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## Experimental Results of Carbon-Nanotube Cathodes inside Radio-Frequency Environment

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Carbon Nano Tubes (CNT's) as field-emitters have been investigated for more than two decades and can produce relatively low emittance electron beams for a given cathode size. Unlike thermionic cathodes, CNT cathodes are able to produce electrons at room temperature and relatively low electric field (a few MV/m). In collaboration with FermiLab, we have recently tested CNT cathodes both with DC and RF fields. We observed a beam current close to 1A with a ~1cm<sup>2</sup> CNT cathode inside an L-band RF gun. Steady operation was obtained up to 650 mA and the measured current vs. surface field plot showed perfect agreement with the Fowler-Nordheim distribution.

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