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Deducing the size of breakdown inducing tips from their beam spot shape

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This talk presents theoretical work on the nano-protrusion hypothesis. We review and expand the theoretical work on the study of the electron beam shape, as a mean to determine the dimensions of the hypothetical nano-protrusion where the electrons come from. State-of-the-art field emission theory and computational tools have been used to calculate the kinetic energy of the electrons as a function of the scale of the emitter for several beta invariant shapes. We present and discuss our findings and suggest a new series of experiments to validate our hypothesis.

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