

July 16-17, 2018  
Prague, Czech RepublicI Demir et al., Am J Compt Sci Inform Technol 2018, Volume 6  
DOI: 10.21767/2349-3917-C1-002

## PULSED MOVPE GROWTH OF HIGH QUALITY ALGAN EPILAYERS FOR ULTRAVIOLET LED APPLICATIONS

I Demir<sup>1</sup>, Ryan McClintock<sup>2</sup>, Y Kocak<sup>3</sup>, I Altuntas<sup>1</sup>, A Emre Kasapoglu, E Gur<sup>3</sup>, S Elagoz<sup>1</sup> and M Razeghi<sup>2</sup>

<sup>1</sup>Cumhuriyet University, Turkey

<sup>2</sup>Northwestern University, USA

<sup>3</sup>Ataturk University, Turkey

III-nitride based semiconductor materials have attracted interest since they have excellent physical, electrical, and optical properties, and their high chemical and thermal stability as compared to traditional III-V semiconductors. The UV capabilities of III-nitride based semiconductor materials have special attraction for civilian applications such as air and water sterilization, efficient white lighting, high density optical data storage and military applications such as biological agent detection and non-line-of-sight communication etc. In last 10 years AlN and AlGaN have received a great deal of attention for use as a template layer for deep UV (DUV) emitter and detector applications because of their promising features such as UV transparency, good thermal stability and high thermal conductivity. Generally, the surface morphology and defect density of AlGaN and the upper quantum-well active layer of DUV devices depend significantly on the crystalline quality of the underlying AlN template; therefore, obtaining AlN with a smooth surface and low threading dislocation (TD) density is critical to improve DUV device performance. In this study we have investigated the effects of pulsed MOVPE growth of AlGaN epilayers on structural, morphological and optical properties.

### Biography

Ilkay Demir has completed his PhD from Cumhuriyet University-Turkey. He spent a year during his PhD at Center for Quantum Devices-Northwestern University under the supervision of Prof. Manijeh Razeghi. He is working at Nanophotonics Research and Application Center, Cumhuriyet University as an Assistant Professor. He has published 12 papers in reputed journals and more than 40 proceedings at the international conferences. He has been awarded the Young Scientist Award at the European Materials Research Society (E-MRS) 2016 Spring Meeting in Lille, France.

idemir@cumhuriyet.edu.tr