Title
Design Study of a Microwave Driver for a Relativistic Klystron Two-Beam Accelerator

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Design Study of a Microwave Driver for a Relativistic Klystron Two-Beam Accelerator, T. HOUCK, LLNL*, C. WANG, and G. FIORENTINI, LBL†—In two-beam accelerators, the reacceleration of a modulated drive beam can achieve high conversion efficiency of electron beam energy to rf energy. However, stability issues involved with the transport of kA electron beams through rf extraction structures and induction accelerator cells are critical. We report on theoretical studies and computer simulations of a two-beam accelerator design using traveling-wave extraction structures. Specific issues addressed include regenerative and cumulative transverse instabilities which can lead to beam loss, and longitudinal beam dynamics which reduce the effective modulated current.

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