

03,13

GaN selective epitaxy in sub-micron windows with different depths formed by ion beam nanolithography

© S.N. Rodin¹, W.V. Lundin¹, A.F. Tsatsulnikov², A.V. Sakharov¹, S.O. Usov²,
M.I. Mitrofanov¹, I.V. Levitskii¹, V.P. Evtikhiev¹, M.A. Kaliteevski³

¹ Ioffe Institute,
St. Petersburg, Russia

² Research and Engineering Center on Submicron Heterostructures for Microelectronics,
Russian Academy of Sciences,
St. Petersburg, Russia

³ ITMO University,
St. Petersburg, Russia

E-mail: s_rodin77@mail.ru

Received: July 16, 2019

Revised: July 16, 2019

Accepted: July 24, 2019

A significant difference in the growth mechanism of spatially closed structures of gallium nitride during selective growth in submicron windows with and without penetration into the GaN sublayer was demonstrated. The mechanisms of generation and development of dislocations, their role in the formation of self-organizing coaxial structures were modeled.

Keywords: selective epitaxy, dislocations in GaN, self-organized coaxial structure, MOCVD, FIB.