

Physical Process TCAD: Victory Process' Crystal Anisotropy Engine

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Abstract

Anisotropic wet etching and nonplanar epitaxy are semiconductor fabrication techniques, which are characterized by highly crystal orientation-dependent etch/growth rates. The thus necessary high accuracy physical process TCAD workflow provides the capabilities to optimize these fabrication techniques by employing predictive models for etch and deposition rates. In this talk, *Victory Process' Crystal Anisotropy Engine* is presented, which enables numerically stable and robust level-set-based three-dimensional simulations of anisotropic wet etching and nonplanar epitaxy. Several applications covering FinFETs, SiC composite substrates, and patterned sapphire substrates are demonstrated.

Bio

Alexander Toifl is currently pursuing a doctoral degree in the area of process TCAD with the Christian Doppler Laboratory for High Performance at the Institute for Microelectronics, TU Wien, Austria. His research interests include anisotropic etching and epitaxy of nonplanar three-dimensional topographies and postimplantation annealing of SiC and GaN. Alexander Toifl holds a Bachelor's degree in Electrical Engineering and a Master's degree in Microelectronics and Photonics from TU Wien.