**BRIEF DESCRIPTION**

A novel method for growing high quality semipolar III-V nitride based optoelectronic devices.

**BACKGROUND**

Current nitride technology for electronic and optoelectronic devices employs nitride films grown in the polar c-direction. Unfortunately, the structure of III-nitride based devices suffers from the undesirable quantum-confined Stark effect (QCSE), due to the strong electric fields and polarization effects along the c-direction. While growing devices on nonpolar planes of the crystal seems advantageous, growth of nonpolar nitrides remains challenging and has not yet been widely adopted in the industry.

**DESCRIPTION**

Researchers at the University of California, Santa Barbara have developed a novel method for growing high quality semipolar III-V nitride based optoelectronic devices. This includes growing an active layer on suitable material with facetted surfaces, which are typically semipolar planes, and a method for fabricating the facetted surfaces. The use of these growth techniques results in semipolar light emitting layers with a low defect density through reduction of the polarization effects in GaN devices. Furthermore, these layers may be grown using commonly used techniques including, MOCVD, MBE, or HPVE.

**ADVANTAGES**

- Lower defect density
- Higher quality devices
- Uses widely adopted growth techniques

**APPLICATIONS**

- Optoelectronic devices
- High power electronic devices

**PATENT STATUS**

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