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**Subband Engineering Even-Denominator Quantum Hall States**

VITO SCAROLA, Virginia Tech, CHRISTIAN MAY, ETH Zurich, MICHAEL PETERSON, University of California, Santa Barbara, MATTHIAS TROYER, ETH Zurich — Proposed even-denominator fractional quantum Hall effect (FQHE) states suggest the possibility of excitations with non-Abelian braid statistics. Recent experiments on wide square quantum wells observe even-denominator FQHE even under electrostatic tilt. We theoretically analyze these structures and develop a procedure to accurately test proposed quantum Hall wavefunctions. We find that tilted wells favor partial subband polarization to yield Abelian even-denominator states. Our results show that tilting quantum wells effectively engineers different interaction potentials allowing exploration of a wide variety of even-denominator states.

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