USC WOMEN IN SCIENCE AND ENGINEERING

2012-2013, Annual Report

Program Director, Prof. Leana Golubchik

Program Manager, Dr. Sarah Fried-Gintis

Office of the Provost

University of Southern California

1042 Downey Way, Suite 232

Los Angeles, CA 90089-1111

(213) 740 – 0996

www.usc.edu/wise

wiseprog@usc.edu

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Compiled by Sarah Fried-Gintis

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Figure 1: WiSE Faculty Networking Group Lunch, Spring 2013.

EXECUTIVE SUMMARY

The USC Women in Science and Engineering Program (WiSE) is USC's premiere diversity initiative. Founded in 2000 by an anonymous donation of $20 million, WiSE is an endowed initiative aimed at increasing the representation of women in tenured and tenure-track faculty positions in the sciences, engineering, and mathematics at USC. Since the program's inception, WiSE has successfully helped to increase the number of women in these positions in the programs it represents -- the departments of engineering in the USC Viterbi School of Engineering (VSoE) and the departments of mathematics, biological sciences, earth sciences, physics and astronomy, and chemistry in the USC Dana and David Dornsife College of Letter, Arts and Sciences -- from 15 in 2000 to 49 in January 2014. In 2000, there were only 3 women faculty members in tenured and tenure-track positions in the VSoE and 12 in the USC Dornsife College. By January 2014, there will 23 in VSoE and 26 in USC Dornsife College. By targeting the recruitment and retention of new women faculty members and by establishing a suite of programs aimed specifically at creating an environment in which the careers of women at all stages of their careers may thrive, WiSE serves as a role model for successful diversity efforts at USC, as well as across the country and internationally.

Approximately half of the WiSE annual budget supports the recruitment and retention of women faculty members. The remaining 50% supports programs aimed at encouraging and advancing the careers of undergraduate students, Ph.D students, and postdoctoral scholars.

In just over a decade, WiSE has helped to more than triple the number of tenured and tenure-track women in WiSE-eligible departments.

Figure 2: Professor Hanna Reisler, Lloyd Armstrong, Jr. Endowed Chair.

The 2012-2013 recruitment season was one of WiSE's strongest yet. <u>WiSE successfully helped recruit 6 new women to the faculty.</u> VSoE welcomes Assistant Professors Nora Ayanian (Computer Science), Stacey Finley (Biomedical Engineering), Megan McCain (Biomedical Engineering), and Kelly Sanders (Civil and Environmental Engineering) and Full Professor Amy Childress (Civil and Environmental Engineering). USC Dornsife College welcomes Assistant Professor Smaranda Marinescu to the Department of Chemistry. The total number of WiSE faculty in the natural sciences and mathematics fields in USC Dornsife College and the Viterbi School of Engineering will be 49 in January 2014. (See Appendix 1)

WiSE continues to play 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 2012-2013 academic year, WiSE Director, Leana Golubchik, met with incoming chairs and section heads Gaurav Sukhatme (Computer Science), Will Berelson (Earth Sciences), David McKemy (Biological Sciences, Neurobiology), and David Hutchins (Biological Sciences, Marine and Environmental). WiSE leadership also participated in meetings with 30 formal candidates during their campus visits (24 in Viterbi and 6 in Dornsife). (See Appendix 2) WiSE Support for Facilitating Diversity in Faculty Searches (established in 2010-2011) provided $26,600 in grants to the departments of Earth Sciences, Physics, Chemical Engineering and Materials Science, Biomedical Engineering, Civil and Environmental Engineering, and Aerospace and Mechanical Engineering. Civil and Environmental and Biomedical Engineering each successfully recruited two women during the 2012/2013 recruitment season.

Wise Faculty Accomplishments

Current WiSE faculty members continue to distinguish themselves with campus-wide and national level recognition for their research. Professor Maja Mataric (Computer Science), Vice Dean of Research in the VSoE, recently won the Women of Vision Award for Innovation given by the Anita Borg Institute, which honors women making significant contributions to technology. Prof. Mataric was also named one of the 25 most powerful women engineers in tech by Business Insider. Professors Yan Liu (Computer Science) and Malancha Gupta (Chemical Engineering and Materials Science) won NSF Career Awards. Professor Andrea Armani (Chemical Engineering and Materials Science) won a Grainger Foundation Frontiers of Engineering Grant for Advancement of Interdisciplinary Research from the National Academy of Engineering. Prof. Armani was also named a SPIE Senior Member by the International Society for Optics and Photonics. Professors Anna Krylov (Chemistry),

Susan Friedlander (Mathematics), Susan Montgomery (Mathematics), and Hanna Reisler (Chemistry) were elected fellows of the American Association for the Advancement of Science (AAAS). Professor Katrina Edwards (Biological Sciences, Earth Sciences and Environmental Studies) was awarded the 2012 A.G. Huntsman Award for Excellence in Marine Science (she is only the third woman to receive this award in the foundation's 32-year history). Professors Susan Friedlander and Susan Montgomery (Mathematics) were invited to become inaugural fellows of the American Mathematical Society (AMS) for their distinguished contributions to the field. Professor Jill McNitt-Gray (Biological Sciences and Biomedical Engineering) was elected a Fellow of the American Society of Biomechanics. Professor Lorraine Turcotte (Biological Sciences) served as President of the American College of Sports Medicine South West Chapter, and was Associate Editor of the Canadian Journal of Physiology and Pharmacology. Professor Burcin Becerik-Gerber (Civil and Environmental Engineering) received a TR 35 award from MIT's Technology Review. Ellis Meng (Biomedical Engineering) and Malancha Gupta (Chemical Engineering and Materials Science) were awarded an NSF EFRI grant with James Weiland (Ophthalmology and Biomedical Engineering).
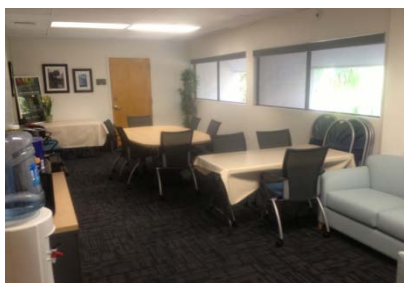
WiSE Suite, DRB 232

Figure 3: Main meeting area in the WiSE Suite in DRB 232.

