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## Study of Operation Conditions in a Field Emission Cathode

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Characteristics of various operation modes in field emission displays are investigated through computer simulations. In triode structural field emission displays electron emission from the cathode electrode is induced by the extraction of external electric fields due to the gate electrode and anode electrode. By the relative value of gate and anode field strengths on emission material the operation mode may divide into four categories of gate extraction, gate-anode extraction, anode-gate extraction, and anode extraction modes. According to our simulation results, the best performance would be produced by the gate-anode extraction mode, in which the gate and anode fields are compatible in strength but the former is slightly greater than the latter.