Spin-Blockade in One-Dimensional Strongly-Correlated Systems[1]

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— We investigate the charge/spin dynamics in a one-dimensional strong repulsive Hubbard chain by using an adaptive time-dependent density-matrix renormalization group method. It's well known that there exists the spin-charge separation in a non-half-filling Hubbard model since it exhibits Luttinger liquid behavior. By adjusting the spin-dependent hopping on a bond, we realize the spin-blockade on the bond while the charge propagating freely on the chain. The spin storage as well as its directional transmit are discussed.

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