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Zheleva et al.

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(54) **METHODS OF FABRICATING GALLIUM NITRIDE SEMICONDUCTOR LAYERS BY LATERAL GROWTH INTO TRENCHES**

(58) **Field of Classification Search** 438/503, 438/478, 479
See application file for complete search history.

(75) Inventors: **Tsvetanka Zheleva**, Chapel Hill, NC (US); **Darren B. Thomson**, Cary, NC (US); **Scott A. Smith**, Centerville, OH (US); **Kevin J. Linthicum**, Angier, NC (US); **Thomas Gehrke**, Carrboro, NC (US); **Robert F. Davis**, Raleigh, NC (US)

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Primary Examiner—Laura M. Schillinger
(74) *Attorney, Agent, or Firm*—Myers Bigel Sibley & Sajovec, P.A.

(73) Assignee: **North Carolina State University**, Raleigh, NC (US)

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(51) **Int. Cl.**
H01L 21/36 (2006.01)

(52) **U.S. Cl.** **438/503; 438/478; 438/479**

(57) **ABSTRACT**

A gallium nitride layer is laterally grown into a trench in the gallium nitride layer, to thereby form a lateral gallium nitride semiconductor layer. At least one microelectronic device may then be formed in the lateral gallium nitride semiconductor layer. Dislocation defects do not significantly propagate laterally into the lateral gallium nitride semiconductor layer, so that the lateral gallium nitride semiconductor layer is relatively defect free.

10 Claims, 8 Drawing Sheets

