

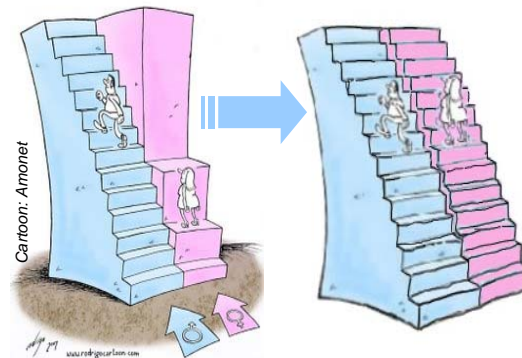
Success and its evaluation in Materials Science - does gender matter? - DIVERSITY FP7 project -

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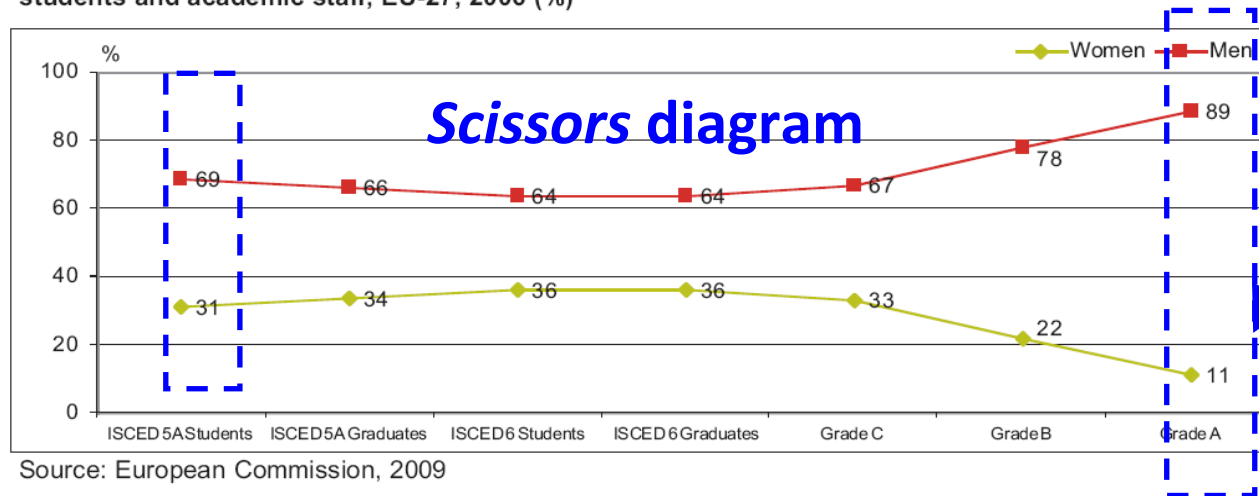
www.diversity-fp7.eu

DIVERSITY satellite event
ISMAM 2011, 26.06. – 1.07.2011, Gijón, Spain

Keys cause for concern

Advancement in science is slower for women than for men!

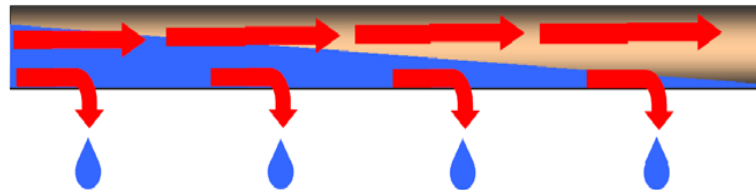
Graph 3 – Proportion of men and women in a typical academic career in science and engineering, students and academic staff, EU-27, 2006 (%)



Source: European Commission, 2009

Women: 11 %
 Extreme gender gap
 in *Nat. Sci. & Eng.* at
 the more senior
 academic levels!

