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Molecule heating in resonant molecular tunnel junctions IVAN OLEYNIK, University of South Florida, MORTKO KOZHUSHNER, Institute of Chemical Physics RAS — Charge transfer in metal/molecule/metal junctions is accompanied by a release of power IV which is partly spent to excite molecular vibrations. Resonant tunneling is the major mechanism of molecular conductivity which occurs via electronic charged states of the molecule. Therefore, the major physical quantity, governing the vibrational excitations is the reorganization energy E_r : the amount of energy E_r is released for every electron (hole) tunneling through the molecule. The mechanisms of energy dissipation of molecular vibrations determining molecular temperature are considered and possibilities of their experimental observation are discussed.

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