

PHOTOLUMINESCENCE CHARACTERIZATION  
OF Al/Al<sub>2</sub>O<sub>3</sub>/InP MIS STRUCTURES PASSIVATED  
BY ANODIC OXIDATION

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S u m m a r y

Metal-insulator-semiconductor (MIS) structures were produced by electron beam heating evaporation of Al<sub>2</sub>O<sub>3</sub> on InP. Thin films of polyphosphates of 100–150 Å in thickness were used to passivate the interface InP/insulator. Photoluminescence spectra were reported at low temperatures at various stages of the realization of a MIS-InP structure. The photoluminescence topography (PLT) at ambient temperature made it possible to characterize the surface state after each technological stage. The interface degradation under the effect of repeated annealing is insignificant up to temperatures of 350 °C. Radiative major defects, which are detected by the photoluminescence spectrum with energy ranged from 0.95 to 1.15 eV and attributed to the complex impurities of phosphorus vacancies, are substantially reduced by the presence of anodic oxide.