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Enriching gender in physics education research: A binary past and a complex future

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This talk draws on research in physics, science education, and womens studies to propose a more nuanced treatment of gender in physics education research (PER). A growing body of PER has examined gender differences in students participation, performance, and attitudes toward physics. Though valuable, this body of work often follows a "binary deficit" model of gender, where the achievements of men are implicitly taken as the most appropriate standard and where individual experiences and student identities are undervalued. I will discuss more up-to-date viewpoints on gender from other fields, as well as work on the intersection of identities [e.g., gender with race and ethnicity, or with lesbian, gay, bisexual, and transgender (LGBT) status]. A few PER studies examine the intersection of gender and race, and identify the lack of a unitary identity as a key challenge of "belonging" in physics. Acknowledging this complexity of identity allows further critique of the binary deficit model, which casts gender as a fixed binary trait and frames research questions around investigating deficiencies in women rather than issues of systemic bias. More nuanced models of gender allow a greater range and fluidity of gender identities, and highlight deficiencies in data that exclude womens experiences. I will conclude by suggesting new investigations that might build on an expanded gender framework in PER.