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Cold atoms in a 1D periodically driven system

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We study the driving of a one-dimensional ultracold quantum gases an optical lattice. The driving is a periodic translation of the lattice potential in space. If the lattice itself is quickly shaken this induces effectively a change of the tunneling constant between neighboring lattice sites. This has also been recently verified experimentally. We study how the presence of such a driving affects the different quantum states that can emerge in a one-dimensional system.

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