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### **RESEARCH ARTICLE**

# LOW POWER QVCO USING ADIABATIC LOGIC

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*Abstract- A new low-phase noise low-power quadrature voltage-controlled oscillator (QVCO) using adiabatic logic is proposed. Power can be reduced by using this technique. The QVCO is a group of two superposable current-switching distinction Colpitts VCOs in which the major core VCO is affiliated to the second in an in-phase method, and the second core VCO is securely coupled to the first in an anti-phase mode. To syndicate the two core VCOs, the Substrates of the cross-connected transistors as well as the substrates of MOS varactors are used; they need not for any additional fundamentals for coupling, which could decrease the noise and decrease the power dissipation. The power is reduced up to 0.02 nW and the frequency range is reduced up to 1.8 MHz compared to existing system.*

*Keywords: Current-switching Colpitts-oscillator; multiphase; quadrature oscillator; MOS varactor; low power; adiabatic logic*

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