

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES
ADDITIONAL RESOURCES FOR:
NATIONAL HIRING EXPERIMENTS REVEAL 2:1
FACULTY PREFERENCE FOR WOMEN ON STEM TENURE TRACK
W.M. WILLIAMS & S.J. CECI
(PUBLISHED APRIL 13, 2015)

SEE VIDEO “NATIONAL STEM FACULTY HIRING EXPERIMENTS” AT
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I. THREE SETS OF SAMPLE MATERIALS FOR EXPERIMENTS 1-3

Set #1 - single, childless male applicant pitted against single, childless female applicant, counterbalanced for personae.

Set #2 - divorced mother of two pitted against father of two with stay-at-home spouse, counterbalanced for personae.

Set #3 - married mother of two who took a one-year leave pitted against a mother of two who did not take a one-year leave, counterbalanced for personae.

Materials were sent out in counterbalanced manner, half to female and half to male faculty, stratified by Carnegie classification and field, alternating versions within faculty gender. This method enabled comparisons of voting preferences for male vs. female faculty choosing among male and female candidates, depicted in alternating forms with female or male adjectives (“personae”), which were also counterbalanced.

Condition 1.1: Single man with no children versus single woman with no children (in this version Dr. X is a woman with female personae; and in this version Dr. Z is a man with male personae).

Imagine you are on your department’s personnel/search committee. Your department plans to hire one person at the entry assistant-professor level. Your committee has struggled to narrow the applicant pool to three short-listed candidates (below), each of whom works in a hot area with an eminent advisor. The search committee evaluated each candidate’s research record, and the entire faculty rated each candidate’s job talk and interview on a 1-to-10 scale; average ratings are reported below. Now you must rank the candidates in order of hiring preference. Please read the search committee chair’s notes below and rate each candidate. The notes include comments made by some candidates regarding partner-hire and family issues, including the need for guaranteed slots at university daycare. If the candidate did not mention family issues, the chair did not discuss them.

Dr. X: X impressed the entire search committee as a great potential hire. Based on her vita, letters of recommendation, and their own reading of her work, the search committee rated X’s research record as “extremely strong.” Letter-writers especially noted that X is highly creative and original in her approach to scholarship, with comments like “X is poised to break new ground with her unique and imaginative applications of her advisor’s theory, and is sure to change how people think about her research area.” They also described X’s impressive teaching abilities, mentioning that she was “widely considered an effective and supportive mentor by the junior graduate students and undergraduates she worked with.” She also won a teaching award in graduate school. X’s faculty job talk/interview score was 9.5/10. At dinner with the committee, she reached out to everyone, showing herself to be very likeable, kind, and socially skilled. During our private meeting, X was enthusiastic about our department, and there did not appear to be any obstacles if we decided to offer her the job. She mentioned that she is single with no partner/family issues. X said our department has all the resources needed for her research.

Dr. Y: Y came across during his interview/visit as a smart, serious scholar with a solid record. Based on his vita, letters of recommendation, and their own reading of his work, the committee rated his research record as “very strong.” Y’s letter-writers all praised the “breadth and quality of

his research and ideas” and described him as a “highly desirable hire among his cohort of graduate students.” They also noted that Y works on an “established set of paradigms sure to continue to generate publications and funding in the future.” Y’s faculty job talk/interview score was 9.3/10. One issue raised by two members of the search committee is that Y is somewhat shy and reserved; thus there was some question about his ability to handle large introductory lecture courses. No one foresaw any problems with his teaching in a small-seminar context. At dinner, Y was pleasant but spoke little and was a bit hard to get to know—however, most of us felt this would resolve in time. During my private discussion with Y, he seemed enthusiastic about our department, and there did not appear to be any obstacles if we decided to offer him the job. He did not mention any partner/family issues. Y said our department has all the resources he needs for his research.

Dr. Z: Z struck the search committee as a real powerhouse. Based on his vita, letters of recommendation, and their own reading of his work, the committee rated Z’s research record as “extremely strong.” Z’s recommenders all especially noted his high productivity, impressive analytical ability, independence, ambition, and competitive skills, with comments like “Z produces high-quality research and always stands up under pressure, often working on multiple projects at a time.” They described his tendency to “tirelessly and single-mindedly work long hours on research, as though he is on a mission to build an impressive portfolio of work.” He also won a dissertation award in his final year of graduate school. Z’s faculty job talk/interview score was 9.5/10. At dinner with the committee, he impressed everyone as being a confident and professional individual with a great deal to offer the department. During our private meeting, Z was enthusiastic about our department, and there did not appear to be any obstacles if we decided to offer him the job. He said he is single with no partner/family issues. Z said our department has all the resources needed for his research.