**A waste of talent & motivation:
 “leaky pipeline” phenomenon**





Success and Its Evaluation in Materials Science

3 Key areas of evaluation of scientists' work

A) Research 'productivity'

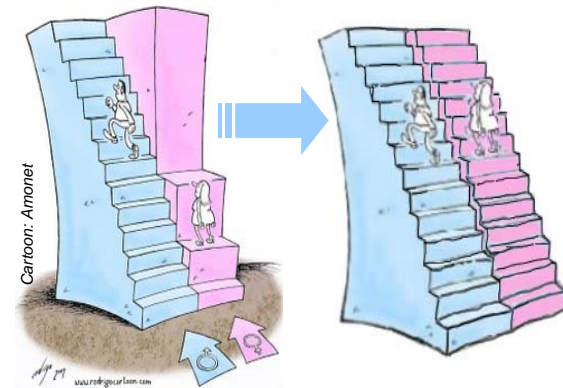
- Authorship of peer-reviewed publications

B) Recognition in the field

- **Invited speakers** at major professional society meetings / conferences
- Member of **editorial boards of important scientific journals**
- Member of **committees that conduct evaluations** of people for hiring, tenure, promotion, and awards
- Participation in decision-making bodies of funding organisations.

C) Grants and contracts

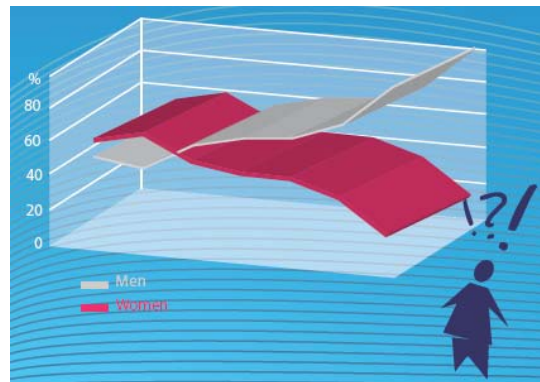
- Access to **institutional resources**
- Capacity to attract **external funding**
- International **cooperations, networks...**





Success and Its Evaluation in Materials Science (contd.)

Whether a given scientist succeeds in building a successful career depends on a number of factors, some **personal** and some **institutional**—as well as **luck or happenstance**.



Organizational context / institutional climate is especially important in **Materials Science** field, because in sciences, work revolves around the cooperation of people and groups; requires human and material resources; and relies upon **research facilities, funds and teamwork**.

→ Women in Materials Science - ‚Outsider status‘.....



Obstacles to women's advancement in science

1. Outsider status

„Subtle gender discrimination is operative in fields and organizations where women represent a significant minority — in Nat. Sci. & Eng.“

2. Professional Networks

„Exclusion from professional networks limits the possibility not simply to participate in a social circle, but rather to do research, to publish, to be cited – to show the very marks of productivity in science“

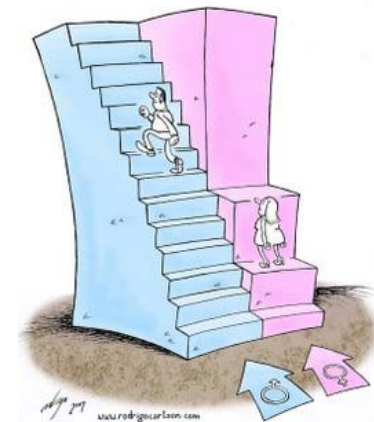
3. Collaborative Research

„Scientists who research and write collaboratively have a higher rate of publication than single authors and are more likely to be cited by others“

4. Measures of Productivity & Performance

„Women often have the most difficult time advancing in a system in which the guidelines for work evaluation are vague and undefined“. Key areas & criteria of evaluation of scientists' work and recruitment, promotion and nomination practices should be more transparent, clearer and easy to find....

Cartoon: Amonet



Obstacles(contd.)

5. Social Roles

- „*Marriage and parenthood* affect women and men differently. It is often assumed that marriage & parenthood limit women scientists' productivity,,
- *Association of Women, Social Involvement...*
- ...*Kinder, Küche, Kirche (children, kitchen, church).*



6. Professional and Scientific Style

„Male scientists are more aggressive, combative, and self-promoting in their pursuit of career success . . . This professional style is seen as benefiting men in terms of gaining higher visibility and developing professional networks.... Women feel inadequate and lack self-confidence when they have to tackle some especially difficult task they had given up the struggle to excel since they can never win.“

7. The Gender Nature of Science

Stereotypes...„Many women with scientific aptitude are not encouraged to enter scientific professions. The problem begins early in life when boys are encouraged while girls are discouraged to pursue science.... Science is totally inside culture.

