

## ABSTRACT OF THE DISCLOSURE

An array of field emission electron sources and a method of preparing the array which discharges electrons from desired regions of a surface electrode of field emission electron sources. The field emission electron source 10 comprises an electrically  
5 conductive substrate of p-type silicon substrate 1; n-type regions 8 of stripes of diffusion layers on one of principal surfaces of the p-type silicon substrate, strong electric field drift layers 6 formed on the n-type regions 8 which is made of oxidized porous poly-silicon for drifting electrons injected from the n-type region 8; poly-silicon  
10 layers 3 between the strong field drift layers 6; surface electrodes 7 of the stripes of thin conductive film formed in a manner to cross over the stripes of the strong field drift layer 6 and the poly-silicon layers 3. By selecting a pair of the n-type regions 8 and the surface electrodes 7 and thereby making electron emitted from the crossing points due to combination of the surface electrode 7 to be electrically applied and the n-type region 8 to be electrically applied, electrons can be discharged from desired regions of the  
15 surface electrodes 7.