs?

The good news is that it is not due to a lack of interest in the subject, as the proportion of women studying science and engineering continues to rise in most fields. In 2007, women earned more than half of all bachelor's degrees, and really tipped the scales in biology, chemistry and agricultural sciences, according to the 2010 National Science Foundation Science and Engineering Indicators report.

For the full story, click here.

## Merged Cultures to Empower Women

Kerri-Ann Jones, Shirley Malcom, Sharon Hrynkow
Science
April 8, 2011

The 55th session of the Commission on the Status of Women (CSW) of the United Nations (UN) closed last month with little fanfare, but there was cause for celebration. For the first time, the CSW, traditionally a forum to examine improvement of women's rights and gender equality, merged this broad interest with issues of science and technology (S&T). This makes sense because empowering women as scientists and engineers, supporting girls' education in science, and valuing women as builders of economic development all contribute to gender equality. The merger of these two areas produced recommendations to governments and nongovernmental entities that go far beyond what either group would likely have developed independently.

The Agreed Conclusions of the CSW member states* recognize the importance of S&T in every sphere of human existence, from combating malnutrition, the spread of disease, and environmental degradation, to building a more peaceful, secure, and prosperous world. Moreover, they acknowledge gender disparities in S&T at every educational level and in every sector of employment. The Agreed Conclusions emphasize how the use of S&T in poorer nations can free time for women to attend school or generate income. They also value women's indigenous knowledge in agriculture, health, and other sectors.

For the full story, click here.

## Bringing Them Back

Inside Higher Ed
May 17, 2011

Increasing the ranks of women faculty members in science, technology, engineering and mathematics disciplines has become an area of intense focus for academe in recent years, and attempts to boost these numbers have focused on everything from probing the barriers at individual institutions to encouraging more girls, while they are still in school, to consider careers in these fields.

The organizers of the On-Ramps into Academia workshop taking place Monday and today at the University of Washington have taken a different approach: encouraging and coaching talented and accomplished women to leave their positions in private industry and return to campus.

The workshops, and accompanying mentoring and advice, actually address two problems for academe at the same time, said Matthew O'Donnell, dean of Washington's College of Engineering. "Like everywhere, we work hard to retain women faculty and we want more faculty with real world experience," he said. "To me, this is a double-win."

The effort at Washington is notable because it seeks to woo back scientists who may, in turn, serve as role models for younger women about to consider their career options. Some experts on women in science have warned that industry has been attracting talented women away from academe. Many of these women may have left the academic track because of a lack of opportunity, or because they wanted to avoid the insecurity of tenure-seeking while starting a family.

Washington's program is still fairly young and operating on a small scale (and organizers want to attract more participants). The current round of workshops is the second of three; the first took place in 2009. But organizers have been pleased with the results so far: 45 women in total have attended the first two workshops, and four have secured full-time faculty positions, while two or three others are working as adjuncts, said Eve Riskin, professor of electrical engineering at Washington, who is the principal investigator on the project, which is funded by the National Science Foundation.

Riskin did not personally make the switch from industry to academe, but said she was inspired to start the workshops after noting that colleagues in neighboring departments -- including O'Donnell, who worked for General Electric before moving to the University of Michigan -- had made the transition very effectively.

Many times, those who have worked in industry bring skills and experiences with them that are not as well-developed within higher education, said Joyce W. Yen, program and research manager of Washington's ADVANCE Center for Institutional Change. For example, those from private industry have gained experience managing projects and people in ways that are different from the methods practiced at universities. "In academia you just see one model, which is the model you did with your Ph.D. adviser," said Yen. "In industry you get to import those ideas into your academic career."

Riskin said those who work in industry but are active in professional associations, have their own research labs, and are interested in teaching seem to make promising recruits to come back into academe. "They look like faculty, but don't have the faculty title," she said. "Those are the most obvious slam dunks."

Several of those who have made the transition (and were participating in the workshop) described similar reasons for doing so -- and the sometimes unexpectedly difficult challenges involved in negotiating two very different cultures.

Teaching is more difficult than it appears from the outside, several said, and the slow pace of academe can be maddening. "What takes a year in an academic setting would take a month in an industrial setting," said O'Donnell.

For the full story, click here.