Please rate each applicant using the following scale, ranging from 1 to 10:

10=truly extraordinary/exceptional

9=extremely impressive

8=high-excellent

7=low-excellent

6=extremely good

5=very good

4=good

3=acceptable

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Condition 7.1: Married father of two with stay-at-home spouse versus divorced mother of two with ex-spouse not relocating. (In this version Dr. X is a man with female persona; and in this version Dr. Z is a woman with male persona.)

Imagine you are on your department's personnel/search committee. Your department plans to hire one person at the entry assistant-professor level. Your committee has struggled to narrow the applicant pool to three short-listed candidates (below), each of whom works in a hot area with an eminent advisor. The search committee evaluated each candidate's research record, and the entire faculty rated each candidate's job talk and interview on a 1-to-10 scale; average ratings are reported below. Now you must rank the candidates in order of hiring preference. Please read the search committee chair's notes below and rate each candidate. The notes include comments made by some candidates regarding partner-hire and family issues, including the need for guaranteed slots at university daycare. If the candidate did not mention family issues, the chair did not discuss them.

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Dr. Y: Y came across during his interview/visit as a smart, serious scholar with a solid record.

Based on his vita, letters of recommendation, and their own reading of his work, the committee rated his research record as “very strong.” Y’s letter-writers all praised the “breadth and quality of his research and ideas” and described him as a “highly desirable hire among his cohort of graduate students.” They also noted that Y works on an “established set of paradigms that are sure to continue to generate publications and funding in the future.” Y’s faculty job talk/interview score was 9.3/10. One issue raised by two members of the search committee is that Y is somewhat shy and reserved; thus there was some question about his ability to handle large introductory lecture courses. No one foresaw any problems with his teaching in a small-seminar context. At dinner, Y was pleasant but spoke little and was a bit hard to get to know—however, most of us felt this would resolve in time. During my private discussion with Y, he seemed enthusiastic about our department, and there did not appear to be any obstacles if we decided to offer him the job. He did not mention any partner/family issues. Y said our department has all the resources he needs for his research.

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THANK YOU!

Condition 9.1: Dr. X is a woman described in female adjective condition, 2 children and attorney husband; Dr. Y is a male foil; Dr. Z is a woman described in male adjective condition, 2 children and doctor husband, in this version she took a 12-month leave.

Imagine you are on your department's personnel/search committee. Your department plans to hire one person at the entry assistant-professor level. Your committee has struggled to narrow the applicant pool to three short-listed candidates (below), each of whom works in a hot area with an eminent advisor. The search committee evaluated each candidate's research record, and the entire faculty rated each candidate's job talk and interview on a 1-to-10 scale; average ratings are reported below. Now you must rank the candidates in order of hiring preference. Please read the search committee chair's notes below and rate each candidate. The notes include comments made by some candidates regarding partner-hire and family issues, including the need for guaranteed slots at university daycare. If the candidate did not mention family issues, the chair did not discuss them.

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II. CARNEGIE CLASSIFICATION INFORMATION

