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# A MW field-emission electron beam sources

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High-power electron beam could support a wide array of applications including high-flux accelerator-based radiation sources. We have recently investigated the production of high-power electron beam by coupling a field-emission source to a superconducting radiofrequency cavity. In this contribution we describe the concept and demonstrate its performances via numerical simulations. We also discuss the application of such an electron source to drive a THz radiation source.

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