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## Understanding identity and social networks among women in graduate physics education

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The success and persistence of women and other under-represented minorities in physics post-secondary education has been studied from numerous perspectives. Recently, researchers have suggested that success and persistence in physics depends on the development of a strong physics-identity. However, to form a complex picture of how students access resources that contribute to the development of physics identities, it is necessary to understand the formal and informal structures and relationships at the university and beyond which support them. We know that under-represented students, especially women, tend to persist in physics if they become involved in initiatives such as equity, diversity and inclusion (EDI) in physics campus groups. Despite evidence that participation in these initiatives can contribute to persistence, we know relatively little about how students access and participate in these initiatives, or how these spaces can facilitate graduate students' identity work in physics. This presentation explores the usefulness of social network analysis to understand the degree to which these initiatives may create networks of support for students' identity work in physics. At the same time, I will discuss the potential of studying identity work paired with social network analysis, to capture the social and dynamic aspects of alternative spaces for physics learning and persistence. This theoretical and analytical pairing can to capture the kinds of identity-forming resources that flow through networks, and the social interactions that facilitate identity work in physics. These outcomes and novel framings are significant for faculty and administrators involved in EDI initiatives to improve the success and persistence of under-represented students in physics.

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