

# Transverse electric modes in a resonant cavity and the resultant kick to an 800 MeV proton beam

*Monday 26 August 2024 16:00 (2 hours)*

Resonant cavities used in accelerating structures have been studied and used in excited modes other than the fundamental frequency TM accelerating mode. These cavities can also be overmoded to accomplish specific beam quality or bunch structures. A TE mode properly phased can be used to induce a transverse kick to an 800 MeV proton beam, such as the beam produced by the Los Alamos Neutron Science Center Side Coupled Cavity LINAC. The excited overmoded cavity as a beam kicker can be advantageous compared to a conventional parallel plate kicker, in that it can be fine-tuned by modern the RF drivers in real time. This paper presents an EM simulation for the cavity in TE mode for kicking, and the required constraints in stored energy and RF phase to generate the required deflection angle.

## Footnotes

## Funding Agency

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