In January 2013, the WiSE Program moved into new offices. The WiSE Suite, located in Denney Research Center (DRB 232), includes newly renovated administrative offices for the Director and Program Manager, as well as 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. Since the Program's move in January 2013, WiSE has hosted over 25 events in the new space.

Professor Burcin Becerik-Gerber (Civil and Environmental Engineering) was appointed to the Stephen Schrank Early Career Chair.

Professor Malancha Gupta (Chemical Engineering and Materials Science) was appointed to the Jack Munushian Early Career Chair.

Professor Liang Chen (Biological Sciences) was promoted to Associate Professor with tenure.

Professor Andrea Hodge (Aerospace and Mechanical Engineering) was promoted to Associate Professor with tenure.

Professor Emily Liman (Biological Sciences) was promoted to Full Professors with tenure.

Professors Jasmine Zhou (Biological Sciences) was promoted to Full Professors with tenure.

Professor Maja Mataric (Professor of Computer Science and Vice Dean for Research) was appointed the inaugural holder of the Chan Soon-Shiong Chair.

WiSE Activities

In order to further aid in the retention of women faculty and to encourage undergraduate and graduate students to pursue careers in the academe, WiSE implemented a new monthly programming series:

Figure 4: The Denney Research Center, home to the new WiSE Suite.

"WiSE Talks" provide an intimate setting to discuss subjects recommended by the community and are held monthly in the WiSE Suite. Subjects this year included Work Family Balance for Engineers (10/2/12), Work Family Balance for Scientists (10/18/12), Professional Interactions in a Social Setting (11/8/12), and Professional-Personal Relationships (2/13/13). (See Appendix 3)

Figure 5: Dr. Rita Colwell, Former Director of the NSF.

WiSE continues to provide professional development and networking opportunities for women. The 2012-2013 WiSE Distinguished Lecture Series featured 12 guests, including a keynote talk by Dr. Rita Colwell, former head of the National Science Foundation (3/26/13). Other speakers included Katherine Flores (AME), Zhenan Bao (ChemE), Christine Shoemaker (Math), Shoeleh Nikzad (EE), Dusa McDuff (Math), Barbara Hoenisch (Earth Sciences), Amy Cohn (ISE), Claudia Benitez-Nelson (Earth Sciences), Gail Kaiser (CS), Lise Getoor (CS), and Alice Gast (ChemE). 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.

Figure 6: WiSE-hosted Meet and Greet for PhD students and Staff in the WiSE Suite in GFS 304 (10/2/12).

Figure 7: WiSE Faculty Networking Luncheon with faculty candidate Smaranda Marinescu in the WiSE Suite in DRB 232 (1/31/13).

Additional WiSE programs included a discussion for undergraduates interested in Graduate School (10/1/13), a Meet and Greet for new Ph.D. Students and Staff Members (attended by the Science and Engineering Librarians, Assistant Deans Meredith Reitan and Shayna Kessel, and the Director of Doctoral Programs in the VSoE, Jennifer Gerson) (10/2/12), a discussion on Science and Creativity (10/9/12), a WiSE Open House for Ph.D. Advisors and Assistants to Chairs (2/21/13), and three sessions of exit interviews with graduating seniors in April and May. In an effort to strengthen recruitment efforts, and at the request of individual departments, WiSE hosted lunches with faculty candidates and WiSE leaders for seven potential hires. The WiSE Faculty Networking Group continues to meet on the last Thursday of each month and enjoyed WiSE-hosted lunches at the beginning of the Fall and Spring semesters.

WiSE Research Horizons: A Day Honoring Professor Hanna Reisler

On March 27, 2013 WiSE hosted the first WiSE Research Horizons Symposium (WRHS), this year held in honor of Professor Hanna Reisler (Chemistry), one of the founding leaders of WiSE, holder of the Lloyd Armstrong, Jr. Chair, past Chair of the WiSE Advisory Board for more than a decade, and mentor to many WiSE faculty members. The WRHS was held in the Gerontology Courtyard and Auditorium from 8am to 4:30pm and included introductory comments by Executive Vice Provost Michael Quick, presentations by 8 WiSE faculty members, an awards reception recognizing student award recipients, a WiSE hosted breakfast and lunch, and the inaugural presentation of the Hanna Reisler Mentoring Award to the current WiSE Dornsife and WiSE Viterbi Committee Members. The Symposium concluded with a dinner in the Embassy Room at the USC Davidson Continuing Education Conference Center for around 100 guests, including Provost Elizabeth Garrett, Executive Vice Provost Michael Quick, Dean Yannis Yortsos (VSoE), and Vice Dean Charles McKenna (USC Dornsife College). Additional photographs and ephemera are included in Appendix 4.

Figure 8: Professor Hanna Reisler speaks at the WRHS on 3/27/13.

Figure 9: WiSE Director Leana Golubchik and Chair of the WiSE Advisory Board, Judith Hirsch, with student recipients of WiSE Awards.

Figure 10: Dinner concluding the WRHS on 3/27/13.

Figure 11: Dean Yannis Yortsos, WiSE Director Leana Golubchik, Prof. Hanna Reisler, Provost Beth Garett and Vice Dean Charles McKenna at the dinner concluding WRH on 3/27/13.

Mentoring

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 and postdoctoral scholars. Eighteen faculty members from the Viterbi School of Engineering and USC Dornsife College mentored 17 students through the WiSE

> IN 2013 THE WISE PROGRAM WAS RECOGNIZED WITH THE USC MELLON CULTURE OF MENTORING AWARD

Undergraduate Research Grant Program. In addition, Professor Jessica Parr (Chemistry) coordinated the newly implemented WiSE Undergraduate Research Experience Summer Program, mentoring 8 undergraduate researchers. She will continue in her role during the 2013-2014 academic year. As discussed later in this report, the WiSE Program will also implement a new Mentoring Program for faculty during the 2013-2014 academic year.

Figure 12: The 2013 recipients of the USC Mellon Mentoring Awards.

Figure 13: L. Golubchik, J. McNitt-Grey, E. Meng, J. Hirsch, and S. Fried Gintis receiving the USC Mellon Culture of Mentoring Award on behalf of the WiSE Program.