[1] B. Sheridan, *CGIAR GENDER PROGRAM, USA, 1998*

[2] M. F. Fox, *Gender, environmental milieu, and productivity in science, 1991*

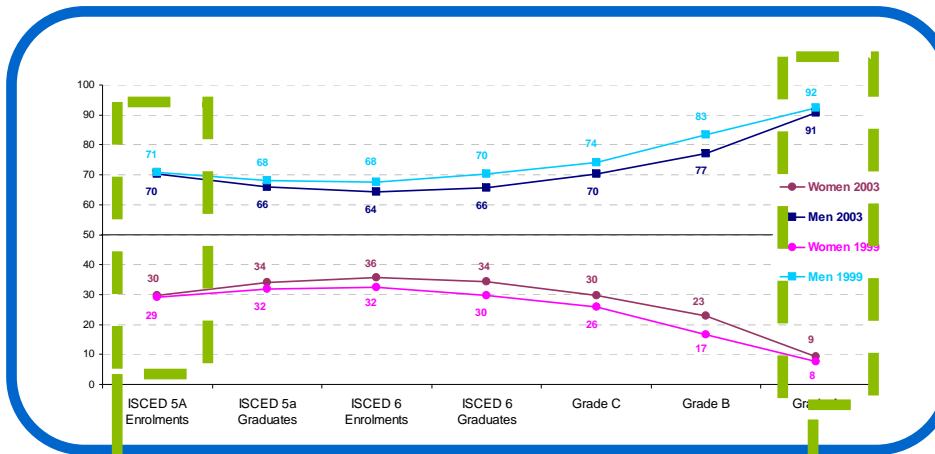
[3] G. Sonnert, *Gender Differences in Science Careers, 1995*

[4] E.F. Keller, E. F. *The wo/man scientist: Issues of sex and gender in the pursuit of science, 1991;*

[5] <http://ec.europa.eu/research/science-society/>; *WIRDEM Report, EC, 2008*

MATERIALS SCIENCE

- Challenging Research Field
- Great Career Opportunities



Attracting youth to scientific careers
(role models and mentoring)

Getting more women in decision-making

WomenInNano
(FP6 SA project)

Science in Society

DIVERSITY
(FP7 SA project)

raising awareness about gender and research !

SSA - Gender management in research organisations (FP7)

Problem to be addressed:

Low proportion of women in scientific decision – making

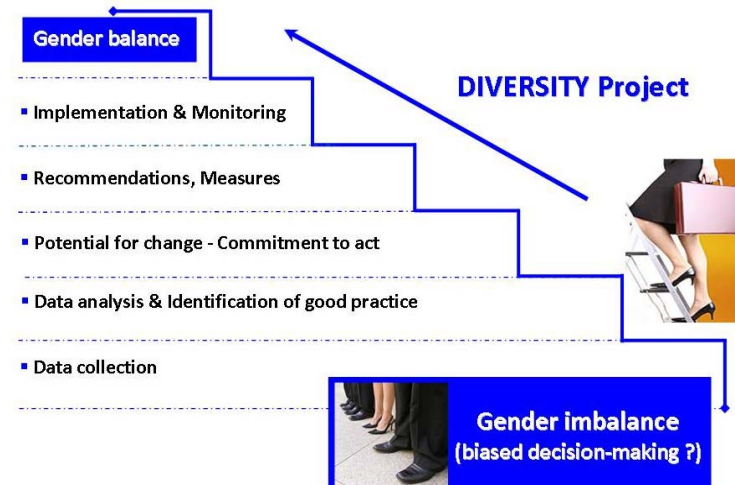
Title: Improving the gender diversity management in materials research institutions (DIVERSITY)

Duration: 3 years (1 .01.2009 -31.12.2011)

Consortium: 13 partners from 10 countries

Coordination: IFW Dresden, Germany

Website: www.diversity-fp7.eu



Spreading the DIVERSITY spirit!

...raising awareness about gender and research...

