

SESSION XI

Devices

Chair: Tamotsu Kimura, Oki Industry Co., Ltd.

III-V devices have been continuously improved in not only performance but also manufacturability and reliability. In this session, five submitted papers focus on the structural design of GaAs MESFET and PHEMT from a viewpoint of manufacturability. The first paper describes the scaling issue to realize a high-yield and low-cost ion implanted GaAs MESFET operating at 77 GHz. The second paper introduces the epitaxial heterojunction FET with an InGaP layer for selective etching to achieve better process control and uniformity of the characteristics. In the third paper, the optimization of PHEMT pattern layout is discussed taking into account of the trade-off between frequency performance and high voltage operation. The fourth paper clearly describes three different types of the gate lag phenomena, resulting from different physical origins, observed in ion-implanted GaAs MESFETs. The last paper also deals with the gate lag of GaAs MESFETs and it gives a solution to minimize such a phenomena for stable and reliable operation of the device.