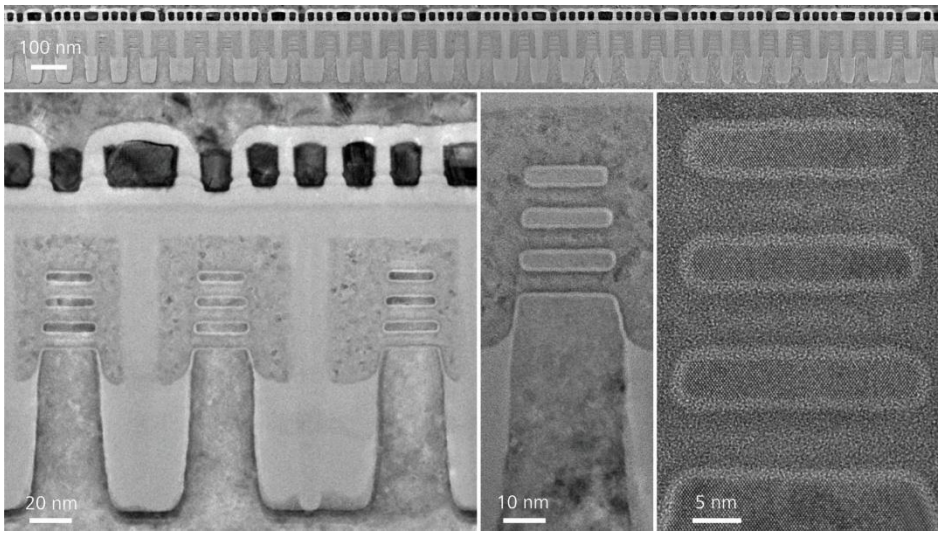
Introducing the new ZEISS Crossbeam 750 with Gemini 4 column and ZEISS EMToolkit SW

Wolfgang Schwinger*[,1]
Manoj Mathew[2]

*Corresponding Author: wolfgang.schwinger@zeiss.com
[1]Carl ZEISS GmbH, Laxenburgerstr. 2, 1100 Wien
[2]Carl Zeiss Microscopy GmbH, Kistlerhofstraße 75, Munich

For any advanced FIB/SEM application like sub 50 nm TEM lamella or atom-probe tip preparation, for milling beam sensitive samples, 3D tomography or precise site-specific preparation, the ability to mill and watch the ongoing milling-process unfold live with the electron beam is key.

With the all-new **Crossbeam 750** introducing the new **ZEISS Gemini 4** electron column fast, distortion free live observation is finally at your hand. The new high-dynamic-range (HDR) FIB-mill & SEM capability maintains a clear, high-resolution SEM view at any FIB condition, from rapid milling with high FIB currents down to fine polishing at 0.5 keV. This real-time clarity, paired with the Gemini 4 electron optics, allows to fine-tune processes as they work—reducing rework, improving yield and delivering highly uniform lamellae on the first pass.



TEM image of 3nm GAA-FET SRAM prepared with Crossbeam 750

In the second part of this talk we will present ZEISS **EM toolkit**, a new and innovative software tool for easy automatization of imaging workflows on ZEISS electron microscopes by using the standard API interface. The user can built workflows using drag-and-drop building blocks, eliminating the need for time consuming coding (although parallel phyton scripting is available). Bulit in AI-based detection algorithms significantly enhance accuracy and repeatability compared to labour-intensive manual processes.

New auto-functions and customizable measurement capabilities ensure precise and reliable correlation between metrology data statistics and processing conditions. Logics and conditional loops allow for simple setup even of complex and demanding analytical workflows.