- **European Workshop**

- Bellaterra-Barcelona (Spain), 19-21 May 2010 , UAB –M.D. Baro

- **Local / regional actions: workshops, round-tables...**

- in Spain, Slovenia, Germany, France, Greece, UK, Slovakia, Sweden, Italy....

- **Dissemination, media-related activities....**





Spreading the DIVERSITY spirit!

...raising awareness about gender and research...

■ Satellite events joined to international conferences !

NanoteC 09, Brussels-Belgium, 29. August 2009

C-MAC 1, Nancy, 5. October 2009

ICM 2009, Karlsruhe, 30. July, 2009

Euroschool 2010, Ljubljana, 28. May 2010

ISMANAM 2010, Zürich, 6. July 2010

REPM'10, Bled-Slovenia, 31. August 2010

ISMANAM 2011, Gijón, Spain, June 2011



- Commitment anchored at the topmost institutional level
- Involvement of men ...male decision-makers



Create a 'level playing field' in sci. research for men and women

Different ways.....

- Access to exchange about research
 - networking, communication, etc.
- Work climate in departments
- Clarity of criteria for evaluation
- Supportive work-family arrangements
- Mobilizing male decision-makers to support and engage in the promotion of gender equality & diversity issues
- Informing (educate) leaders about the factors that foster women's careers....

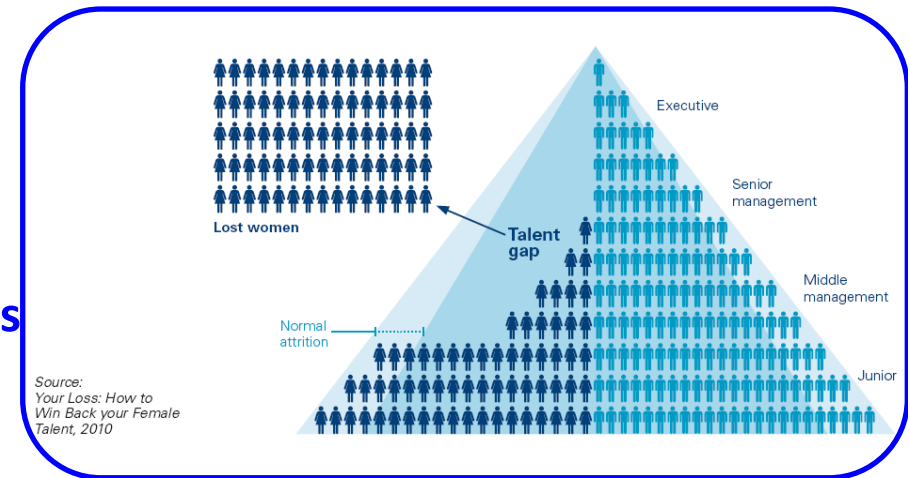
"Situations often arise in which certain individuals within the organisation become advocates for gender equality and take on the role of watchdog. But a few ardent souls are not enough to change the situation. *As long as nobody in the Rector's group views gender equality as an important value – a value that might even take precedence over other values – we won't see any change.*" Ingrid Guldvik, Norway



Why Gender Diversity?

...many reasons:

- **democracy and social justice**
 - ethical arguments, women rights
- **demographic trends**
- **human resources and integration**
 - to use the complete pool of human capital
 - excluding women is a waste of considerable investment in their education & training
- **efficiency reasons (,economical' benefits)**
 - new orientation of of universities & research institutes towards business strategies





Importance of *Diversity*

...in Science

***Diversity* is critical for all research institutes because it enhances the perspectives by which we analyze ideas, enhancing the search for truth and the rate for innovation...it improves scientific quality and international competitiveness!**

Ben Barres, Professor of Neurobiology at Stanford Univ.
„Does gender matter?“, *Nature*, 2006

...in Decision-Making

A decision is a judgement. It is a choice between alternatives. In Science it is rarely a choice between right and wrong. It is at best a choice between ‚almost right‘ and ‚probably wrong‘ a diverse group with mixed perspectives and visions, different professional & thinking styles will choose the best solution, the most correct & fair alternative! **➡ beneficial for our research institutions!!**

Thank you!

- DIVERSITY partners
- M. D. Baró, E. Pellicer, S. Suriñach, J. Sort (UAB-Spain)

