

## **The Loop Ring BSF Design and its Application in BPF Stopband Enhancement**

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### **Abstract**

The microstrip loop ring structure was investigated for the bandstop filter (BSF) design. This structure alone or together with the traditional quarter-wavelength open stub created a band rejection response. The ring was in a rectangular shape with its circumference dimension being one wavelength or one and half wavelengths. The rectangular loop's each side might have different width. Transmission line model was derived for the loop structure with or without the attached open-stubs. The application of the loop BSF in enhancing the stop-band bandwidth (BW) for a BPF of coupled-lines structure was demonstrated. The frequency responses calculated from the transmission line model were compared with those obtained from commercial electromagnetic software. Experiment was conducted to validate the circuit design.