Taking multimodal materials characterization further with plasma FIB-SEM

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Abstract Focusing Ion Beam SEMs are instruments that are widely used to precisely modify surfaces to generate very thin samples (lamellas) for the Transmision Electron Microscopes, to precisely remove material from a sample for nanofabrication or to have access to inner layers of the sample and image it with a field emission microscope. Another big application is to prepare 3D high resolution tomography of the samples. Finally together with an insitu gas injection system the ion beam can fabricate nanodevices, provide localized chemical vapour deposition and perform nanolithography

Main stream FIBs are based on Ga LIMS source, in the talk we will present the new generation of plasma FIB based on Xe ions they are overcoming some of the limitations of the Ga FIB
Plasma FIB dramatically improves throughput and the areas that can be modified , it solved the problem of gallium reactivity with the samples (Ga Implantation) and due to its higher ion mass has a much less impact on amorphization

Finally, the benefits of higher throughput are presented in lithium batteries where a larger 3D topography is presented

REFERENCES

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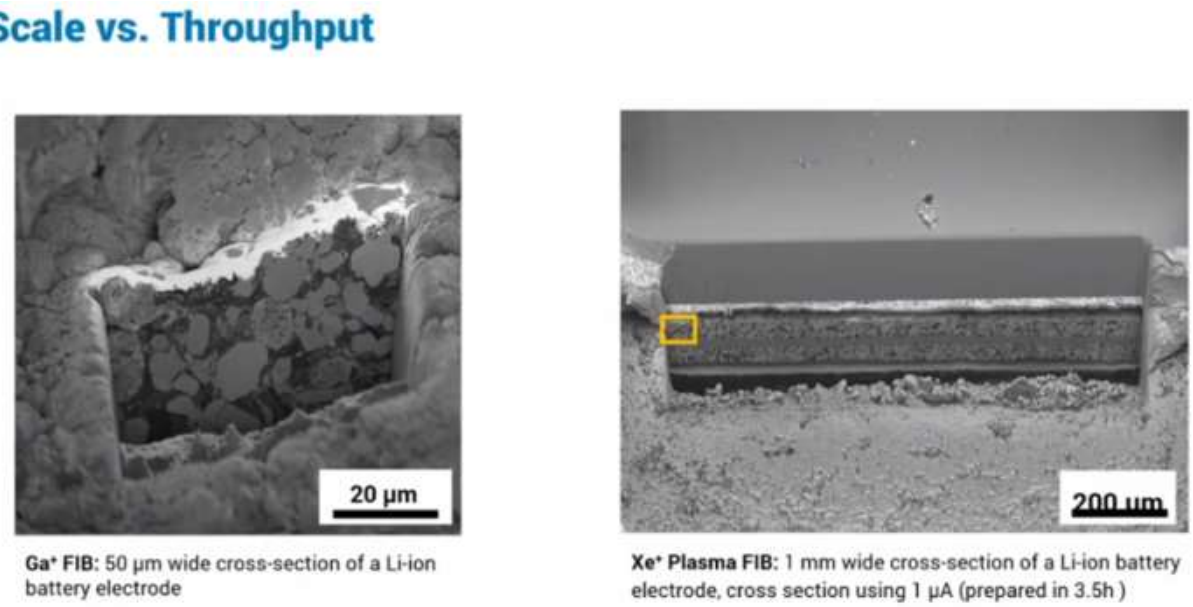
FIGURES



Ga FIB modified area(size of the square yellow) compared to Plasma FIB modified area