| Institution | <u>Location</u> | <u>Control</u> |
|--|-----------------------------|------------------------|
| Abilene Christian University | Abilene, Texas | Private not-for-profit |
| Alabama A & M University * | Normal, Alabama | Public |
| Alabama State University * | Montgomery, Alabama | Public |
| Albertus Magnus College * | New Haven, Connecticut | Private not-for-profit |
| Alfred University * | Alfred, New York | Private not-for-profit |
| Amberton University * | Garland, Texas | Private not-for-profit |
| American InterContinental University-Online * | Hoffman Estates, Illinois | Private for-profit |
| American International College | Springfield, Massachusetts | Private not-for-profit |
| American Public University System * | Charles Town, West Virginia | Private for-profit |
| Anderson University * | Anderson, Indiana | Private not-for-profit |
| Antioch University Los Angeles * | Culver City, California | Private not-for-profit |
| Antioch University New England * | Keene, New Hampshire | Private not-for-profit |
| Appalachian State University | Boone, North Carolina | Public |
| Arcadia University * | Glenside, Pennsylvania | Private not-for-profit |
| Arkansas State University-Main Campus * | Jonesboro, Arkansas | Public |
| Arkansas Tech University * | Russellville, Arkansas | Public |
| Armstrong Atlantic State University * | Savannah, Georgia | Public |
| Ashford University * | Clinton, Iowa | Private for-profit |
| Auburn University at Montgomery * | Montgomery, Alabama | Public |
| Augsburg College | Minneapolis, Minnesota | Private not-for-profit |
| Augusta State University * | Augusta, Georgia | Public |
| Aurora University * | Aurora, Illinois | Private not-for-profit |
| Austin Peay State University * | Clarksville, Tennessee | Public |
| Averett University-Non-Traditional Programs * | Danville, Virginia | Private not-for-profit |
| Baker College Center for Graduate Studies * | Flint, Michigan | Private not-for-profit |
| Baker University * | Baldwin City, Kansas | Private not-for-profit |
| Baldwin-Wallace College | Berea, Ohio | Private not-for-profit |
| Bellarmine University | Louisville, Kentucky | Private not-for-profit |
| Bellevue University * | Bellevue, Nebraska | Private not-for-profit |
| Belmont University * | Nashville, Tennessee | Private not-for-profit |
| Bentley University * | Waltham, Massachusetts | Private not-for-profit |
| Bethel University * | Saint Paul, Minnesota | Private not-for-profit |
| Bloomsburg University of Pennsylvania | Bloomsburg, Pennsylvania | Public |
| Boise State University | Boise, Idaho | Public |
| Bradley University | Peoria, Illinois | Private not-for-profit |
| Brandman University, Part of the Chapman University System * | Irvine, California | Private not-for-profit |
| Brenau University * | Gainesville, Georgia | Private not-for-profit |
| Bridgewater State University | Bridgewater, Massachusetts | Public |
| Cabrini College * | Radnor, Pennsylvania | Private not-for-profit |
| California Baptist University * | Riverside, California | Private not-for-profit |
| California Lutheran University | Thousand Oaks, California | Private not-for-profit |
| California Polytechnic State University-San Luis Obispo | San Luis Obispo, California | Public |
| California State Polytechnic University-Pomona | Pomona, California | Public |
| California State University-Bakersfield | Bakersfield, California | Public |
| California State University-Chico | Chico, California | Public |

| | | |
|--|------------------------|--------|
| California State University-Dominguez Hills* | Carson, California | Public |
| California State University-East Bay | Hayward, California | Public |
| California State University-Fresno | Fresno, California | Public |
| California State University-Fullerton | Fullerton, California | Public |
| California State University-Long Beach | Long Beach, California | Public |

Table S.3. Carnegie Foundation's first 50 large masters program, of which 32 do not have programs in at least 3 of the fields. Asterisked (*).

SEE ENTIRE CARNEGIE LIST AT:

http://classifications.carnegiefoundation.org/lookup_listings/srp.php?clq=%7B%22basic2005_ids%22%3A%2218%22%7D&start_page=standard.php&backurl=standard.php&limit=0,50

III. FULL ENGINEERING CVs USED IN EXPERIMENT 4

Counterbalanced by candidate gender and order of presentation (i.e., each vita was sent out both as a woman's vita and alternatively as a man's vita to different faculty members; the order in which vitae were presented was alternated). Thus, there were four versions—a given vita appearing first and portrayed as belonging to either a man or a woman, then in the next two versions, that same vita appearing last and portrayed as belonging to either a man or a woman.

Candidate X

EDUCATION BACKGROUND

PhD, Aerospace Engineering, May 2012

Keck Institute for Space Studies, *California Institute of Technology*

Topic: Granular Mechanics, Physics

Topic: Orbital Mechanics (focused on the influence of cohesive and electrostatic forces on the motion of dust particles)

B.S., Aerospace Engineering

Highest Honors

Georgia Institute of Technology, May 2008

My work has been presented at several conferences and in journal papers. Awarded the NASA Earth and Space Science Fellowship, and received honorable mention for the NSF Graduate Researcher Fellowship.

Research and Work Experience:

July 9, 2011 – Present

- Quantitative modeling of interaction of regolith with the sample sieving device on the Mars Science Lab rover. Jet Propulsion Lab.

Honors:

- NASA Earth and Space Science Fellowship Recipient 2009, 2010, 2011
- Keck Fellowship Awardee 2012
- Institute for Space and Astronautical Sciences (JAXA).
- NSF Graduate Researcher Fellowship Program Honorable Mention 2009
- Dissertation explored electrostatic and cohesive effects of surface dynamics of asteroid dust particles

Principal Investigator

National Science Foundation / Institute of Space and Astronautical Science (JAXA). Research conducted at JAXA

Publications:

CANDIDATE X, Smith, A., Johnson, R. *Geophysical Research Letters*. Submitted.

