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Capacitance variations of a Nanocapacitor in the Field Emission Regime[1] CARLOS UNTIEDT, Dep. Fisica Aplicada. Universidad de Alicante. Spain, GIOVANNI SAENZ-ARCE, Dep. Fisica Aplicada. Univ. Alicante. Spain, JOSE IGNACIO PASCUAL, Institut fur Experimentalphysik. Freie Universitat Berlin, Germany — The electronic transport properties and mechanical forces between two metallic electrodes separated by a nanometer-sized vacuum gap have been studied using a Scanning Tunnelling Microscope combined with a Tuning Fork Force sensor. When applying a voltage difference to the electrodes above their work function energy, the Field Emission regime can be acceded at which Field Emission Resonances take place. Under these circumstances a decrease of the capacitance has been found to occur showing a new mechanism of capacitor leaking in the quantum regime.

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Carlos Untiedt
Departamento de Fisica Aplicada. Universidad de Alicante. Spain

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