FORMATION OF A TUNNEL CURRENT THROUGH A CHAIN MOLECULE WITH ACTIVE TERMINAL GROUPS

E.G. Petrov, Ye.V. Shevchenko, V.I. Teslenko

Bogolyubov Institute for Theoretical Physics,
Nat. Acad. of Sci. of Ukraine
(*14b, Metrolohichna Str., Kyiv 03143, Ukraine;*
e-mail: shevchenko@bitp.kiev.ua)

S u m m a r y

The tunnel current through a linear chain molecule with active terminal groups has been studied. An expression for the electron current through the molecule has been derived, and the corresponding distance decay parameters have been determined. Sections with a negative differential conductance have been revealed to emerge in the current-voltage characteristic of the molecule in the resonance mode of electron transmission between the electrodes and the terminal groups of the molecule. The current rectification effect has been demonstrated to be a result of nonsymmetric coupling between the terminal groups and the electrodes.