CANDIDATE X, Johnson, R. *Journal of Geophysical Research*. Accepted.

CANDIDATE X, Rivers, S. *Planetary and Space Sciences*. 2012. Vol 61, pp 758-768.

Rivers, S., Peterson, M., Sweeney, C., **CANDIDATE X**, *Icarus*. 2011. Vol 210, pp 468-484.

Johnson, R., **CANDIDATE X**, Smith, A. *The Astronomical Journal*. 2010. Vol 142, pp 107-122.
CANDIDATE X, Smith, A. *Journal of Geophysical Research*. Accepted.

Conference Presentations:

CANDIDATE X et al. NASA Lunar Science Forum. July 2012.
Rivers, S., Peterson, M., **CANDIDATE X**, Atmosphere and Plasma. June 2012.
CANDIDATE X, et al. Workshop on the Physics of Dusty Plasmas. 2012.
CANDIDATE X, et al. *Asteroids, Comets and Meteors*. May 2012.
CANDIDATE X, IEEE Aerospace Conference. March 2012.
Rivers, S., Peterson, M., **CANDIDATE X**, American Geophysical Union Fall Meeting. December 2011. Poster.
Smith, A., Lee, R., **CANDIDATE X**, Div. of Planetary Sciences (AAS) Conference. 10/2011.

Candidate Y

EDUCATION BACKGROUND

University of Colorado, Boulder, CO, USA
School of Engineering and Applied Science
PhD, Mechanical and Aerospace Engineering, September 2012

B.S. Cornell University, Ithaca, NY USA
Sibley School of Mechanical and Aerospace Engineering, Cornell University
M. Eng, Aerospace Engineering, January 2007

Major Area: Dynamics and Controls

Honors:

- Wu Prize for Excellence, Fall 2011
- Visiting Graduate Fellow, Lawrence Livermore National Laboratory September 2012
- Dean's list, Cornell University
- American Astronomical Society Predoctoral Fellowship, 2010
- National Merit Scholarship, September 2002 - May 2006

Publications:

1. **CANDIDATE Y**, Bruner, J., Kagan, G., ApJ, 728, 66, 2011.
2. Andrews, S. M., Benson, E. A., Greene, O., Falcone, B., **CANDIDATE Y**, Icarus, 210, 2, 2010.
3. **CANDIDATE Y**, Frawly, W., PASP, 122:401419, 2010.
4. **CANDIDATE Y**, Ferber, W., Martin, B., Geophys. Res., 111, E06018, 2006.
5. Uphoff, M., Ferber, W., **CANDIDATE Y**, Geophys. Res., 111, E02S03, 2006.

Conference Presentations:

1. **CANDIDATE Y**, et al. Proc. SPIE 8447, 84476S, 2012.
2. Uphoff, M., Ferber, W., Martin, B., **CANDIDATE Y**, Proc. SPIE 8442, 84420A, 2012.
3. **CANDIDATE Y**, Andrews, S. M., Benson, E. A., Greene, O., Falcone, B. and Seransky, D., Proc. SPIE 8447, 84470P, 2012.
4. **CANDIDATE Y**, Ferber, W., Martin, B., AAS Meeting #219, #155.12, 2012.

5. Uphoff, M., Ferber, W., **CANDIDATE Y.**, AAS Meeting #217, #318.02, 2011.

CANDIDATE Z

EDUCATION BACKGROUND

- **Ph.D. in Aerospace Engineering, 2012**

The University of Michigan – Ann Arbor

Thesis: *Nonlinear Trajectory Navigation*

- **B.S. in Aerospace Engineering and Minor in Mathematics, 2001**

Georgia Institute of Technology

Research and Work Experience:

2012–Present

- Jet Propulsion Lab. California Institute of Technology

Honors:

- NASA predoctoral fellowship
- *AAS/AIAA Finalist*
- *2012 NSF Travel grant*
- 2011 Dawn Navigation Team Award / JPL MEGA Award
- 2010 Selene Navigation Team Award
- 2009 University of Michigan Rackham Harold and Vivian Shapiro Awards

Publications:

1. **CANDIDATE Z**, et al. *Space Science Reviews*, 2012. Accepted
2. **CANDIDATE Z**, et al. submitted to *Icarus*, Jan. 2013.
3. **CANDIDATE Z**, et al. *Journal of Spacecraft and Rockets*, 49(2), 2013.
4. **CANDIDATE Z**, Williamson, E., Fabian, B. *Geophysical Research Letters*, 38, L24202, 2012.
5. Scottoline, R., **CANDIDATE Z**, Selinski, S. *Journal of Guidance, Control, and Dynamics*, 35(4): 612-621, 2010.
6. Scottoline, R., Brown, A., Williamson, E., Fabian, B., **CANDIDATE Z**. *Physical Review D*, 69(4), 042001, 2012.

