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Emergence of topological quantum effects in thin film topological insulators through defect engineering MARYAM SALEHI, NIKESH KOIRALA, MATTHEW J. BRAHLEK, Rutgers University, JISOO MOON, Rutgers University-New Brunswick, SEONGSHIK OH, Rutgers University — Topological insulators (TIs) have received intense attention over the past several years with the hope of new age of topological electronics or topotronics. However, defects, particularly interfacial defects, have been a major bottleneck along the way. In this talk, I will discuss how defects have been affecting the properties of thin film TIs and show how defect-engineered TI thin films can reveal heretofore unobservable aspects of TIs such as topological surface-state quantum Hall effect, (quantum) anomalous Hall effect, quantized Faraday and Kerr rotation, and finite-size topological phase transition, etc.

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