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Phase Dynamics of Ferromagnetic Josephson Junctions IVANA PETKOVIC, SPEC/CEA Saclay, Gif-sur-Yvette, France, MARCO APRILI, Laboratoire de Physique des Solides, Orsay, France — We have investigated the classical phase dynamics of underdamped ferromagnetic Josephson junctions by measuring the switching probability in both the stationary and nonstationary regimes down to 350 mK. We found the escape temperature to be the bath temperature, with no evidence of additional spin noise. In the nonstationary regime, we have performed a pump-probe experiment on the Josephson phase by increasing the frequency of the junction current bias. We show that an incomplete energy relaxation leads to dynamical phase bifurcation. Bifurcation manifests itself as premature switching, resulting in a bimodal switching distribution. We directly measure the phase relaxation time by following the evolution of the bimodal switching distribution when varying the bias frequency. Numerical simulations account for the experimental values of the phase relaxation time.

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