Conference Presentations:

1. **CANDIDATE Z**, paper to be presented at the 44th *Lunar and Planetary Science Conference*, 2013.
2. **CANDIDATE Z**, paper to be presented at the *2013 AAS/AIAA Space Flight Mechanics Meeting*, Kauai, Hawaii, February 10-14, 2013.
3. Williamson, E., Fabian, B., **CANDIDATE Z** et al., paper presented at the *2012 European Planetary Science Congress*, September 23-28, 2012.
4. Williamson, E., Fabian, B. **CANDIDATE Z**, paper presented at the *43rd Lunar and Planetary Science Conference*, March 19-23, 2012.
5. **CANDIDATE Z** et al., paper presented at the *2011 AAS/AIAA Space Flight Mechanics Meeting*, New Orleans, Louisiana, February 13-17, 2011, AAS-11-203.
6. **CANDIDATE Z**, paper presented at the *2009 AAS/AIAA Astrodynamics Specialist Conference*, Pittsburgh, Pennsylvania, August 9-13, 2009, AAS-09-408.

7. Williamson, E., Fabian, B., **CANDIDATE Z**, poster presented at AGU Fall Meeting 2011, San Francisco, California, December 2011.

PLEASE RANK EACH CANDIDATE:

#1 (best) Z

#2 (2nd best) Y

#3 (3rd best) X (Although this candidate may have the “best” qualifications, his research area does not fit well within our department)

Your position:

Assistant_____

Associate X

Full_____

Year of Ph.D. 1999

Approximately how many times have you served on a search committee to hire at the assistant professor rank? 3

Optional comments?

Check here if you want the url for the website once data are available._____

THANK YOU!

(201311)

IV. MATERIALS FOR EXPERIMENT 5

Materials were sent out in counterbalanced manner—the “female” candidate narrative summary was sent out half to male faculty and half to female faculty, and vice versa for the identical (except for gender pronoun) “male” candidate narrative summary.

Male Applicant Version

Imagine that your department has an opening for one person at the entry-assistant-professor level and the faculty may want to hire someone this year. Below is a profile of one candidate on the short list. This individual works in a hot area with an eminent advisor. The search committee evaluated the research record of all applicants, and the entire faculty rated each short-listed-candidate’s job talk and interview on a 1-to-10 scale. Please read the search committee chair’s notes below and provide your evaluation.

Search Committee Chair’s Notes:

Dr. X impressed the entire search committee as a great potential hire. Based on his vita, letters of recommendation, and their own reading of his work, the search committee rated X’s research record as “extremely strong.” Letter-writers especially noted that X is highly creative and original in his approach to scholarship, with comments like “X is poised to break new ground with his unique and imaginative applications of his advisor’s theory, and is sure to change how people think about his research area.” They also described X’s impressive teaching abilities, mentioning that he was “widely considered an effective and supportive mentor by the junior graduate students and undergraduates he worked with.” He also won a teaching award in graduate school. X’s faculty job talk/interview score was 9.5/10. At dinner with the committee, he reached out to everyone, showing himself to be very likeable, kind, and socially skilled. During our private meeting, X was enthusiastic about our department, and there did not appear to be any obstacles if we decided to offer him the job. He mentioned that he is single with no partner/family issues. X said our department has all the resources needed for his research.

Please rate this candidate using the following 1-to10 scale:

- 1**=Cannot support candidate.
- 2**=Marginally-acceptable candidate/I am not enthusiastic.
- 3**=Acceptable candidate/perhaps we can do better?
- 4**=Good candidate/pursue if resources allow.
- 5**=Very good candidate/I am enthusiastic about hiring this person.
- 6**=Excellent candidate/I am very enthusiastic about hiring this person.
- 7**=Extremely impressive candidate/offer all typical recruitment incentives.
- 8**=Outstanding candidate/recruit if possible; go beyond typical incentives.
- 9**=Superb candidate/work hard to recruit this person; use every possible incentive.
- 10**=Truly extraordinary/exceptional candidate--rare opportunity/do whatever it takes to recruit this person using any and all incentives.

