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Title:Inductively coupled Josephson phase amplification and its application as subterahertz-wave direction sensor
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Abstract:Theoretical and simulation research has been conducted on the inductively coupled Josephson junction phase amplification. Based on theoretical analysis, we give its dynamic equations, which coincide with that of the phase-amplifying model of a parasitoid fly's aural structure. By a numerical method, we study its dynamic behaviors at subterahertz. The results illuminate that the Josephson junction pair can amplify very weak phase delay to detectable magnitude. In addition, the influences of the junction parameter have been investigated, and this unique dynamic behavior could be used in precise subterahertz-wave direction detection. © 2006 IEEE.