## One Fifth of the New Members of the American Academy of Microbiology Are Women

WIA Report
May 16, 2011

The American Academy of Microbiology is the honorific leadership group within the American Society for Microbiology, the world's oldest and largest life science organization. The mission of the Academy is to recognize scientists for outstanding contributions to microbiology and provide microbiological expertise in the service of science and the public.

Over the last 50 years, 2,700 distinguished scientists have been elected to the Academy. Fellows are elected through a highly selective, annual, peer review process, based on their records of scientific achievement and original contributions that have advanced microbiology.

For the full story, click here.

## Dartmouth College Celebrates the 20th Anniversary of Its Women in Science Project

May 20, 2011
WIA Report

Dartmouth College recently celebrated the 20th anniversary of its Women in Science Project. The project aims to boost the number of women earning degrees in science, technology, mathematics, and engineering.

The program was established in 1990 with a focus on retaining first-year women students who chose to pursue a science curriculum. Under the program first-year women students in science fields have access to research internships with faculty mentors. There is also a peer mentoring program and an electronic information network dedicated to the project.

When the program began there were 45 women majoring in science fields at Dartmouth. This semester there were 102.

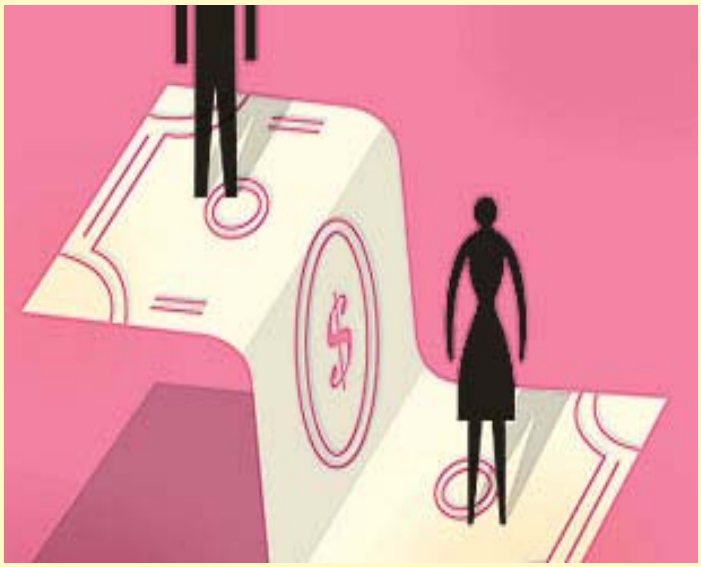
# THE 100% SOLUTION

Rana Foroohar
Time
May 23, 2011

You've got to give Donald Trump credit: he's everywhere, and everywhere he goes, he manages to offend in new and different ways. Take his quotes in the latest book by MSNBC Morning Joe co-host Mika Brzezinski, Knowing Your Value: Women, Money, and Getting What You're Worth. When asked about hiring working moms, the Donald replies skeptically, "She's not giving me 100%. She's giving me 84%, and 16% is going towards taking care of children."

As a single working mother of two, I take exception to that attitude. But more on that later. The main topic of Brzezinski's book is the wage gap. Four decades after women entered the U.S. workforce en masse, a woman still makes 77¢ for every dollar earned by a man. Some of this gap is due to women's choosing lower-paying and more portable careers in order to support a spouse or allow for more time to care for children or elders. But about 40% of it can't be explained away.

So when women choose the power track, what is holding them back? Brzezinski believes they simply don't know their own worth. Women, she says, don't take the time to research what male colleagues are making and demand the same; they expect, in a good-girl way, employers to be fair about pay; they worry that people won't like them if they negotiate too hard; they get too emotional or apologetic when asking for the money they deserve; and they don't jump as quickly as men do at new opportunities.



We all know women of whom such things could be said, though I certainly know plenty who advocate for themselves as aggressively as any man. (In fact, the book is filled with them, from media maven Arianna Huffington to Yahoo! CEO Carol Bartz.) While Brzezinski makes some valid points, the wage gap is an economic issue that, like so many others today, is bifurcated. Age and education matter a lot. In some major urban areas, young college-educated women are actually ahead of their male peers in pay. "If you walk down the streets of Manhattan, London or Stockholm," says Boston Consulting Group (BCG) senior partner Michael Silverstein, "and you ask 100 single men and women between the ages of 25 and 30 what they make, the women will make more." He believes this is the beginning of a generational shift that will snowball as older women retire and younger women, who started out with equal education and more pay parity, rise through the ranks.