Your rating of Dr. X: _____

Why? (Optional)

Your position:

Assistant _____

Associate _____

Full _____

THANK YOU!!

Female Applicant Version

Imagine that your department has an opening for one person at the entry-assistant-professor level and the faculty may want to hire someone this year. Below is a profile of one candidate on the short list. This individual works in a hot area with an eminent advisor. The search committee evaluated the research record of all applicants, and the entire faculty rated each short-listed-candidate's job talk and interview on a 1-to-10 scale. Please read the search committee chair's notes below and provide your evaluation.

Dr. X impressed the entire search committee as a great potential hire. Based on her vita, letters of recommendation, and their own reading of her work, the search committee rated X's research record as "extremely strong." Letter-writers especially noted that X is highly creative and original in her approach to scholarship, with comments like "X is poised to break new ground with her unique and imaginative applications of her advisor's theory, and is sure to change how people think about her research area." They also described X's impressive teaching abilities, mentioning that she was "widely considered an effective and supportive mentor by the junior graduate students and undergraduates she worked with." She also won a teaching award in graduate school. X's faculty job talk/interview score was 9.5/10. At dinner with the committee, she reached out to everyone, showing herself to be very likeable, kind, and socially skilled. During our private meeting, X was enthusiastic about our department, and there did not appear to be any obstacles if we decided to offer her the job. She mentioned that she is single with no partner/family issues. X said our department has all the resources needed for her research.

Please rate this candidate using the following 1-to10 scale:

1=Cannot support candidate.

2=Marginally-acceptable candidate/I am not enthusiastic.

3=Acceptable candidate/perhaps we can do better?

4=Good candidate/pursue if resources allow.

5=Very good candidate/I am enthusiastic about hiring this person.

6=Excellent candidate/I am very enthusiastic about hiring this person.

7=Extremely impressive candidate/offer all typical recruitment incentives.

8=Outstanding candidate/recruit if possible; go beyond typical incentives.

9=Superb candidate/work hard to recruit this person; use every possible incentive.

10=Truly extraordinary/exceptional candidate--rare opportunity/do whatever it takes to recruit this person using any and all incentives.

Your rating of Dr. X: _____

Why? (Optional)

Your position:

Assistant _____

Associate _____

Full _____

THANK YOU!!

V. EVIDENCE FOR CLAIMS OF HIRING BIAS

Does Anyone Really Claim That Biased Hiring Causes the Underrepresentation of Women? One might wonder if the claim of sex bias in hiring is a “straw man”, as one of the reviewers of this study opined. Does anyone believe that women are discriminated against in academic hiring and that this is the cause of their dearth? And if so, how can we reconcile such a belief with claims by search committee members that they exercise due diligence (and often more) when it comes to giving serious attention to female and URM applicants?

To take the first part of this question, the answer is an unequivocal yes. There is a frequently-expressed belief that women are the victims of hiring bias, not just in the past when there may be evidence of bias, as Irvine pointed out (1996), but also in the present when the evidence is either lacking or runs in the opposite direction. Numerous commentators have asserted that women face an uphill battle in the academy, including, but not limited to, being invited to interview and hired. Although other barriers are invoked, such as chilly climate, delayed promotion, difficulty balancing work-family, and inequitable salaries, commentators often view the combination of lower numbers of applications from female candidates coupled with anti-woman hiring bias as an important part of the reason for the underrepresentation of women in the academy. Consider:

“It is well-established that the presence of a male or female name on a CV has a strong effect on how that CV is evaluated... In Steinpreis et. al.’s US study, 238 academic psychologists (118 male, 120 female) evaluated a curriculum vitae randomly assigned a male or a female name. Both male and female participants ... were more likely to hire the male than the female applicant” (Jennifer Saul, 2012).

“It is now recognized that (sex) biases function at many levels within science including funding allocation, employment, publication, and general research directions” (Lortie et al., 2007, p. 1247).

“These experimental findings suggest that, contrary to some assertions, gender discrimination in science is not a myth. Specifically, when presented with identical applicants who differed only by their gender, science faculty members evaluated the male student as superior, were more likely to hire him, paid him more money, and offered him more career mentoring” (Moss-Racusin, C. Commentary and Analysis from SPSP.org September 21, 2012 <http://spsptalks.wordpress.com/2012/09/21/arescience-faculty-biased>).

