

FINAL PROGRAM



42nd International Conference on Micro and Nano Engineering

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Reed Messe Wien, Congress Center
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Technology Center America (TTCA), Albany, New York, USA, ⁴Tokyo Electron Europe Ltd, Nijmegen, The Netherlands

We will discuss the challenges of pattern transfer of Al_xO_y infiltrated block-copolymer (particularly in PMMA) by Sequential Infiltration Synthesis (SIS) to the subsequence layer. However, transferring the PMMA-infiltrated Al_xO_y lines into the hardmask layer and silicon substrate is challenging. As an example, pitch-walking is observed during the pattern transfer of the Al_xO_y lines into the Si₃N₄ hardmask.

This paper discusses the impact of SIS loading on the pitch-walking issue. The amount of Al_xO_y diffusion in the PMMA domains is influenced by the SIS process. If SIS loading is high, a significant part of the neutral layer, NUL will be infiltrated with Al_xO_y as well. A new approach was proposed to adapt the DSA process with X-PMMA guide lines instead of the conventional X-PS guided process.

16:15 A6-1-4

Focused ion beam implantation for the nucleation of self-catalyzed III-V nanowires

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Many future applications for semiconductor nanowires require positioned growth, which to date has been achieved using methods such as e-beam lithography or nano-imprint lithography. These methods require the use of organic chemicals as a hardmask or as solvents to disperse catalyst particles, which introduces potential contaminants into the chamber during subsequent nanowire growth. In our work, we present a method of growing positioned, self-catalyzed GaAs nanowires by focused ion beam implantation of gallium atoms. The gallium sites act as nucleation centers during nanowire growth by molecular beam epitaxy. We present a concise study to optimize the yield of positioned epitaxial nanowires on Si (100) and Si (111) substrates by varying the acceleration voltage and implantation dose.

15:30 – 16:30

D1.2 Sensing 2

SCHUBERT

Session Chair: Zoran Djuric

15:30 D1-2-1

Fabrication and characterization of 3D pyrolytic carbon microelectrodes for electrochemistry

Suhith Hemanth¹, Claudia Caviglia¹, Yasmin Mohamed Hassan¹, Thomas Aarøe Anhøj², Jenny

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