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## Design and Development of Emittance Measurement Device by Using the Pepper-pot Technique

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Transverse emittance of a charged particle beam is one of the most important properties that reveals the quality of the beam. It is related to intensity, size and angular displacement of charged particles in transverse phase space. There are several techniques to measure the transverse emittance value. One of a practical method is the pepper-pot technique. This research concentrates on development of a pepper-pot device to measure the transverse emittance of electron beam produced from a thermionic cathode RF electron gun at the Plasma and Beam Physics Research Facility, Chiang Mai University. Simulation of beam dynamics is conducted by using programs PARMELA, ELEGANT and self-developed C code. The geometry and location of the pepper-pot and its corresponding screen station are included in the simulation. The result from the study is used to design and develop the pepper-pot experimental station. Results from the measurements and the simulation prediction will be presented and discussed in this contribution.

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