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[233] Uni-directional rotation of molecular motors on Cu(111)

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Molecular motors that convert external energy into controlled motion have seen great developments in the last decades. While many studies exist in solution, little is known how these functional molecules behave on surfaces. However, such solid support is advantageous as it offers a fixed point of reference and confinement in two dimensions, making the study of the directionality of their motions easier.

We have studied single so-called Feringa motors on Cu(111) by low-temperature scanning tunnelling microscopy (STM). Rotations of individual molecules can be induced over long distances by voltage pulses with the STM tip. Importantly, these rotations show high directionality, which are discussed regarding their specific chemical structure and adsorption.

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