“Research has pointed to (sex) bias in peer review and hiring. For example, a female postdoctoral applicant had to...publish at least three more papers in a prestigious science journal or an additional 20 papers in lesser-known specialty journals to be judged as productive as a male applicant...The systematic underrating of female applicants could help explain the lower success rate of female scientists in achieving high academic ranks” (American Association of University Women: Hill, Corbett, & Rose, 2010, p. 24).

Haslanger provides a table with percentages of women among the faculty of the top 20 graduate programs in philosophy in the U.S., ranging from 4% to 36%, and she concludes that “the data mostly speak for themselves” (2008, p. 214)...and claims that when she was a graduate student

there was “a lot of outright discrimination” and that “blatant discrimination has not disappeared” (p. 211). Haslanger, S. (2008) ‘Changing the Ideology and Culture of Philosophy: Not by Reason (Alone)’, *Hypatia* 23:2, 210-223.

“Psychological research has shown that most people-- even those who explicitly and sincerely avow egalitarian views-- hold what have been described as implicit biases ... There are countless situations in which such mechanisms are triggered: classroom situations, hiring committees, refereeing of papers for journals, distribution of departmental tasks (research, teaching, admin.) etc.” Oct. 2, 2010 at <http://www.newappsblog.com/2010/10/implicit-biases-1.html>

“We are not proposing that gender-blind searches are the only answer (to hiring more women and URMs). We see these as one piece of a larger effort that also involves bias-avoidance training, gender-blind reviews, salary equity adjustments, and a clear examination of bias in the promotion of female professionals.” (Jones & Urban, 2013, p. 612-613)

“Women and minorities must both deal with implicit bias, a problem that is well documented in the social science literature ... Donna Dean (President of the Association for Women in Science) describes the problem of implicit bias in these terms: ‘People are most comfortable with people who think and look like themselves.’” Powell, K. (2007). Beyond the glass ceiling. *Nature*, 448, p. 99.

Numerous blue-ribbon panels and national reports have concluded that implicit and sometimes explicit biases pervade the hiring process and negatively influence evaluations of female candidates and their scholarship, contributing to women’s underrepresentation within the academy, as asserted by the 2014 AAUP report by “inadvertently foreclosing consideration of the best-qualified persons by untested presuppositions which operate to exclude women and minorities.” (<http://www.aaup.org/report/affirmative-action-plans-recommended-procedures-increasing-number-minority-persons-and-women>)

Thus, the claim of sex bias in the evaluation of females has been front and center in the national debate over women’s underrepresentation in some STEM fields. This is often coupled with the finding that a smaller fraction of women than men decide to apply for tenure-track positions, as we noted in the Conclusion to the main paper. Countless universities around the U.S. have invested resources to create gender-fair recruitment, hiring, and training. For example, Jones and Urban (41) describe the steps undertaken by the Ecology and Evolutionary Biology Department at the University of Connecticut in an attempt to reduce unconscious bias against female and URM applicants for a tenure-track assistant professor position: “*Simply discussing unconscious bias heightened our sensitivity. To further protect our decisions from deeply buried biases that conscious effort could not root out, we decided to try an initial blind review of the applications*” (p. 612).

Applications to their department were gender-blinded by the administrative staff so that gendered pronouns, first names, titles of awards, etc. were redacted from application materials and letters of references before faculty search committee members ranked them prior to determining the final short-list. Their efforts were nothing short of heroic and they vividly document the lengths to which

universities strive to counter presumed sex bias in hiring. In these authors' words,

The redaction involved more than 100 hours of monumental effort by our departmental administrative assistant, but in the end, unfortunately, it failed to conceal gender in many of the applications. Just one overlooked pronoun, or an uncommon gender-revealing word (e.g., *guy*) exposed gender, and with so many redactions needed in each file, it was difficult to detect them all. Some committee members noticed that just the size of the redacted area in the document revealed gender, because *he* requires fewer character spaces than *she*. In addition, redactions were done on PDFs, but if phrases from the PDFs were copied and pasted into a summary spreadsheet, the PDF redactions were revealed.... individual search committee members tried to guess the gender of the applicant after ranking them. Excluding redaction errors, the search committee members guessed gender correctly 67% of the time (range: 59%–85%) on average. Three of the four search committee members did not guess gender significantly better than would be expected from random chance. The fourth guessed gender significantly more than would be expected from random chance after recognizing telling variations in pronoun lengths in the redacted letters.... We are not proposing that gender-blind searches are the only answer (to avoiding "deeply buried biases"). We see these as one piece of a larger effort that also involves bias-avoidance training, gender-blind reviews, salary equity adjustments, and a clear examination of bias in the promotion of female professionals. (p. 612-613)