New Programs: WiSE Undergraduate Research Experience

During the summer 2013 term, the WiSE program launched a newly conceived Undergraduate Research Experience aimed at encouraging undergraduate research, advancing the careers of women in the sciences and engineering, and creating a supportive community environment in which undergraduate students may explore and learn about careers within the academy. Students involved in the WiSE Undergraduate Research Experience have the opportunity to choose from two levels of participation:

- The first level aims to introduce students early in their academic career to research within the University. "WiSE Fellows" will submit an application describing their interests and objectives in participating in the program. Once accepted, they will receive a small stipend and will commit to attending a variety of programming opportunities aimed especially at demystifying the research process, assisting students in locating appropriate mentors given their research interests, highlighting undergraduate research funding opportunities at USC, and locating appropriate Research Experiences for Undergraduates (REUs).

- More senior students may opt to participate as "WiSE Researchers." In this more comprehensive level of participation, students who have an established working relationship with a faculty mentor will submit a research project proposal. If awarded, the student will commit to participating in WiSE programming efforts throughout the academic year, while also receiving more substantial funding to conduct research based on the submitted project proposal. WiSE Researchers will be expected to conduct most of their research efforts during the summer, but other arrangements are possible. The mentors of WiSE Researchers will continue to receive a small grant to support expenses related to their students' work.

A key component of the WiSE Undergraduate Research Experience will involve student participation in a series of WiSE-organized discussions, panels, and workshops. Overseen by a member of the faculty, these programs will occur weekly during the

summer months and will extend on a regular basis throughout the academic year. As part of a cohort of students, award recipients will attend research presentations by faculty, post-doctoral scholars, graduate students, and fellow undergraduates as well as panels on a variety of subjects including the graduate school application process, understanding the publication process, networking at professional meetings, and many more.
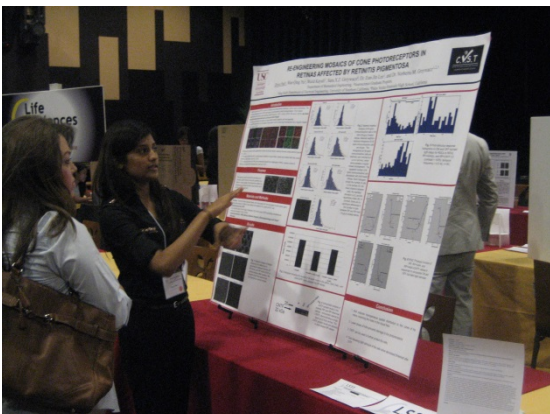

Figure 14: WiSE Undergraduate Divya Nair (mentor Eun Jin Lee) presents her poster at the 2013 Undergraduate Symposium for Scholarly and Creative Work.
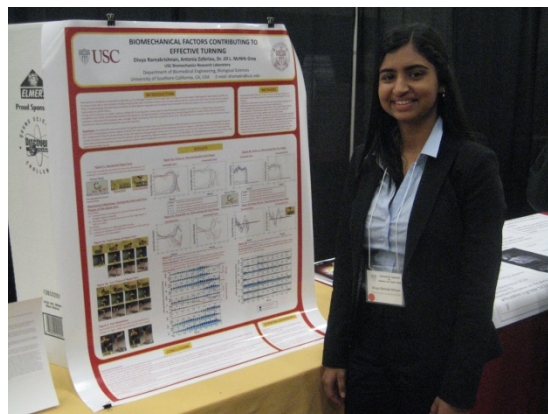

Figure 15: WiSE Undergraduate Diya Ramakrishnan (mentor Jill McNitt-Gray) presents her poster at the 2013 Undergraduate Symposium for Scholarly and Creative Work.
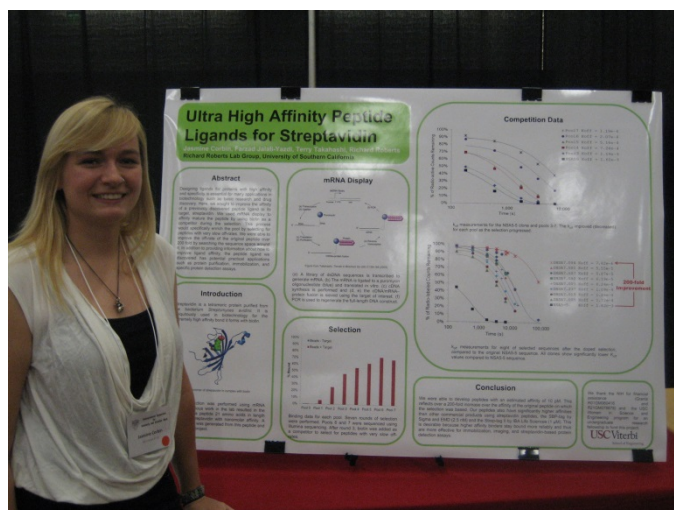

Figure 16: WiSE Undergraduate Jasmine Corbin (mentor Richard Roberts) presents her poster at the 2013 Undergraduate Symposium on Scholarly and Creative Work.

The new WiSE Undergraduate Research Experience will replace the existing Undergraduate Research Grant Program. It will provide a similar number of fellowships each year, but will provide entry into research to students at all levels of undergraduate work. The program will provide sustained programming activities designed to educate students about all aspects of research, university-life, and careers within the academy. Researchers in the comprehensive program will also have the flexibility to select the semester in which to conduct their research, thereby allowing for the disciplinary demands of the various science and engineering fields participating in the program. By

introducing undergraduate women at USC to all facets of research within a university setting, faculty life, and career paths in research, the WiSE Undergraduate Research Experience hopes to encourage more students to consider entering Ph.D. programs and to envision faculty positions as a viable and rewarding career path.

Jessica Parr, Assistant Professor of Chemistry (Teaching) serves as the Coordinator of the newly revised WiSE Undergraduate Research Experience Program.

