

C217040 : MAJOR ELECTRICAL ENGINEERING

KEY WORD : DISPLAY/ELECTROLUMINESCENCE/THIN FILM/ZINC SULFIDE/ELECTRON
BEAM/EL

WIROTE BOONKOSUM : FABRICATION AND STUDY OF BASIC PROPERTIES
OF ELECTROLUMINESCENT DISPLAY MADE OF THIN FILM ZINC SULFIDE.

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A study has been done on the fabrication technology of zinc sulfide (ZnS) thin film and its application to electroluminescence flat panel display (EL). The EL has a structure of glass / ITO / Y_2O_3 / ZnS / Y_2O_3 / Al. The EL emits light when an AC bias electric field is applied through ITO and Al electrodes. The emission color from the EL can be changed by varying the impurity doped in ZnS, i.e., red : doped with SmF_3 ; yellow : doped with Mn; green : doped with TbF_3 ; and blue : doped with TmF_3 . The luminescence properties of the EL have been investigated through the emission spectrum, the relation between the brightness and the applied voltage and time resolution of the emission.

For the application of EL to a flat panel display, EL's having various emission patterns were fabricated. The EL device has various advantages over conventional CRT display, e.g., lower voltage, light weight and flatness.