Our own university has periodically urged faculty to attend a workshop in which a video depicts a chauvinistic search committee member thwarted by more enlightened members of the search committee in his sexist effort to hire an inferior male applicant over a superior female applicant. The predicate for such training is that sexism manifests itself in talented female applicants being passed over by search committees in favor of less talented male applicants. Here is an email sent to all faculty at our university:

Effective Search Practices I: It Depends on the Lens

Dear Colleagues:

We would like to invite you to an event on Monday, September 23, 2013 when the Provost's Office of Faculty Development and Diversity and the Cornell Interactive Theatre Ensemble will conduct a session for faculty titled "**Effective Search Practices I: It Depends on the Lens.**" If your department plans to conduct a search this year, representation from the search committees is critical (unless committee members have already attended this workshop in the past). Any faculty member who might participate in the search process is also highly encouraged to attend the workshop. Even if no immediate searches are anticipated in your department, the workshop will prove very helpful for chairs and faculty for future searches. The workshop includes:

- A filmed scenario of a faculty search committee meeting in progress, reviewing potential candidates for on-campus interviews
- A conversation with the search committee chair
- A facilitated discussion about participants' reactions to the scenario
- A short presentation on the body of social science research that underlies the dynamics of the conversation presented in the scenario, and

A list of tools and strategies for conducting an effective search

Although in the historic literature there are articles noting that fear of having their application rejected was not a prominent reason for women's lower application rates compared with men's, there are many articles that have argued the underrepresentation of women in faculty positions is the result of hiring and promotion bias. The size of this latter camp is very large (see, e.g., Ceci, Ginther, Kahn, & Williams, in press, *Psychological Science in the Public Interest*). This claim of bias has penetrated the popular media as well. A recent illustration of the anti-woman bias claim can be found in the October 8, 2013 *US News & World Report*, the headline reads:

STEM Roundup: Bias, Not Babies, Hamper Women in STEM

http://www.usnews.com/news/stem-solutions/articles/2013/10/08/stem-roundup-bias-not-babies-hamper-women-in-stem?s_cid=rss:stem-roundup-bias-not-babies-hamper-women-in-stem

Another recent illustration of the bias claim appears in a *New York Times Sunday Magazine* article by Eileen Pollack, Oct. 3, 2013, who writes that the underrepresentation of women in math-intensive fields is due—at least in part—to male underestimations of women's competence and that this is why they are not hired for tenure-track jobs. For example, she quotes a mathematics professor at Yale about his explanation for the shortage of female math professors there: “I guess I just haven't seen that many women whose work I'm excited about.” This position was promulgated by many of the >1,000 posts. <http://www.nytimes.com/2013/10/06/magazine/why-are-there-still-so-few-women-in-science.html>

To recap, it has become increasingly common for the claim to be made that female applicants, notwithstanding their smaller fraction who opt to apply for tenure-track positions in the first place, are undervalued in a range of evaluative contexts, including tenure-track hiring. Universities across the U.S. have implemented training to combat presumed sex bias in hiring, devoting resources to establishing offices and initiatives. We do not deny that biases of various sorts existed against female applicants in the past (there are documented cases of buildings lacking women's bathrooms, and faculty meetings extending beyond pick-up times for preschools), and that biases and other challenges may continue to exist and act to impede women's attempts to balance work and family. However, the present study, the largest and best sampled so far, suggests that the assertion that women applicants for tenure-track assistant professorships are passed over in favor of less qualified men is lacking empirical support. In our study, women applicants were favored over identically-qualified men, roughly by a margin of 2-to-1. Thus, while other forms of bias may still exist it seems time to move past the single most important juncture in the academic lifecourse, interviewing and hiring for tenure track positions.

One reviewer for this journal noted that these results will not be embraced by everyone—particularly male applicants. The twin goals of gender-blind evaluation and increasing faculty diversity are worthy of a national dialogue by professional societies and science policy makers. We ourselves can see merit in all sides in such a discussion. What we cannot see merit in, however, is the continued assumption that search committees are bypassing female candidates in favor of less talented male candidates. If this is truly the case, then far better empirical evidence is needed than has been invoked in testimonials.