

Abstract Submitted
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Electron Beam Focusing in the Linear Accelerator (linac)¹ LUIS JAUREGUI, student — To produce consistent data with an electron accelerator, it is critical to have a well-focused beam. To keep the beam focused, quadrupoles (quads) are employed. Quads are magnets, which focus the beam in one direction (x or y) and defocus in the other. When two or more quads are used in series, a net focusing effect is achieved in both vertical and horizontal directions. At start up there is a 5% calibration error in the linac at Thomas Jefferson National Accelerator Facility. This means that the momentum of particles passing through the quads isn't always what is expected, which affects the focusing of the beam. The objective is to find exactly how sensitive the focusing in the linac is to this 5% error. A linac was simulated, which contained 290 RF Cavities with random electric fields (to simulate the 5% calibration error), and a total momentum kick of 1090 MeV.

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