MAR13-2012-000611

Abstract for an Invited Paper
for the MAR13 Meeting of
the American Physical Society

How Undergraduate Women Choose STEM Careers

ROXANNE HUGHES, National High Magnetic Field Laboratory

In 2010 women represented half of the US population and over half of current graduates from college (57%) but less than a third of undergraduate degrees in science and engineering (STEM). This underrepresentation is worse in certain fields such as physics (21%), and engineering (22%) compared to 52% in chemistry. This underrepresentation is not only a social and cultural issue, but it is also cause for alarm in regard to the United States' ability to maintain its technological and economic dominance in the global economy. STEM fields provide valuable contributions to the nation's economic and environmental security (Augustine, 2005; Chang, 2009; Riegle-Crumb and King, 2010; Robelen, 2010; Tessler, 2008), paying practitioners well and bringing in revenue for successful businesses and governments (National Science Board [NSB], 2008; Riegle-Crumb and King). Consequently, addressing the underrepresentation of women and increasing their persistence in STEM fields will increase the number of scientists and engineers contributing to these fields, which could, in turn, improve the nation's economy, safety, and technological revenues. Research indicates that there are internal and external factors that affect the ability of women to see future success in STEM and to identify with the STEM and consequently persist. This presentation will summarize the current literature on issues affecting undergraduate women's retention in STEM as well as present strategies to improve this retention. Part of this presentation will draw from my own research studies in this area. The findings from my study and others reveal that only women who participate in redefinition strategies related to their marginalized status are able to persist; those who cannot redefine their marginality in relation to the dominant discourse of STEM begin to lose interest or doubt their competence in the field, resulting in their departure from STEM.