Revisions to Existing Programs: WiSE Child Care Grants

Beginning in Fall 2013, full-time Ph.D. students, postdoctoral scholars, and faculty in WiSE-eligible departments will be able to apply to the newly revised WiSE Child Care Grant Program. WiSE Child Care Grants will be awarded on a semester by semester basis and are to be used in subsidizing the cost of child care at state licensed facilities of the recipient's choice. The new WiSE Child Care Grant Program replaces existing WiSE Child Care Subsidies. By allowing WiSE grants to be applied to the tuition of programs outside the USC Child Care facility, the program aims to provide students, postdoctoral scholars, and faculty members with a wider array of affordable child care options.

WiSE Child Care Grants will be available to a limited number of applicants in good standing who have primary child care responsibilities for a child in the infant through pre-school age range. Priority will be given to Ph.D. students and postdoctoral scholars, but faculty with need may also apply. Applicants may apply for renewal of their grants, but priority will also be given to new candidates. All applicants will be asked to show proof of dependency, proof of enrollment, and a copy of the facility's state licensing permit. A detailed description of the program, eligibility requirements, deadlines, as well as application and submission guidelines can be found on the WiSE web site, http://www.usc.edu/programs/wise/programs/child_care/ .

The mission of the WiSE program has always been to increase the representation of women in tenured and tenure-track positions within the academy in the disciplines of math, the sciences, and engineering. By providing financial assistance to new parents, the WiSE Child Care Grant Program aims to minimize disruptions to research productivity at sensitive times in young scholars' careers while also providing needed encouragement to help achieve work-family balance within the academy.

Achievements: WiSE Students and Postdoctoral Scholars

Past WiSE student, Lyudmila Slipchenki (Ph.D. 2005, Chemistry) was promoted to Associate Professor with tenure at Purdue University. Valbone Memeti (Ph.D. 2009, Earth Sciences) received a Marie Curie research fellowship from the European Union to do geochemical research on volcanic-plutonic connections at Durham University for two years (2012-2014). Marcia Abbott (Ph.D. 2010, Biological Sciences) recently received the International Early Career Award given by the Physiological Society of London for the work she did at USC in the lab of Professor Lorraine Turcotte (Biological Sciences). Rowan Martindale (Ph.D. 2012, Earth Sciences) is completing a postdoctoral fellowship at Harvard University and will be starting as a tenure-track Associate Professor with the Jackson School of Geosciences at the University of Texas at Austin in August 2014. Dr. Martindale was awarded the USC Ph.D. Achievement Award and an Honorable Mention in the Canadian Society of Petroleum Geologists Graduate Thesis Awards.

Figure 17: WISE Students at the WiSE Research Horizons Symposium (3/27/13).

Current WiSE Ph.D. students and postdoctoral scholars continue to be recognized for their research and accomplishments. The Center for Applied Mathematical Sciences awarded Graduate Student Prizes for Excellence in Research with a Substantial Mathematical Component to WiSE graduate students Wan-Jung Kuo (Physics) and Sushmita Allam (Biomedical Engineering). Hannah Liddy (Earth Sciences) received the IODP Shlanger Ocean Drilling Fellowship of $30,000. Suet-Ying "Daisy" Mak (Physics and Astronomy) accepted a postdoctoral fellowship at Cambridge University. Dr. Ksenia Bravaya joined the Department of Chemistry at Boston University as a tenure-track Assistant Professor in summer 2013. Priscilla Antunez (Chemistry) published her article, "Solution-Phase Synthesis of Highly Conductive Tungsten Diselenide Nanosheets" in the American Chemical Society's: Chemistry and Engineering News in May 2013.

WiSE undergraduate students show promise as emerging researchers. Nishita Deka received a $10,000 Astronaut Scholarship Foundation (ASF) Award -- the largest STEM Merit Award given in the United States. Alexa Sieracki accepted a job with the Nuclear Regulatory Commission. Sarah Hester won the Laufer Award for best senior design project in the AME department. She also received 1st place in the Viterbi Senior Design competition, 2nd place at the USC Undergraduate Research Symposium, 1st place at the AIAA Student Conference Region VI, and 1st place at the AIAA International Student

Conference. Catherina Ticsay accepted a job with Boeing to help with fracture problems.

Development

During the 2012-2013 academic year, the WiSE Program pursued two grants from external organizations. WiSE applied to the National Science Foundation ADVANCE Program. The proposed USC ADVANCE PARTNERS (Policies for Academic Responsibility in the Negotiation of Equitable Relationship Scenarios) Program focused on the development of policies and mechanisms for resolving dual career hiring opportunities both within the University of Southern California and in collaboration with Universities and industry in the surrounding Los Angeles region. (See Appendix 5) Though the grant was ultimately not funded, it resulted in the WiSE Program establishing relationships with all major institutions of higher learning in the Southern California region.

In March 2013, WiSE submitted a preliminary proposal to the Clare Boothe Luce Program of the Henry Luce Foundation for funding to support the recruitment of new woman faculty member in STEM to USC. Based on this proposal (USC's fourth to the Foundation), USC was invited to submit a formal proposal for up to $500,000, which was completed on August 1. In September, USC will host members of the committee for a site visit. Notification of awards is expected in October 2013. (See Appendix 6)

In May 2013, WiSE submitted a nomination of the program for the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. (See Appendix 7)

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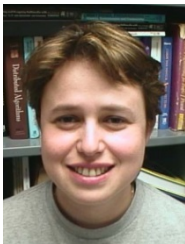
Leana Golubchik, Professor of Computer Science and Electrical Engineering in the Viterbi School of Engineering, serves as Director of the WiSE Program. Golubchik was appointed as Director in September 2010.

Sarah Fried-Gintis, Ph.D., serves as the WiSE Program Manager and assists with program development and administration, disbursement of fellowships and grants, and coordination of committees. Fried-Gintis joined WiSE in February 2011

WiSE Advisory Board

The WiSE Advisory Board met twice per semester in 2012-2013 (10/23/12, 11/29/12, 1/29/13, and 4/23/13) and continues to work with program administration to hone its recruitment and support of programs for maximum impact. The first meeting in the Spring semester is joint with the USC Dornsife College and Viterbi School Committees. Areas of particular focus this year included faculty mentoring and fundraising. The Advisory Board also reviews applications for Major Support for Current Faculty and Merit Awards for Postdoctoral Research.

