Transistor effects and in situ STM of redox molecules at room temperature - DTU Orbit
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Transistor effects and in situ STM of redox molecules at room temperature
Inorganic transition metal complexes were identified as potential candidates for transistor-like behavior in an electrochemical scanning tunnelling microscope (STM) configuration at room temperature. The theoretical background has been established based on condensed matter charge transfer theory. It predicts a distinct increase of the tunnelling current close to the equilibrium potential, i.e., if molecular bridge states are tuned into resonance with the Fermi levels of the enclosing electrodes. The complexes display robust electrochemistry on Au(111) electrode surfaces. STM images at molecular resolution reveal detailed information on their surface structure and scanning tunnelling spectroscopy experiments have shown clear evidence of transistor-like behavior.

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