Indeed, a number of economists believe that the average woman in the U.S. and Western Europe will outearn her male peers by 2024. That's because they are better educated and are entering the workforce in greater numbers and in the fastest-growing industries. BCG estimates that women will earn the majority--some $5 trillion--of the world's new income over the next five years. No wonder banks like Goldman Sachs are starting to rate industries according to how much of the female dollar they are poised to capture. Merrill Lynch recently went "long on women" and companies targeting female consumers, noting that it expected women to "increasingly become the higher-income earners of U.S. households."

For the full story, click here.

## *APPENDIX 12:*

## *WiSE Faculty Listings*

In this Section
- History
- Advisory Board
- USC Dornsife WiSE Committee
- Viterbi School of Engineering WiSE Committee
- Faculty
- Contact

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# 2010-2011 WiSE Faculty

## USC Dana and David Dornsife College of Letters, Arts and Sciences

Biological Sciences (Marine)

Biological Sciences (Molecular and Computational)

Biological Sciences (Neurobiology)

Biological Sciences (Human and Evolutionary Biology)

Chemistry

Earth Sciences

Mathematics

Physics and Astronomy

## USC Viterbi School of Engineering

Aerospace and Mechanical Engineering

Biomedical Engineering

Mork Family Department of Chemical Engineering and Materials Science

Sonny Astani Department of Civil and Environmental Engineering

Computer Science

Ming Hsieh Department of Electrical Engineering

Daniel J. Epstein Department of Industrial and Systems Engineering

# USC Dana and David Dornsife College

## Biological Sciences, Marine Environmental Biology

**Linda Dugay, Director, USC Sea Grant Program**
**Office:** AHF 209
**Phone:** (213) 821-1335
**Research Interests:** Ctenophores, foraminfera, symbiotic associations, benthic ecology of dredge spoil sites, water quality, beach health and status.
**duguay@usc.edu**

**Suzanne Edmands, Associate Professor, Biological Sciences**
**Office:** AHF 316
**Phone:** (213) 740-5548
**Research Interests:** Conservation, evolution, population genetics, breeding, genetic structure, marine populatons, copepod.

**sedmands@usc.edu**

**Katrina Edwards, Professor, Biological Sciences, Earth Sciences and Environmental Studies**
**Office:** AHF 107
**Phone:** (213) 821-4390
**Research Interests:** Iron oxidation, subsurface biosphere, rock alteration, hydrothermal systems, chemoautotrophy, biofilms, endolithic.
**kje@usc.edu**

**Feixue Fu, Research Assistant Professor, Biological Sciences**
**Office:** AHF 137
**Phone:** (213) 740-3188
**Research Interests:** N2 fixation, cyanobacteria, harmful alga bloom, global climate change, nutrient limitation.
**ffu@usc.edu**

**Julliette Hart, Research Assistant Professor, Biological Sciences**
**Office:** AHF 253
**Phone:** (213) 740-1937
**Research Interests:** Coastal marine policy, regional ocean governance, and sustainable ecotourism.
**jahart@usc.edu**

**Karla Heidelberg, Assistant Professor, Biological Sciences**
**Office:** AHF 232
**Phone:** (310) 510-4038
**Research Interests:** Marine and environmental microbiology and ecology; Protist diversity; Environmental genomics and other '-omic' applications to study microbial ecology.
**kheidelb@usc.edu**

**Myrna Jacobson, Research Assistant Professor, Biological Sciences**
**Office:** AHF 139
**Phone:** (213) 740-5145
**Research Interests:** Biogeochemistry, Environmental EctoEnzymes, Nutrient imbalances, Communicating science through words and cartoons.
**myrnaj@wrigley.usc.edu**

**Astrid Schnetzer, Research Assistant Professor, Biological Sciences**
**Office:** AHF 107
**Phone:** (213) 740-3675
**Research Interests:** Plankton food web dynamics, microbial ecology and biogeochemical cycling.
**astrids@usc.edu**

**Wiebke Ziebis, Associate Professor, Biological Sciences**
**Office:** AHF 334
**Phone:** (213) 821-1198
**Research Interests:** Biogeochemistry and microbial ecology of the ocean floor.
**wziebis@usc.edu**

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## *APPENDIX 13:*

### *Guidelines, Merit Award for Current PhD Students*

**Merit Fellowship for Current Doctoral Students**

**Deadlines:** March 3

(In the event that a deadline falls upon a weekend or a university holiday, that deadline will move to the first workday following the posted date.)

