GI-MS45-O5

Breaking Bias

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From conference invitations [2] to research grant peer review [3], there are endemic systematic and structural barriers to women succeeding in science and in crystallography. Crucially there is a seemingly abstract barrier called bias which prejudices people for or against one person or group, especially in a way considered to be unfair. There has been extensive research demonstrating that women will disproportionately suffer from the effects of bias and can even bias against themselves. An example of this in the public domain is the under-representation of content on Wikipedia about women (both real and fictional), where only 17.57% of biography articles are about women.

This talk will directly address the issue of biases (unconscious and conscious) and provide tools and suggestions to help overcome these biases. Simple actions like reviewing biases in the selection of speakers or the use of biased language will all ensure that crystallography is an inclusive and welcome environment for all scientists.

References:

[1] Ferry, G. (2014). Nature, 505, 609–611

[2] Maynard-Caseley, H., Beavers, C., Murray, C. & Thompson, A. (2018), IUCr Crystallites Blog, http://blogs.iucr.org/crystallites/2018/03/07/women-in-crystallography-we%E2%80%99re-not-just-historical/

[3] Tamblyn, R., Girard, N., Qian, C.J. & Hanley, J. (2018), CMAJ, 190, (16) E489-E499

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GI-MS46-O1

Crystallography and materials science – some personal historical notes

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Materials science – even long before the term was adopted in the 1960s – has always relied on crystallographic methods. Since real materials are usually far from crystalline perfection, it has been of particular interest to analyze scattering features related to deviations from the average structure as indicated by the position of Bragg peaks. Apart from Bragg scattering from small crystalline objects and polycrystalline, often multiphase materials, diffuse scattering and small-angle scattering have helped materials scientists to elucidate and understand the properties of "real crystals". Since the 1950s, X-rays, neutrons, and electrons have seen a considerable historical development as probes in condensed matter research, including sources, beam conditioning, sample environment, detectors, data acquisition and evaluation, and modeling. Some of the apparently everlasting issues of interest to materials scientists, e.g., multiple phases, nano-size objects, internal strains, textures, phase transformations and precipitation, plastic deformation, defects and diffusion, will be briefly addressed in the light of "then" and "now".

Keywords: materials science, history