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Feasibility study on multi-channel power extraction tube

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One of the limitations in structure wakefield acceleration is large transverse emittances of high-charge wakefield drivers. The simplest idea to avoid this issue would be to prepare multiple lower-charge drivers and apply RF power from all drivers to a single accelerating tube. However, the method has two significant drawbacks; cost and timing control. We propose a single high-charge beamline that turns a single beam into multiple transverse beamlets to drive wakefield in transverse distributed power extraction tubes. Here, we present the first feasibility study of the concept.

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Footnotes

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Yes

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