A RESONANTLY COUPLED, WAVEGUIDE RF POWER MANIFOLD
FOR LINEAR ACCELERATORS

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A waveguide RF power manifold has been proposed in
which the accelerator tanks are coupled to the manifold
through resonant coupling cavities similar to the coupling
cavities of the side-coupled linac. A transmission line
model of the waveguide has been combined with the coupled
circuit model for the linac to describe the performance of
the manifold system. A perturbation analysis based on this
model was developed and tank-to-tank amplitude variations were
studied as a function of tuning errors and manifold stored
energy. The stability of the resonantly coupled manifold
system has been compared to that of a bridge-coupled
accelerator of similar parameters.