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Josephson junction in the double-well potential with a fast-oscillating barrier AYDIN CEM KESER, JURAJ RADIC, VICTOR GALITSKI, University of Maryland College Park — We present an analysis of the Bose gas in a double-well potential with a fast-oscillating barrier. We study the Floquet spectrum of the system and find the effective time-independent Hamiltonian where the tunneling coefficient gets modified due to the periodic driving. The system realizes a Josephson junction with a high control of the tunneling coefficient (the coefficient can now change sign, which is impossible in the stationary double-well potential). We connect the corresponding Josephson equations with equations of motion for Kapitza's pendulum and study the ways to dynamically stabilize certain states of the system.

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