**Award Amount:** $5,000

**Directions:** Department chairs submit application materials electronically in digital form to the WiSE program office at wiseprog@usc.edu.

**Download:** Application Form: PhD Merit Fellowship Application Form.

The Merit Fellowship for Current Doctoral Students is offered to current Ph.D. students at USC who demonstrate exceptional work in their field. Two candidates will be chosen from the USC Dana and David Dornsife College of Letters, Arts, and Sciences and two from the Viterbi School of Engineering. Candidates are nominated by the faculty. Each one-year WiSE Fellowship carries a stipend of $5,000. To be eligible for the Merit Fellowships students must plan to be enrolled full-time for both the upcoming Fall and Spring semesters, have passed their qualifying examination, and be funded by a 50%-time research assistantship, teaching assistantship, or fellowship during that period. Expected date of graduation should not be earlier than the Spring semester.

## *APPENDIX 14:*

### *WiSE 2010-2011 Undergraduate Award Recipients*

**Viterbi School of Engineering**

- Nishita Deka, Electrical Engineering - Electrophysics (Professor Andrea Armani)
- Audrey Harker, Chemical Engineering and Materials Science (Professor Andrea Armani)
- Soumya Mourag, Biomedical Engineering (Professor Tzung Hsiai)
- Aye Thu, Biomedical Engineering (Professor Ellis Meng)
- Kelly Byron, Electrical Engineering - Systems (Professor Alice Parker)
- Szeyan Chan, Civil and Environmental Engineering (Professor Mike Pirbazari)
- Maria Mohammad, Civil and Environmental Engineering (Professor Mihailo Trifunac)
- Jasmine Thum, Biomedical Engineering (Professor Michael Khoo)
- Catherina Ticsay, Aerospace and Mechanical Engineering (Professor Veronica Eliasson)
- Kelly Byron, Electrical Engineering - Systems (Professor Alice Parker)
- Szeyan Chan, Civil and Environmental Engineering (Professor Massoud Pirbazari)
- Michelle Dee, Chemical Engineering and Materials Science (Professor Shrikanth Narayanan)
- Samantha Ma, Biomedical Engineering (Professor Mark Thompson)
- Catherina Tiscay, Aerospace and Mechanical Engineering (Professor Veronica Eliasson)

**USC Dornsife**

- Victoria Saadat, Electrical Engineering - Systems (Professor Kyung Jung)
- Linda Peng, Biological Sciences (Professor Xuelin Wu)
- Jessica Kuo, Biological Sciences (Professor Sergey Nuzhdin)
- Chuanchuan Zhou, Chemistry (Professor Hanna Reisler)
- Alexa Sierarcki, Earth Sciences (Professor Sarah Feakins)
- Katherine Wittig, Mathematics (Professor Susan Montgomery)
- Colleen Hoffman, Chemistry (Professor Katrina Edwards)
- Annie Wang, Biological Sciences (Professor David Caron)
- Christine Tung, Biological Sciences (Professor David Caron)
- Christi Ng, Biomedical Engineering (Professor Barry Thompson)
- Tiffany Sia, Chemistry (Professor Katrina Edwards)
- Cara Magabosco, Biological Sciences (Professor Doug Capone)
- Rachel Cummings, Mathematics (Professor David Kempe)
- Elizabeth Chernyak, Biological Sciences (Professor Tansu Celikel)

## *APPENDIX 15:*

### *WiSE 2010-2011 Graduate and Postdoctoral Award Recipients*

Graduate Top-off Fellowship

- Adriana Nicholson, Viterbi SoE, Biomedical Engineering
- Seraina Murphey, Viterbi SoE, Electrical Engineering
- Wanlin Guo, USC Dornsife, Nuerobiology
- Elizabeth Petsios, USC Dornsife, Earth Sciences
- Heidi Schmid, USC Dornsife, Chemistry
- Natalie Martinez Takeshita, USC Dornsife, Marine Environmental Biology

Merit Fellowship for Current Doctoral Students

- Shannon Howell, USC Dornsife, Chemistry
- Daisy Mak, USC Dornsife, Physics
- Ozgun Bursalioglu Yilmaz, (declined) Viterbi SoE, Electrical Engineering - Systems
- Neelaski Hudda, Viterbi SoE, Civil and Environmental Engineering
- Yi Gai, Viterbi SoE, Electrical Engineering - Systems

