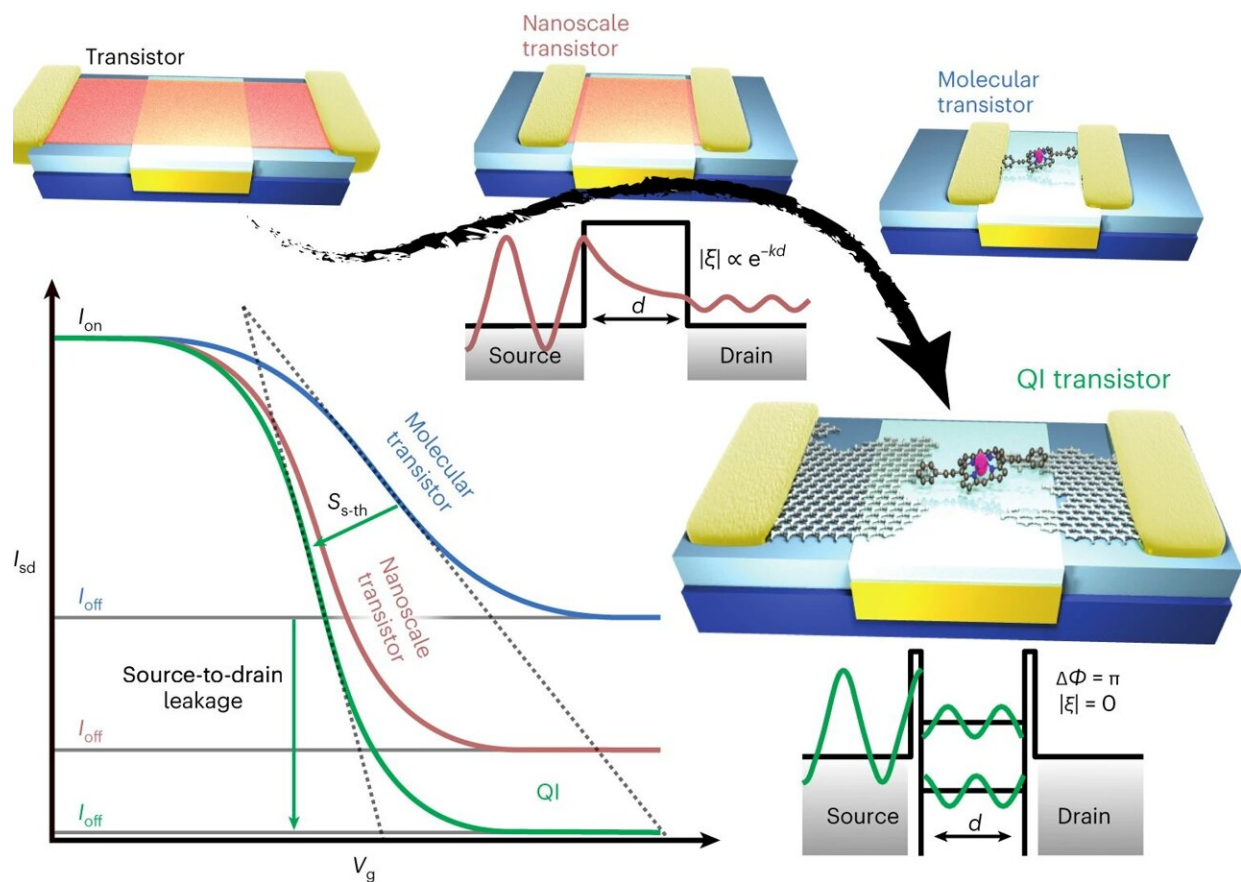


Quantum interference could lead to smaller, faster, and more energy-efficient transistors

March 25 2024



As the source-to-drain distance, d , of a transistor approaches the nanometer scale, quantum-tunneling-mediated transmission (ζ) through the potential energy barrier that creates an off state increases exponentially, leading to high leakage current and degrading the device subthreshold swing (S_{s-th}). The source-drain

leakage becomes increasingly problematic at the molecular scale (

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