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【241】Towards dielectric relaxation at a single molecule scale

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Recent advances have turned the scanning tunnelling microscope (STM) into a single molecule identification tool. We apply a radio frequency STM to excite a single molecule junction based on a polar substituted helicene molecule by an electric field oscillating at 2 to 5 GHz. We detect the dielectric relaxation of the single molecule junction indirectly via its effect of power dissipation, which causes lateral displacement. From our data we determine a corresponding relaxation time of about 300 ps –consistent with literature values of similar helicene derivatives obtained by conventional methods of dielectric spectroscopy.

Theoretical Work

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