

Field emission properties of ZnO:Al whisker-type emitter operated in air and helium

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ABSTRACT

Conducting ZnO whiskers, a novel form of ceramic single crystal innovated in 1999, have been rapidly considered as one of the most promising electron field emitters. As one of the conducting whiskers, the operation behavior of the ZnO:Al whiskers is examined in this study. Although high vacuum circumstance should be selected in obtaining good field emission properties, the field emission operations under two operation circumstances: air and helium in reduced pressure. The field emission current was lowered with increasing the air pressure. However the complicated emission profile was observed with increasing the helium pressure.

KEYWORDS: field emission, ZnO, whisker, CVD, air, helium