



SYNTHESIS AND ANALYSIS OF A FEEDBACK CONTROL SYSTEM

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In this paper, supposing that the received signals at the input are of the form $v(t) = s_1[t, x_1(t)]s_2[t, x_2(t)] + n(t)$ where s_i are FM signals ($i=1, 2$), a novel cross-coupled phase-locked loop (CCPLL(M)) and its mathematical model are obtained. The global qualitative structural analysis of the mathematical model of the first-order loop, the acquisition region and synchronization region of the first-order loop, and the synchronization region of the second-order loop are obtained.

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