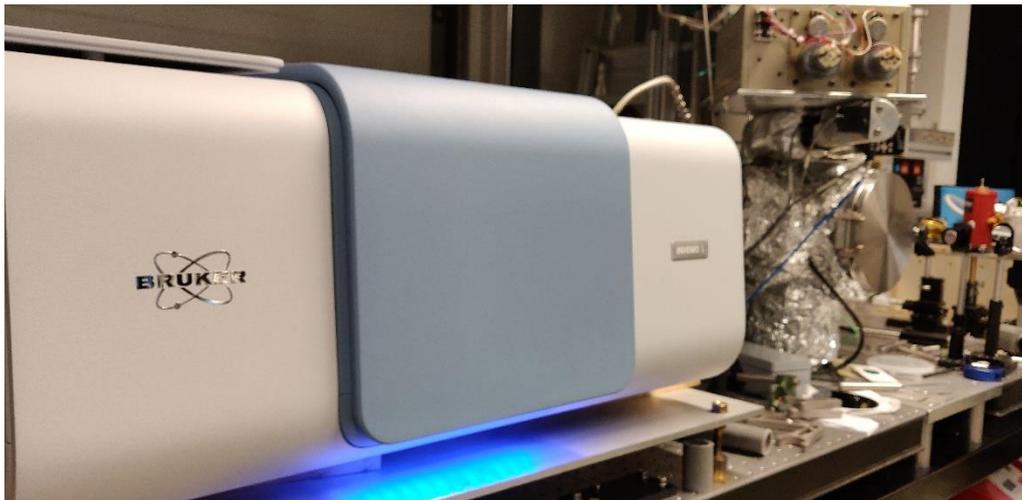


MSc Project

In-situ investigation of the reaction mechanisms of area-selective ALD

Atomic layer deposition (ALD) is a thin film deposition technique that has become essential for the semiconductor industry because of its atomic level control of the film thickness and excellent conformality on nanostructured surfaces. Currently, there is much interest in the deposition of material only there where it is needed using area-selective ALD. This interest is sparked by the fact that the conventional manufacturing processes for electronics can no longer keep up with the increasingly straining requirements for the alignment in fabrication of electronics. Therefore, industry strives towards more self-aligned bottom-up processing during the fabrication of electronics using for example area-selective ALD. Understanding of underlying surface reactions of ALD is crucial in the development of area-selective ALD approaches.

In this project, fundamental research using in-situ Fourier transform infrared (FTIR) spectroscopy will be carried out to obtain atomic-level-understanding of the surface reactions and nucleation behavior of relevant ALD processes. FTIR is an optical technique that has been used extensively in the ALD community to investigate ALD surface chemistry. We are currently in the process of replacing our FTIR tools with new, more sensitive tools. This project therefore also provides the opportunity of gaining experience in setting up and characterizing a new measurement tool.



Project description:

This project is part of a new research direction on area-selective ALD within the Plasma & Materials Processing research group. The knowledge obtained in these fundamental studies will directly be used to develop new strategies for achieving selective ALD. To this end, you will have the chance to work closely with other students working on related projects.

Contact information

Interested? For more information please contact:

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