

Abstract Submitted
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Vibronic enhancement of phonon heat conductance¹ YOSHIHIRO

ASAI, National Institute of Advanced Industrial Science and Technology (AIST), Japan — We have studied the electron transport and phonon heat transport through single molecular bridge-junctions in terms of a newly proposed self-consistent theory. Due to the inelastic coupling between electrons and phonons, the two transport properties are closely correlated, which are treated on an equal footing way. By using the theory we have studied the two problems, i.e., (1) the non-equilibrium phonon effect on the electron transport and (2) the inelastic vibronic coupling effect on the phonon heat conductance. We have discussed dissipation processes of the inelastic energy accompanying the electronic conduction through the bridge-junction. Ref) Y. Asai, Phys. Rev. Lett. 93, 246102 (2004); 94, 099901(E) (2005). Y. Asai and H. Fukuyama, Phys. Rev. B 72, 085431 (2005). Y. Asai, submitted.

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