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Achieving Higher Energies via Passively Driven X-band Structures TAYLAN SIPAHI, NIHAN SIPAHI, STEPHEN MILTON, SANDRA BIEDRON, Colorado State Univ, COLORADO STATE UNIVERSITY TEAM — Due to their higher intrinsic shunt impedance X-band accelerating structures significant gradients with relatively modest input powers, and this can lead to more compact particle accelerators. At the Colorado State University Accelerator Laboratory (CSUAL) we would like to adapt this technology to our 1.3 GHz L-band accelerator system using a passively driven 11.7 GHz traveling wave X-band configuration that capitalizes on the high shunt impedances achievable in X-band accelerating structures in order to increase our overall beam energy in a manner that does not require investment in an expensive, custom, high-power X-band klystron system. Here we provide the design details of the X-band structures that will allow us to achieve our goal of reaching the maximum practical net potential across the X-band accelerating structure while driven solely by the beam from the L-band system.

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