

Abstracts

Aperture Synthesis Thermography -- A New Approach to Passive Microwave Temperature Measurements in the Body

N.C. Haslam, A.R. Gillespie and C.G.T. Haslam. "Aperture Synthesis Thermography -- A New Approach to Passive Microwave Temperature Measurements in the Body." 1984 Transactions on Microwave Theory and Techniques 32.8 (Aug. 1984 [T-MTT] (Special Issue on Electromagnetic-Wave Interactions with Biological Systems)): 829-835.

The radio astronomical technique of aperture synthesis is proposed for use in medical applications to give, noninvasively, a thermal image of a large fraction of the human body to a depth of several centimeters with no microwave irradiation. The principles of operation are illustrated by a practical design which could give a sensitivity of a few milli-Kelvin over a 50-cm field in a 10-s exposure. Applications of the proposed system include detection of cancers and other infections, and also rest-time monitoring of the effects of hyperthermia on the surrounding tissue.

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