

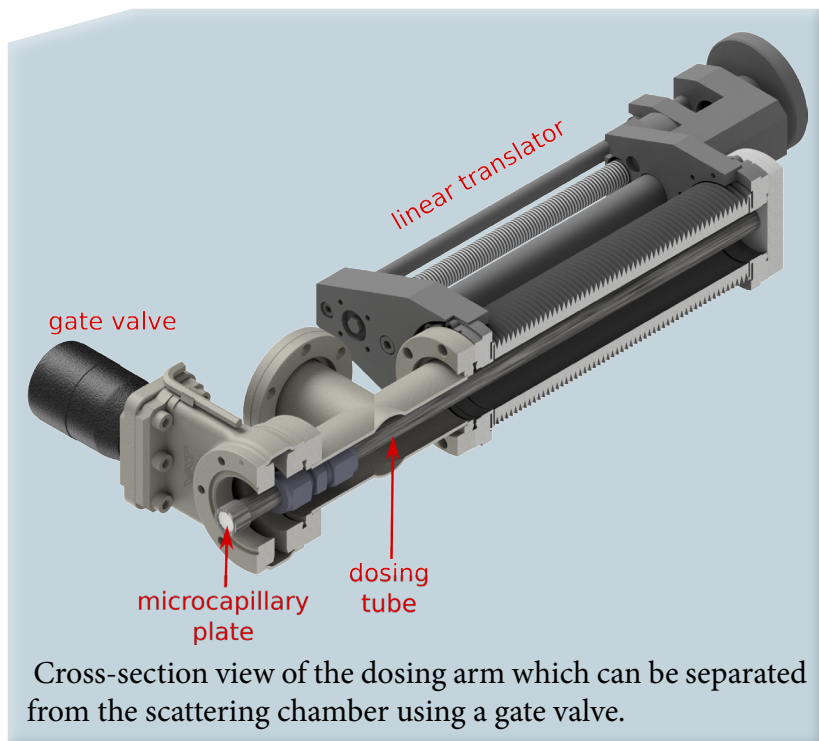
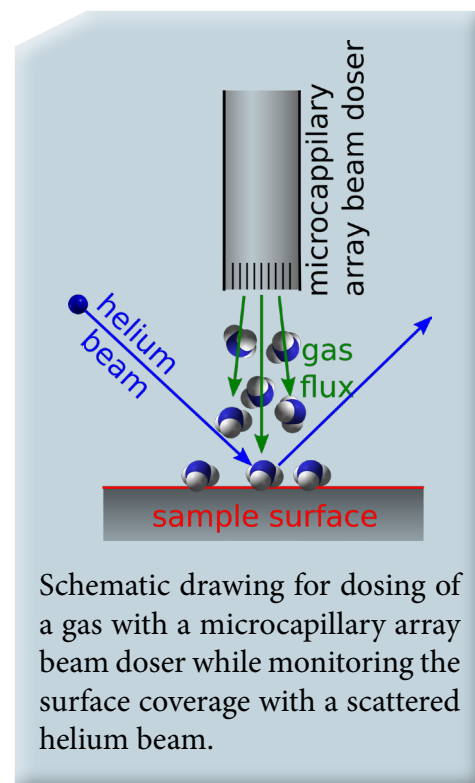
Setup of a gas dosing system

For studies of the adsorption of gas molecules on various material surfaces the setup of a gas dosing system is necessary. To deliver gas adsorbates onto the surface in a controlled and quantitative way, a gas-handling system with a microcapillary array beam will be designed and constructed.

The processes of adsorption and desorption can then be observed by following in real time changes on the crystal surface during the deposition of the gas molecules.

The doser regulates the gas flow from a gas cylinder via an automatic leak valve. The gas then travels through the dosing tube and is finally collimated in a high density capillary array (glass capillary array plate with capillaries of 10 μm diameter) at the end of the tube. A precise constant flux is obtained by controlling the gas pressure via the automatic leak valve which is regulated by a feedback control system.

The master student will be responsible for design and setup of the gas dosing system with help provided by our group and should then run first gas adsorption tests.



The usage of a microcapillary array beam doser for dosing gases in ultra-high vacuum systems offers the advantages of minimizing impurities and gas load in the vacuum system while improving quantification.

The microcapillary array beam doser used for depositing gases will be situated in a dosing arm that can be sealed off from the sample chamber by a gate valve. During dosing the microcapillary plate at the end of the dosing tube is brought close to the surface using a linear translator of the dosing arm. In doing so, a well defined flux can be brought very close to the sample surface and the gas load in the scattering chamber can be reduced compared to backfilling of the whole chamber.

Compensation: € 2640 (for the whole project)

For more information:

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