The board continued its discussion of mentoring and, in response to the prior year's faculty survey, recommended the development of a new WiSE Program to match faculty members with mentors external to their home departments. The new program will be implemented in Fall 2013. The objective of the WiSE Mentoring Program is to provide additional mentoring opportunities to women faculty members at all stages of their careers. The program will facilitate cross-departmental mentoring relationships that complement existing mentoring programs, and will provide a venue in which mentors can share their experiences, various approaches to mentoring, and successes. The WiSE Program seeks to be a resource to both faculty members seeking additional mentors and mentors seeking to further their mentoring skills. A central premise of the Program is that faculty members benefit from advice from mentors external to their own departments. Faculty members in departments where the representation of women remains small may encounter scenarios in which their peers do not have experience and cannot provide informed advice. External mentors share their own experiences and offer non-biased feedback.

The WiSE Mentoring Program will establish mentoring relationships that work in conjunction with existing mentors. WiSE mentors will consult and collaborate with peer mentors whenever possible, and will scale their involvement to the needs and desires of their mentee. The WiSE program is not designed to replace departmental mentors. Rather, it is designed to complement these relationships and to provide additional outlets for advice and feedback. A committee of faculty members drawn from across WiSE-eligible departments will assist in identifying mentors with strong track records of success and in matching mentors and mentees. In addition, WiSE will also host a sub-committee on the University-wide Mellon Mentoring Forum dedicated to women and STEM. Members of the WiSE Mellon Mentoring Sub-Committee will be nominated by

the Program Director and will represent the interests of women in STEM within the broader USC academic community.

Recognizing that the WiSE Program's successes, particularly in the area of faculty recruitment and retention, are beginning to strain the program's financial resources, the Advisory Board identified fundraising as a central area of concern in coming years. With large portions of the Program's annual budget already committed to recruitment and retention, additional funding is necessary to continue supporting important programs such as Supplemental Faculty Support, Bridge Funding, and Major Support for Current Faculty. The Board recommends continued efforts to seek funding from external organizations and concerted efforts to work with University advancement to increase the Program's endowment.

Judith Hirsh (Chair)
Professor of Biological Sciences, Neurobiology
USC Dornsife College of Letters, Arts & Sciences

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

Cymra Haskell,
Lecturer, Department of Mathematics
USC Dornsife College of Letters, Arts & Sciences

Urbashi Mitra,
Professor of Electrical Engineering
USC Viterbi School of Engineering

Mahta Moghaddam
Professor of Electrical Engineering
USC Viterbi School of Engineering

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

John Platt
Professor of Earth Sciences
USC Dornsife College of Letters, Arts, & Sciences

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

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.

WiSE Dornsife Committee

Jill McNitt-Gray (Chair)
Professor of Biological Sciences and Biomedical Engineering
USC Dornsife College of Letters, Arts & Sciences

David Bottjer
Professor of Earth Sciences
USC Dornsife College of Letters, Arts & Sciences
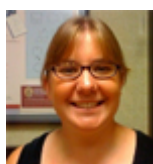
Jessica Parr,
Assistant Professor of Chemistry (Teaching)
USC Dornsife College of Letters, Arts & Sciences

Elena Pierpaoli
Professor of Physics and Astronomy
USC Dornsife College of Letters, Arts & Sciences

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

Program	Deadline	Number of Applicants	Number of Awards
Undergraduate Research, Fall	8/28/13	4	4
Undergraduate Research, Spring	12/1/12	8	2
Graduate Merit	4/8/13	5	4 (2 Awards, 2 Recognitions)
Graduate Top-Off	3/3/13	5	1
Undergraduate Research, Summer	4/1/13	4	2

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.

Ellis Meng (Chair)
Associate Professor of Biomedical Engineering
USC Viterbi School of Engineering

Murali Annavaram
Assistant Professor of Electrical Engineering
USC Viterbi School of Engineering

Malancha Gupta
Assistant Professor of Chemical Engineering and Materials Science
USC Viterbi School of Engineering

Shinyi Wu
Assistant Professor of Industrial and Systems Engineering
USC Viterbi School of Engineering

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

Program	Deadline	Number of Applicants	Number of Awards
Undergraduate Research, Fall	8/28/13	8	5
Undergraduate Research, Spring	12/1/12	5	3
Graduate Merit	4/18/13	9	5 (2 Awards, 3 Recognitions)
Graduate Top-Off	3/3/13	5	1
Undergraduate Research, Summer	4/1/13	8	5

NEW FACULTY

The following faculty joined USC during the 2012/2013 academic year.

Sami Assaf joined the USC Department of Mathematics as an Assistant Professor. Prior to USC, Assaf was a C.L.E Moore Instructor at the Massachusetts Institute of Technology. She completed her Ph.D. in 2007 in Mathematics at the University of California at Berkeley.
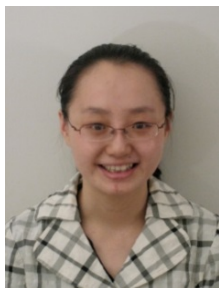
Minlan Yu joined the USC Department of Computer Science as an Assistant Professor. Prior to USC, Yu was a postdoctoral Fellow and the University of California, Berkeley. She completed her Ph.D. in Computer Science at Princeton University.

Irene Chiolo joined the USC Department of Biological Sciences, Molecular and Computational Biology Division, as an Assistant Professor. Prior to USC, Chiolo was a Research Scientist at Lawrence Berkeley National Laboratory. She completed her Ph.D. at the University of Milan.

<u>The Following Faculty will join USC in 2013/2014.</u>

Nora Ayanian will be joining the USC Department of Computer Science as an Assistant Professor. Prior to USC, Ayanian was a Postdoctoral Associate in the Distributed Robotics Laboratory at the Massachusetts Institute of Technology. She completed her Ph.D. at the University of Pennsylvania in 2011.

Amy Childress will be joining the USC Sonny Astani Department of Civil and Environmental Engineering as a Full Professor. Prior to USC, Childress was Professor and Chair of the Civil and Environmental Engineering Department at the University of Nevada at Reno. She completed her Ph.D. in Environmental Engineering at the University of California at Los Angeles in 1997.

