

## **Distributed coupling Linear Accelerators and their applications**

*Tuesday, May 31, 2022 4:15 PM (1 hour)*

We introduce a new type of linear accelerator for which the cells are isolated, and the RF is fed from a set of manifold waveguides that runs in parallel with the structure. These structures were originally motivated by the desire to optimize the accelerator cavity shapes for high gradient operation, which led to mostly isolated cells. We discuss the efforts being pursued to apply these new structure topologies to future energy frontier linear colliders, medical linacs, and industrial linacs. The need to develop these linacs with high beam loading led us to create a new methodology for computing the beam loading, especially at very low energy. The beam dynamics and the RF loading need to be solved self-consistently. We will also discuss our efforts to invent new methods for economically manufacturing these structures.

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