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STUDIES OF HIGH-POWER MICROWAVE STRUCTURES THAT EMPLOY BIMODAL CAVITIES

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Y. Jiang, (1) S.V. Shchelkunov, (1,2) X.Chang, (1) and J.L. Hirshfield, (1,2)

1 Beam Physics Laboratory, Yale University, New Haven, CT 06511 (USA)

2 Omega-P R&D, Inc. New Haven, CT 06511 (USA)

ABSTRACT

Theory and simulations predict that metallic microwave accelerating structures, including RF guns, should operate at high acceleration gradients with reduced breakdown rates and/or with improved beam quality if their cavities operate simultaneously in two harmonically-related modes, rather than only in the fundamental mode. Examples include structures that are driven by external RF sources, as well as structures that are beam driven. The status will be described of these studies, including on-going experiments to test the predictions.

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Author: HIRSHFIELD, Jay L (Yale University & Omega-P, Inc.)

Presenter: HIRSHFIELD, Jay L (Yale University & Omega-P, Inc.)

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