Stacey Finley will be joining the USC Department of Biomedical Engineering as an Assistant Professor. Prior to USC, Finley was a Postdoctoral Scholar at the Johns Hopkins University. Finley received her Ph.D. in Chemical Engineering from Northwestern University in 2009.
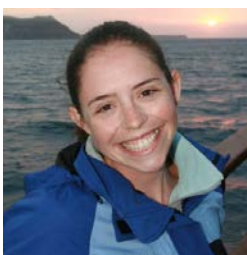
Naomi Marcil Levine will be joining the USC Department of Biological Sciences, Marine Environmental Biology Section as an Assistant Professor. Prior to USC, Levine was the NOAA Postdoctoral Fellow at the Moorcroft Lab, Harvard University. She completed her Ph.D. in Chemical Oceanography at the Massachusetts Institute of Technology. Dr. Levine will join USC in December 2013.

Smaranda Marinescu will be joining the USC Department of Chemistry as an Assistant Professor. Prior to USC, Marinescu was a Postdoctoral Scholar at the California Institute of Technology. She completed her Ph.D. at the Massachusetts Institute of Technology.

Megan McCain will be joining the USC Department of Biomedical Engineering as an Assistant Professor. Prior to USC, McCain was a Postdoctoral Scholar at Harvard University in the Disease Biophysics Group. McCain received her Ph.D. from Harvard University in 2012.

Kelly Sanders will be joining the USC Sonny Astani Department of Civil and Environmental Engineering as an Assistant Professor. Prior to USC, Sanders completed her Ph.D. in Civil, Architectural, and Environmental Engineering at the University of Texas.

WiSE Financial Awards

The WiSE program administration has adhered closely to the original structure of funds allocation outlined by the 2000 WiSE Task Force: $500k for Recruitment/Retention; $100k for Undergraduate Research; $250k for Ph.D. Student and Postdoctoral Support; and the remaining funds to support new additional programs. Actual distribution of funds may vary slightly each year depending on the return of investment income on the WiSE endowment and on the number of candidates who accept WiSE awards.

Recipients of Major Faculty Support for Current Faculty

Name	Title	School	Proposal
Minlan Yu	Assistant Professor, Computer Science	Viterbi	"Scalable and Flexible Policy Management in Data Centers"

Formal Program Awards

Program	# Awards
Faculty Recruitment / Faculty Retention	7
Major Support for Current Faculty	1
Lloyd Armstrong, Jr. Chair	1
Support for Facilitating Diversity in Faculty Searches	6
Faculty Bridge Funding	0
Supplemental Faculty Support	22
Merit Award for Excellence in Postdoctoral Research	3
Graduate Top-Off	2
Merit Fellowship for Current Ph.D.	9
Travel Grants	66
Undergraduate Research Grants	21
Child Care Subsidies	1
Support for Faculty Pregnancy, Childbirth , and Adoption	0
Support for Ph.D. and Postdoc Pregnancy, Childbirth, and Adoption	3

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 2012-2013, these awards included:

Group	Purpose
USC Department of Computer Science	To support travel of USC undergraduate and Ph.D. students to the Grace Hopper Celebration of Women in Computing.
Ph.D. Women in Computer Science	To support the annual activities of the networking and professional development group among Ph.D. students in Computer Science.
Women in Computer Science	To support the annual activities of the undergraduate students in computer science student organization.
Young Researchers Program	To support the "USC Young Researchers Program," a summer research experience devised and executed by USC graduate students for USC-Are High School Students in Earth Sciences and Marine Environmental Biology.
Women in Chemistry	To support the annual activities of the networking and professional development group among Ph.D. students in Chemistry.

APPENDICES

APPENDIX 1:
CURRENT WISE FACULTY, TENURED AND TENURE-TRACK
(INCLUDING NEW HIRES)

USC Dornsife College

Life Sciences

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

Physical Sciences / Mathematics

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

The USC Viterbi School of Engineering

Amy Childress	Professor	Civil and Environmental Engineering
Leana Golubchik	Professor	Computer Science
Maja Matarić	Professor	Computer Science
Julie Higle	Professor	Industrial and Systems Engineering
Urbashi Mitra	Professor	Electrical Engineering
Mahta Moghaddam	Professor	Electrical Engineering
Alice Parker	Professor	Electrical Engineering
Andrea Hodge	Associate 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
Nora Ayanian	Assistant Professor	Computer Science
Burcin Becerik-Gerber	Assistant Professor	Civil and Environmental Engineering
Veronica Eliasson	Assistant Professor	Aerospace and Mechanical Engineering
Stacey Finley	Assistant Professor	Biomedical Engineering
Malancha Gupta	Assistant Professor	Chemical Engineering & Materials Science
Yan Liu	Assistant Professor	Computer Science
Megan McCain	Assistant Professor	Biomedical Engineering
Michelle Povinelli	Assistant Professor	Electrical Engineering
Amy Rechenmacher	Assistant Professor	Civil and Environmental Engineering
Kelly Sanders	Assistant Professor	Civil and Environmental Engineering
Shinyi Wu	Assistant Professor	Industrial and Systems Engineering
Minlan Yu	Assistant Professor	Computer Science

APPENDIX 2:
FACULTY CANDIDATES INTERVIEWED ON CAMPUS

As in previous years, WiSE leadership offered to meet with women faculty candidates during their visits to campus, both to transmit information about the WiSE program and resources and to provide opportunities for candidates to ask questions about USC and work-family issues that they might not ordinarily feel comfortable discussing as part of their formal interview process. Departments continued to take advantage of this offer and senior WiSE faculty met with 30 faculty candidates over the course of 2012-2013. The list of candidates is below:

APPENDIX 3:
SAMPLES OF WISE EVENTS FLYERS

The USC Women in Science and Engineering Program

Invites you to a

Meet and Greet for Current PhD Students

Need help with your research?

Have questions about fellowships and student services at USC?

Confused by or have concerns about your Doctoral program?

Want to get to know other women Ph.D. students at USC?

Please join us for breakfast and the opportunity to get to know the staff members who will help you navigate your time at USC.

Tuesday, October 2, 2012
10:00 a.m. – 11:30 a.m.

Grace Ford Salvatori Hall (GFS) 304

**Please RSVP to wiseprog@usc.edu

**Contact WiSE at (213) 740 – 0996 for more information
Or visit www.usc.edu/wise**

USC WISE

SCIENCE AND CREATIVITY

How can being creative help you live longer?

