Collaboratory: A Solution for Shared Use of Instruments over Secure Internet Connections

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State of the art imaging and analytical capabilities are essential for kinds of research. The effective usage of advanced equipment requires knowledge which technique to use, expertise with the various instruments and techniques, and requires good communication amongst the scientists who are doing the actual research. In today's global community, sharing knowledge and networking via the internet is increasing important.

Similar requirements exist when teaching usage and application of modern electron microscopes. On one hand side there are the operational aspects like how to handle the microscope (operation, alignment etc.). On the other hand it has to be understood which techniques (parameters, detectors) are optimum to get the right information back from the sample in order to solve a scientific problem.

Two slightly different use cases are obvious. In the so-called “Looking over the Shoulder” scenario the remote user can directly observe what appears on the monitors of the PC controlling the microscope and can follow all actions of the operator. An example would be students sitting in the lecture hall and following an operator using a microscope somewhere in a university laboratory. The use case “Remote Operation” would be one in which the teacher himself takes over the control of the microscope and runs it from the lecture hall while the students are watching.

FEI is currently finalizing a commercially available solution which realizes the above mentioned use cases. We started our activities within a Dutch project called 'Collaboratory.nl' [1] which brought different companies together to start thinking about concepts of a virtual laboratory (sharing advanced technologies amongst project partner). The new FEI package called “Collaboratory” will connect the FEI microscopes and users over secure internet connections. A dedicated server machine will be part of the package. Portal software manages the access, administers the user accounts as well as the FEI microscopes including their respective access rights, schedules sessions, and provides audio communication between the remote viewer and an operator at the microscope and a secure data transfer and storage.

The latest status of the project will be presented.

1. www.collaboratory.nl

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