Abstracts

Adaptive High Temperature Superconducting Filters for Interference Rejection

K.F. Raihn, N.O. Fenzi, G.L. Hey-Shipton, E.R. Saito, P.V. Loung and D.L. Aidnik. "Adaptive High Temperature Superconducting Filters for Interference Rejection." 1996 Transactions on Microwave Theory and Techniques 44.7 (Jul. 1996, Part II [T-MTT] (Special Issue on the Microwave and Millimeter Wave Applications of High Temperature Superconductivity)): 1374-1381.

An optically switched high temperature superconducting (HTS) band-reject filter bank is presented. Fast low loss switching of high quality (Q) factor HTS filter elements enables digital selection of arbitrary pass-bands and stop-bands. Patterned pieces of GaAs and silicon are used in the manufacture of the photosensitive switches. Fiber optic cabling is used to transfer the optical energy from an LED to the switch. The fiber optic cable minimizes the thermal loading of the filter package and de-couples the switch's power source from the RF circuit. This paper will discuss the development of a computer-controlled HTS bank of optically switchable, narrow band, high Q bandstop filters which incorporates a cryocooler to maintain the 77 K operating temperature of the HTS microwave circuit.

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