Why are women better suited to being inventors?

How can creativity on an ongoing basis make you smarter?

FEATURED SPEAKER, JULIE AUSTIN

TUESDAY, OCTOBER 9, 2012
LOCATION: RTH 211
TIME: 3pm
RSVP: wiseprog@usc.edu

Julie Austin is an award-winning author and inventor. Her patented product, swiggies, wrist water bottles, have been a NASDAQ product of the year semi finalist and are currently sold in 24 countries. She's appeared on ABC, CBS, NBC, and FOX News, along with dozens of TV shows, magazines and radio shows around the world. She's a "go-to" media expert in the fields of innovation & creativity, and is featured in the books "Patently Female" and "Girls Think of Everything."

Many people believe that creativity and science are polar opposites. One is logical, structured, and based in reality. It conjures up images of people in lab coats, working steadily and rigorously towards practical solutions. The other is illogical, unstructured, and derived from fantasy. Artists, musicians, or kids with crayons come to mind, playfully entertaining themselves and others with flights of fancy. These seeming opposites are **so** different -- they even take place in different halves of our brains.

But -- the greatest innovations of our time (antibiotics, biotechnology, computers, space exploration, and more) have resulted from the union of these two approaches. When we combine left and right brain thinking, it more than doubles our intellectual potential. We have the opportunity to make connections that we never knew existed. And even if you don't normally see yourself as a creative person, don't worry. We're all born with the ability to be creative — and using creativity is a process that can be learned.

Inventor Julie Austin makes innovation fun and exciting, with stories of ordinary people who used their imagination to solve problems that changed the world, made them wealthy, or both. She'll challenge you to expand your thinking, using interactive exercises that will help you learn to see opportunities everywhere, in both your work *and* your personal life.

USC Women in Science and Engineering, Office of the Provost, (213) 740—0996, www.usc.edu/wise, wiseprog@usc.edu

University of Southern California

The USC Women in Science and Engineering Program

wise

together with the Department of Biological Sciences, Marine Environmental Biology Section (MEB); USC Wrigley Institute for Environmental Studies; and The Center for Dark Energy Biosphere Investigations (C-DEBI)

Presents
2013 WiSE Distinguished Lecturer

Dr. Rita Colwell

Distinguished Professor, University of Maryland College Park and Johns Hopkins University; Bloomberg School of Public Health; Chairman, Canon US Life Sciences, Inc.; Winner 2010 Stockholm Water Prize; 11th Director of the National Science Foundation, 1998-2004

"Oceans, Climate, and Health: Cholera as a Model of Infectious Disease in a Changing Environment"

Tuesday, March 26, 2013
2:30 p.m. – 3:30 p.m.
Reception: 3:30 p.m. – 4:15 p.m.
RTH 526, The Dean's Board Room
Ronald Tutor Hall

Please RSVP at www.usc.edu/esvp. (Password: WISELECTURE)

For additional information, please contact the WiSE Program at (213) 740-0996 or wiseprog@usc.edu.

www.usc.edu/wise

APPENDIX 4:
WISE RESEARCH HORIZONS

APPENDIX 5:

SUMMARY, WISE PROPOSAL TO THE NSF ADVANCE PROGRAM

USC ADVANCE PARTNERS Program

The proposed USC ADVANCE PARTNERS (*Policies for Academic Responsibility in the Negotiation of Equitable Relationship Scenarios*) Program is focused on the development of policies and mechanisms for resolving dual career hiring opportunities both within the University of Southern California and in collaboration with Universities and industry in the surrounding Los Angeles region. With nearly 75% of faculty candidates involved in valued long-term personal relationships, employment decisions rarely revolve around the needs of a single individual - *3/4 of all faculty candidates consider their partner's career needs* as part of the decision process*.* Thus, to recruit the most accomplished and promising faculty, universities must develop and implement sustainable institutional structures to assist job candidates with broader quality of life considerations.

Dual career hiring policies have important consequences on the life of the academy, but are *especially critical in the recruitment and retention of women faculty in tenured and tenure-track positions in STEM* fields. A 2008 Stanford study found that that *36% of the faculty workforce they surveyed had partners seeking academic positions*; *40% of women faculty members were partnered with another scholar* and 74% to a partner with a career. Moreover, a disproportionately high number of women in STEM were involved in dual career relationships with partners also in STEM. (83% of women in natural sciences and 64% of women engineers were married to other academic partners). In short, *women, particularly in STEM fields, are more likely than men to be involved in dual career relationships and with other academics and are thus more likely to confront dual career hiring situations*.

Intellectual Merit. Motivated by this, we propose to focus the USC ADVANCE PARTNERS program on 7 goals. We will: (1) <u>analyze existing policies</u> for dual career hiring at USC and at surrounding schools to identify areas in need of reform; (2) <u>develop language</u> for the discussion of dual career hiring that does not suggest valuation of scholars; (3) <u>develop plans for the implementation of inter and intra university administrative structures</u> for policy and mechanism implementation; (4) <u>develop and implement a formal policy outlining procedures</u> for dual career hiring both inside and outside the University; (5) <u>organize a consortium of schools in Southern California</u> to work collaboratively towards the resolution of dual career hiring scenarios; (6) <u>establish formal methods for the periodic assessment</u> and evaluation of policy and program effectiveness; and (7) <u>outline a plan to sustain the program</u> with the culmination of the ADVANCE project.

The USC ADVANCE PARTNERS program does not aim to hire more couples, but rather seeks to improve and expedite the processes by which partner-hiring decisions are made. Our proposal is aimed at creating a more supportive and equitable faculty within the academe, particularly for women in STEM disciplines, where desired outcomes include: (a) the creation and implementation of formal dual career policies at USC; (b) the development of an institutional structure in support of dual career hiring that is directly relevant to and transferable to other similar and especially private institutions; (c) the creation of a collaborative community of institutions committed to resolving dual career hiring cases in appropriate situations in the greater LA area; (d) establishing a permanent infrastructure of support between institutions in the greater LA area in support of dual career hiring; (e) nurturing a positive university and academic culture more broadly conceived in support of dual career hiring.

