THE UNIVERSITY OF QUEENSLAND
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CMM

Frontiers in Microscopy & Microanalysis

Seeing more at Low kV: Advantages of the ZEISS Gemini column in CryoSEM

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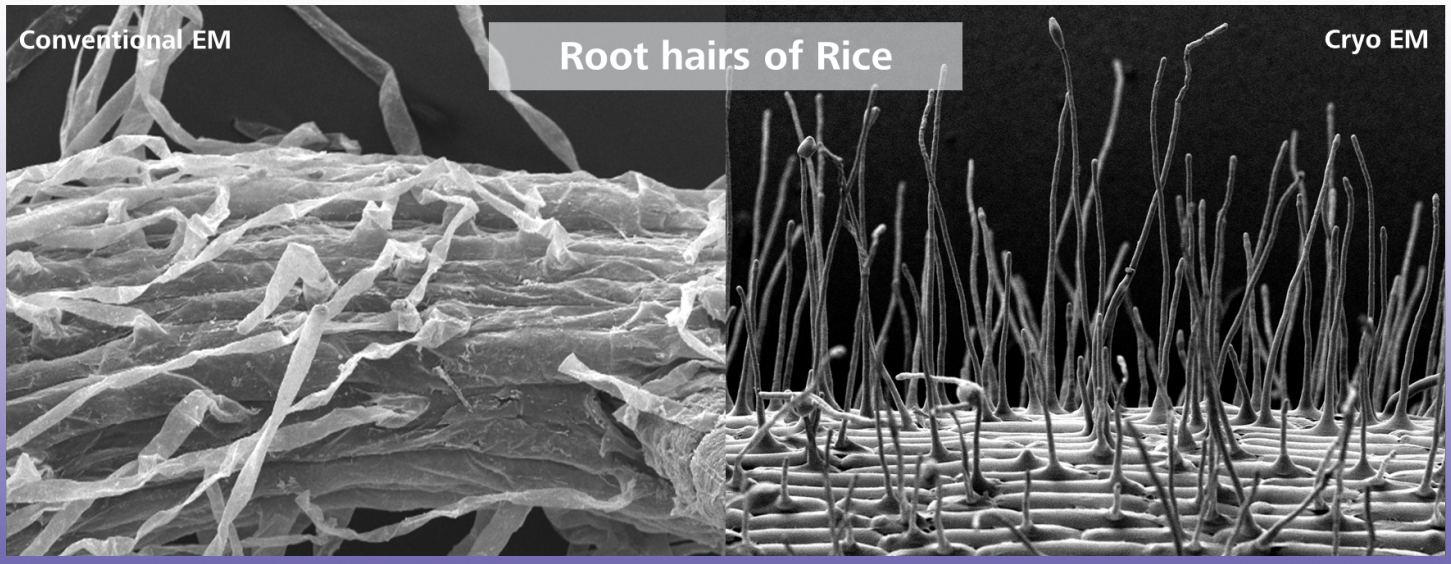
CryoSEM helps researchers investigate materials that are hydrated or beam-sensitive in the FESEM. To minimize damage and preserve native structures, low landing energies are typically used. However, this often reduces resolution, signal-to-noise ratio (SNR), and contrast, all of which affect data quality and structural visualization.

ZEISS Gemini column design overcomes these challenges in several ways. Two core features are the Beam Booster, which maintains a constant voltage through the column, and the Gemini Objective Lens, a field-free lens system that reduces chromatic and spherical aberrations. Together with the in-lens detection system, the Gemini column enables highly efficient in-column detection, delivering up to 20× better signal than classical SEMs. This also ensures that, even at low landing energies, signal is optimized to provide high-quality, high-resolution images with good SNR and contrast.

In this talk, we will show how these capabilities translate into improved imaging outcomes for both biological and materials science samples. We will also highlight cutting-edge examples where high resolution under cryogenic conditions was critical for successful characterization.



The University of Queensland/CMM & ZEISS

CAI Building 57-207 Level 2 Seminar Room

Thursday 21st May 2026, 13:30 -14:30

ZEISS