Abstracts

Microwave Breakdown Near a Hot Surface (1963 [MWSYM])

M. Gilden and J. Pergola. "Microwave Breakdown Near a Hot Surface (1963 [MWSYM])." 1963 PTGMTT National Symposium Program and Digest 63.1 (1963 [MWSYM]): 39-44.

Breakdown below the normal threshold can be induced in a waveguide system by the presence of a hot surface because the adjacent layer of heated gas is more readily ionized. Under uniform conditions the breakdown electric field strength is inversely proportional to absolute gas temperature. However, if the layer of hot gas is sufficiently thin, the rate of electron diffusion out of the region of ionization tends to restore the breakdown threshold. Thus breakdown can be controlled because the thickness of the film of hot gas is a function of the velocity of the gas across the hot surface. To take advantage of this effect cool gas may be forced across the hot surface with the added benefit of cooling the hot surface.

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