Broader Impacts. Developing appropriate mechanisms and policies for the efficient and effective management of dual career hiring opportunities will create a supportive environment in which faculty members, their research, and their teaching may thrive, and will aid in advancing knowledge, innovation, and technology. The broader consequences of USC's ADVANCE PARTNERS program include: (i) establishing a model framework to serve as a template for use by institutions in similar settings or with similar infrastructures, (ii) establishing a plan to sustain the program at the end of NSF support, and (iii) seeking a long-term commitment from participating institutions. The outcomes of the USC ADVANCE PARTNERS program will be a template for similar collaborative efforts, to be adapted by schools in areas such as NY, Boston, Northern CA, etc., which face similar challenges. *Policies alone are not enough. The successful integration of dual career hiring practices requires concerted efforts to cultivate the support of faculty, administration, and staff at multiple levels and to initiate cultural change. USC's ADVANCE PARTNERS program will provide a long-term vehicle for such an effort and will serve as a model for other institutions, thus advancing women in STEM fields.*

Keywords: dual career opportunities; hiring practices; institutions of higher learning collaborative efforts, women in STEM.

APPENDIX 6:

WISE PROPOSAL (ABSTRACT) TO THE CLARE BOOTHE LUCE PROGRAM

ABSTRACT

The University of Southern California (USC) seeks funding from the Clare Boothe Luce (CBL) Program to support one new woman faculty member as an Assistant Professor in USC's Viterbi School of Engineering (VSoE). USC's VSoE is an excellent partner for the Luce Foundation to invest in given its established track record in successfully identifying women engineers of the highest caliber and in providing them with the resources and opportunities to maximize career success. The number of women faculty in the VSoE (which includes Computer Science) will have increased from 3 in 2000 to 23 in January 2014. This success is largely due to the initiation in 2000 of USC's Women in Science and Engineering (WiSE) Program, a $20 million endowed initiative, recognized in 2013 with a USC Mellon Mentoring Award, which is dedicated to increasing the representation of women in tenured and tenure track (T/TT) faculty positions. With the full support of USC's administration, WiSE offers a suite of grant programs aimed at advancing women's careers. The Luce-USC partnership will bolster the university's continued efforts to achieve greater gender parity in STEM at USC and beyond. It will also create greater public awareness of the need to support proactive diversity initiatives and will inspire the next generation of women in STEM. Luce funds will provide partial support for the salary and career development of the Luce Professor at USC. USC will assume the remaining costs of her salary and will contribute additional funds to create a competitive start-up package that exceeds the value of those provided to comparable faculty. Assistance with grant proposal writing, award nominations, budgeting, and the development of the Luce Professor's professional profile will be provided, along with extensive mentoring through both the Luce Professor's department and the WiSE Program. USC's goal in partnering with the Luce Foundation is to establish the Luce Professor as a recognizable national leader in STEM. This partnership will establish the long-term career of the Luce Professor at USC.

APPENDIX 7:
WISE PAESMEM NOMINATION (PROGRAM SUMMARY)

The University of Southern California welcomed the new millennia with a sustained institutional commitment to increasing the representation of women in the sciences and engineering by establishing the Women in Science and Engineering (WISE) Program. Housed in the Office of the Provost and serving *thirteen STEM departments across two schools*, the WiSE Program identified as its primary goals the recruitment and retention of new faculty and the creation of a supportive environment in which female scientists and engineers can thrive. Mentoring at all stages of women's careers -- from senior faculty to junior faculty, postdoctoral scholars, graduate students, and undergraduate students and future generations through K-12 education – has been key to the success of the program.

Endowed by a gift of $20 million by an anonymous donor, the WiSE program is unparalleled in its breadth and community commitment. A full-time tenured and research-active faculty member (Professor of Computer Science, Leana Golubchik), directs the program and advises University administration on policy development and hiring activities. A full time staff member (Dr. Sarah Fried-Gintis), whose responsibilities are dedicated 100% to the WiSE program, manages all daily functions, grant programs, and administration. An Advisory Board made up of 10 faculty members from across WiSE-eligible departments (chaired by Professor of Biological Sciences, Judith Hirsch) advises the Director on program development and provides insight and feedback into University-wide issues affecting the careers of women. Such issues have included: accessible childcare, the need for formal policies on dual career hiring, and increased collaborative mentoring of new faculty by WiSE and Departmental mentors. Two committees representing the schools of engineering and the sciences in the USC Dornsife College of Letters, Arts and Science, the WiSE Viterbi (originated by Professor of Computer Science, Maja Mataric) and WiSE Dornsife Committees, review research grant applications and advise the Director on issues of interest to faculty and students in their respective schools.

To address the so-called "leaky pipeline" and to identify the often subtle institutional barriers that inhibit women's success, WiSE also maintains a suite of grant programs, providing supplemental funds to support faculty, students, and postdoctoral scholars. A few of these programs (described in greater detail in our discussion of mentoring accomplishments) include Supplemental Faculty Grants, Faculty Bridge Funding, Travel Grants, Merit Awards, Fellowships to Accommodate Pregnancy, Birth of a Child, or Adoption, Childcare Subsidies, Undergraduate Research Grants, and Support to Facilitate Diversity in Faculty Searches. To foster a strong and supportive community of women and to promote mentorship, WiSE hosts a Distinguished Lecture Series, a series of monthly "WiSE Talks," and a Faculty Networking Group (spearheaded by Professor of Chemistry, Hanna Reisler). The program additionally supports a number of student organizations and programs, including: Women in Math, Women in Chemistry, Women in Computing (Undergraduates), PhD Women in Computer Science, Electrical Engineering PhD Women, the Young Scientists Program, and the Young Researchers Program.

In the thirteen years since WiSE was established in 2000, the STEM departments at USC have seen the number of women in tenured and tenure-track jobs increase more than 300%, from 15 to 49; the number of PhD students and undergraduate students entering and graduating from STEM programs at USC has increased in all departments represented by WiSE; and in Fall 2013 more than 37% of the entering class in the USC Viterbi School of Engineering will be women.

The WiSE Program enjoys broad support from faculty and administration and is proud to have been recognized in 2013 with the highly competitive and prestigious USC Mellon Culture of Mentoring Award.