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Ratchet effect in Josephson junction arrays: simulations vs experiments VERONICA I. MARCONI, Universite de Neuchatel, Intitut de physique, A.L. Breguet 1, 2000 Neuchatel, Switzerland, DANIEL DOMINGUEZ, Centro Atomico Bariloche, Bustillo 9500, S.C. de Bariloche 8400, Argentina — The ratchet effect in Josephson Junction arrays (JJA) has been proposed and studied some years ago, but only very recently has been measured in a new design of JJA that generates a sawtooth potential (asymmetric and periodic pinning potential) for vortices and antivortices. With transport measurements they were able to show the rectified motion of excitations. Here we presents simulations on the dynamics of vortices in overdamped modulated JJA at finite temperature, where we create the ratchet potential modifying the critical currents of the sample as it was done in the experiments. A good agreement with the experiments in the voltage response when an ac current is applied, was obtained. We were able to characterized the vortex structures for different vortex densities and different ratchet potentials as a function of the amplitude of the ac-current applied.

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