# Abstracts

## The Application of Dielectric Resonators to Microwave Integrated Circuits

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The dialectric resonator is the electromagnetic dual of the metal cavity resonator and has the advantage that miniaturization is achieved by dielectric loading without the corresponding reduction of Q, characteristic of metal cavities and transmission line resonators. This makes them an ideal candidate, when less temperature sensitive materials become available, to fill the need for a low cost, integratable, high Q, metal cavity replacement for microwave integrated circuit (MIC) applications. Considerable investigation of dielectric resonators has been done in waveguide structures. This paper presents design and fabrication techniques for incorporating them into MICs. External and mutual coupling coefficients are determined for C-Band rutile resonators mounted on MIC circuits and coupled to MIC microstrip lines. The effect of packaging on spurious transmission is shown. The performance of a C-Band multipole rutile resonator MIC bandpass filter is described. A simple tuning technique is also demonstrated.

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