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Escape and retrapping phenomena in HTS and LTS Josephson Junctions[1] L. LONGOBARDI, Seconda Università degli Studi di Napoli, Dipartimento di Ingegneria dellaInformazione, via Roma 29, 81031 Aversa (Ce) Italy, D. STORNAIUOLO, CNR-SPIN, UOS Napoli, D. MASSAROTTI, L. GALLETTI, Università degli Studi di Napoli, Dipartimento di Scienze Fisiche, F. CARILLO, G. PAPARI, NEST CNR-NANO, Pisa Italy, A. KAWAKAMI, Advanced ICT Research Institute, National Institute of Information and Communications Technology, 588-2 Iwaoka-cho, Nishi-ku, Kobe 651-2492, Japan, G.P. PEPE, A. BARONE, Università degli Studi di Napoli, Dipartimento di Scienze Fisiche, G. ROTOLI, F. TAFURI, Seconda Università degli Studi di Napoli, Dipartimento di Ingegneria della Informazione — We investigate escape and retrapping dynamics in Josephson junctions characterized by different levels of dissipation. Measurements are carried out both on high (HTS) and low (LTS) critical temperature superconductor Josephson systems, characterized by different types of barriers, i.e. grain boundary and standard insulating layers. Based on the damping level we observe various regimes ranging from macroscopic quantum tunneling, thermal activation and phase diffusion processes. Experimental data are compared with a numerical model allowing a precise determination of the damping parameter.

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