Merit Award for Excellence in Postdoctoral Research

- Debashree Ghosh, USC Dornsife, Chemistry
- Heather Hunt, Viterbi SoE, Chemical and Material Sciences

## *APPENDIX 16:*

### *Brandy Toner Lunch*

Earth Sciences, Biological Sciences (Division of Marine Environmental Biology), WiSE and the Center for Deep Energy Biosphere Investigations (C-DEBI) are hosting:

# Dr. Brandy Toner,

a 2011 Ridge 2K Distinguished Lecturer

May 18 and 19, 2011

Dr. Toner will give two lectures:

Science Community Lecture: May 18 at Noon, ZHS200
"Integrated nested-scale biogeochemistry of hydrothermal plumes at a back-arc spreading center".

Abstracts: Hydrothermal venting associated with mid-ocean ridge volcanism is globally widespread. Hydrothermal plumes created by this venting represent a dynamic biogeochemical interface between the sub-seafloor and deep ocean that is poorly understood in terms of process-level mechanisms and global ocean implications. Advancing understanding of the role of plume processes in global ocean biogeochemistry requires highly integrated, multi-disciplinary research that accesses physical, chemical, and biological properties within individual buoyant plumes. In addition, comparisons among plumes in a given vent field, and among vent fields representing a continuum of geophysical and geochemical conditions are essential. To address this research need, a large nested-scale research program focused on hydrothermal vent fields along the Eastern Lau Spreading Center has begun. During June-July 2009, rising plumes at Kilo Moana, ABE, Tahi Moana, Mariner, and Tui Malila vent fields were sampled at discrete elevations for geochemistry, metal speciation, mineralogy, and microbial ecology. The trajectory of oxidation-reduction sensitive elements as they move through a buoyant plume at ABE vent field will be highlighted. In terms of global ocean elemental fluxes, hydrothermal vent plumes represent a critical oceanic interface where biogeochemical processes leading to particle formation, surface reactivity, and dispersal are poorly constrained.

General Public Lecture: May 19 at 11am, HNB auditorium (HNB100)
"Can iron from deep-sea hot springs fertilize the oceans?"

The global mid-ocean ridge system is a 60,000-km volcanic chain that crosses the floor of all major ocean basins on Earth. Dispersed along this baseball seam are deep-sea hydrothermal vents that release hot fluids rich in iron and other reduced chemicals. Every year, the iron released to the ocean by hydrothermal venting at the seafloor is approximately equal to all of the iron flushed from the continents by rivers - this is a lot of iron. With all of this iron entering the oceans, how do we explain the large regions of the global ocean where iron availability is so low that it limits life? The key to understanding iron mobility and bioavailability is the specific chemical form of the iron. In this lecture, I will discuss current scientific understanding of the chemistry and biology of hydrothermally derived iron. I will also highlight recent research discoveries that demonstrate the limits of current understanding and examine the rich complexities of iron biogeochemistry in the deep ocean.

## *APPENDIX 17:*

## *2010-2011 WiSE Library Program*

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## The USC Women in Science and Engineering Program


## Together with the
## USC Science and Engineering Library

**Presents**

# 2010 Fall Library Program and Orientation for WiSE Faculty, Students, and Postdocs

Back again by popular demand! Join USC Science and Engineering librarians Jean Crampon, Najwa Hanel, and Norah Xiao for an introduction to electronic resources and library facilities that may assist with various points in the research process. The program is appropriate for seasoned researchers as well as those new to the USC campus. Following a formal presentation and tour, join colleagues for a complimentary lunch and conversation.

Topics to be discussed include:

1. Update of new databases and search engines
2. Helpful resources for literature review
3. Resources for citation analysis (yours and others)
4. Specific guidance for your personal research needs

## Thursday, September 16, 2010
## 11:00 a.m. – 1:00 p.m.
### Science and Engineering Library

**Space is limited, and RSVP is required to wiseprog@usc.edu**
**Confirmed participants should meet at the circulation desk**

**Contact WiSE at (213) 821-4400 for more information**
**Or visit www.usc.edu/wise**

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**Compiled by:**

Sarah Fried-Gintis, PhD

Program Manager, Women in Science and Engineering

August 2011