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Gender diversity in STEM

There is a strong business case for the value of diversity. Research by the World Economic Forum shows a 36% higher return on equity (ROE) for companies having a workforce with strong gender diversity[1]. Also growth is influenced in a positive way: in 2009 – 2012 companies with a strong female leadership have increased their ROE by 10.1% as compared to an average of 7.4% for the rest. Diversity is not a problem but a solution![2]

Why does it take us so long to achieve this goal? It is a complex problem requiring a broad approach to find the right knobs for tuning. Family life at home is the first hurdle to take. Both father and mother have a strong influence on interest in STEM subjects. Culture in society is a second hurdle. Role models are important. Gender equality does not exist: diversity is such a strong driver by the sake of differences. Gender differences are deeply rooted in the evolution of mankind. Mankind has to strive to create *equal opportunities* without loosing on *gender differences*. We as physicists should take our responsibility wherever we can.

There is evidence that (gendered) phrasing of job ads plays an important role in losing female applicants even before the selection process begins[3,4]. This is a subliminal effect that we are not aware of. For STEM jobs masculine phrasing is a pitfall. Nouns are at the masculine end of the spectrum versus adjectives at the feminine side. The WISE network in the UK has tested this aspect[3], showing a strong correlation between phrasing and response by women. Words such as competent, merit, potential, and gravitas are fatal for women. Men are less sensitive to gendered phrasing.

Diversity has many more aspects than only gender diversity. Physics diversity is also lacking in sexual orientation (LBGT), diversity in cultural background (BAME), and acquired or birth disabilities: Stephen Hawking is exception rather than rule.

Creating and maintaining diversity in science in general and STEM in particular requires a lifespan approach. Family, education, outreach programs of (science) museums[5] and libraries, career management in industry and academia, no step can be neglected to achieve this goal. Most important, however, is the mindset. Unconscious processes in our brain are at the root of making decisions. The right half decides and the left half makes up a nice story to support what already has been decided on. Accepting this insight is half of the work that lies ahead of us.

Based on the current annual growth in female engagement in STEM, the World Economic Forum predicts that it will take 170 years to achieve equal opportunities 1). Let us beat the current trend and do better than that. We always feel superior: let us act better than expected by looking in the mirror and accepting change. The VII Forum on Physics and Society meeting in London (2016)[6] can inspire EPS to make this effort. ■

[1] 'Global gender gap report 2016', World Economic Forum, www.reports.weforum.org;
[2] Sarah Greasly, IBM, invited speaker VII FPS (2016) priv. comm.;
[3] 'Not for people like me', A. Macdonald, WISE, South East Physics Network (2014) www.wisecampaign.org.uk ; ibid. Invited speaker VII FPS (2016) priv. comm.;
[4] D. Gaucher, J. Friesen and A. C. Kay, J. of Personality and social psychology 10(2011)109
[5] Karen Davies, Science museum London UK, invited speaker VII FPS (2014) priv. comm.;
[6] 'Getting the diversity balance right in physics', VII Forum Physics and Society, London UK (2016) www.eps.org.