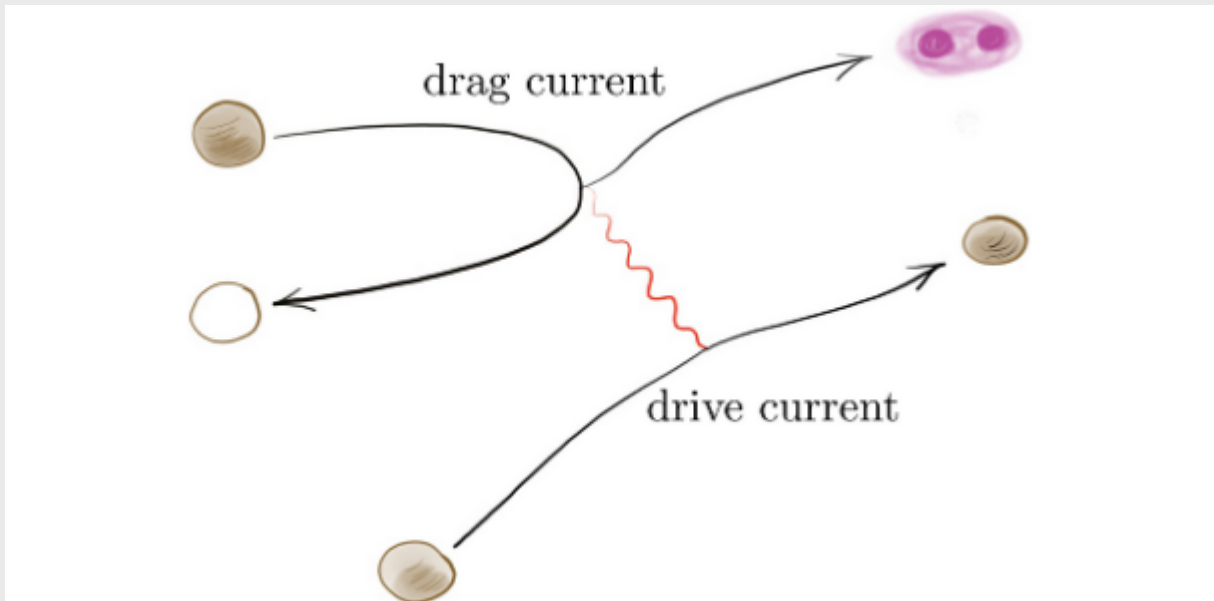


Andreev-Coulomb Drag in Coupled Quantum Dots



Article: Published, in [Physical Review Letters](#) by [Alfredo Levy Yeyati](#) and [Rafael Sánchez](#), members of the Theoretical Condensed Matter Physics Department.

A normal current is converted into a supercurrent in a voltage biased normal-superconductor junction. In this work, we find that this process can surprisingly occur at zero voltage when a nanoscale junction interacts with a nearby circuit. Quantum superpositions induced by the superconductor in the charge states of a nanostructure are exploited to manipulate the direction of the electron flow into or out of the superconductor. This mechanism could be employed for the buildup of quantum transducers or for energy harvesting in hybrid quantum dot devices. [[Full article](#)].