

Progress Report

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Part 1 (Duration : 13-17 September 2010)

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Presentation Title:

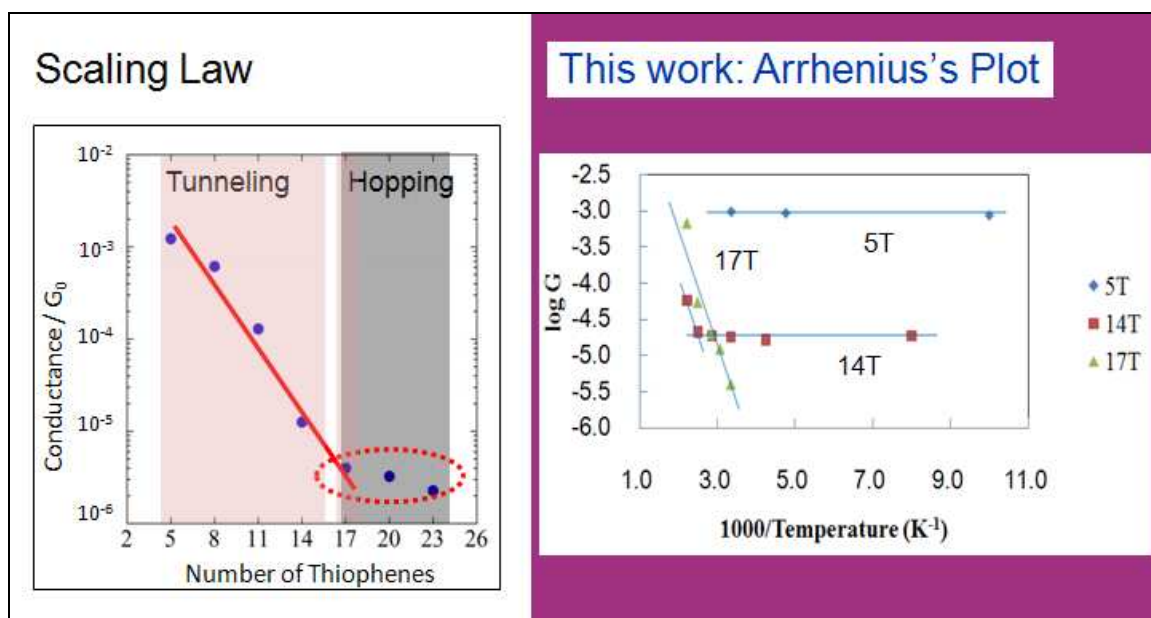
Temperature Dependence of Electrical Conductance of Single Oligothiophene Molecules

Objective:

To clarify the charge carrier mechanism by conducting experiment of the molecule at various temperatures

Content:

In my presentation, I started out by briefly explaining the charge transport mechanism in molecular wires, tunneling and hopping. After that, I explained the STM-break junction method which was used to measure the electrical conductance and also my experiment setup. Next, I showed the results of my work (until now) followed by a discussion of the results which includes the discussion of the origin of the hopping mechanism observed for longer molecules.



Part 2: Experiment Work

Experiment was conducted on 5T-oligothiophene molecule at high temperature ($T > 300$ K). However, no clear results for the conductance value have been obtained yet. The problem could be due to some problem with the pre-amplifier. I have checked and changed the pre-amplifier. Currently, the setup's condition seems to be okay.

I will try conducting the experiment again by using the new setup.