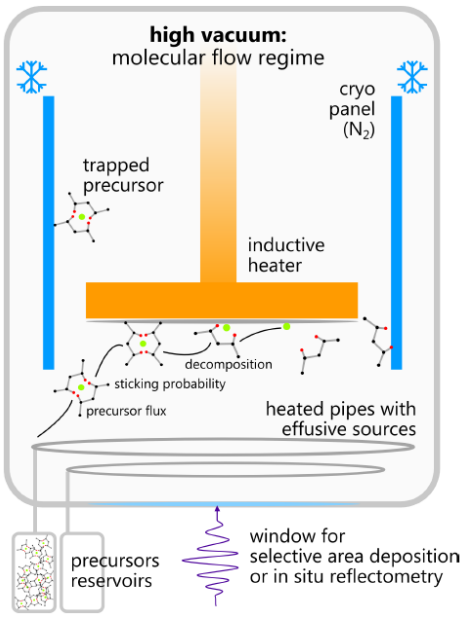
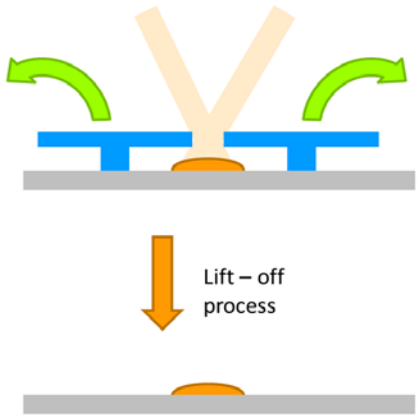
Deposition of functional oxide films for integrated optics by high vacuum chemical vapor deposition





In the future more and more devices will be based on integrated optics. Next generation data communication and data processing on-chip will be done optically. This requires new materials and new technologies for fabrication of small optical elements directly on the wafer on the micrometer scale.

In our laboratory we investigate methods of fabrication of thin films of special materials, which will be the building blocks for functional elements for integrated optics.

The proposed project aims at the optimization of deposition and structuration process of functional oxide films by HV-CVD technique. One of the addressed materials is barium titanate ($BaTiO_3$), which is a very promising material for acting as interface between electronic and optical data signals. HV-CVD is a unique technique, which combines beneficial aspects of both chemical vapor depositions (CVD) and molecular beam epitaxy (MBE). The work will consist of both: thin film synthesis in our custom made deposition reactor, fabrication of hard masks on wafers in clean room, and analysis of the obtained thin film and structures (SEM, EDX, XRD, etc..).

The candidate for the project we need to be ready to work on an interdisciplinary topic and will be able to learn thin film deposition technique, standard clean room techniques and modern characterization methods.

LIEU: STI, BM. The project will be carried out at EPFL site in collaboration with the Laboratory for Advanced Materials processing at EMPA, Thun

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DESTINATION ETUDIANT :

STI MATERIAUX	STI ELECTRICITE	STI MICROTECHNIQUE	STI MECHANIQUE	SB PHYSIQUE	SB CHIMIE
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