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Low Level RF for a Compact, Portable C-Band LINAC

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Compact particle accelerators are increasingly needed in medical, industrial, and defense settings. Such an accelerator requires a highly efficient, lightweight, and space-efficient footprint; this leverages particularly unique requirements on RF, power, and thermal budgets. RadiaSoft has been working with SLAC on developing the LLRF system for a structure consisting of 26 pairs of accelerating cavities, a buncher, and thermionic cathode in such an energy- and space-constrained footprint, utilizing a novel accelerating structure. This talk provides the detail of our system architecture and design focusing on system constraints for space and weight.

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