Introductory course in Scanning Probe Microscopy

In March 2019 we will start the introductory course in scanning probe microscopy. The course is directed towards PhD students and others that want a theoretical and practical introduction to scanning probe microscopy techniques. It gives a better understanding of what you see, and why, when you measure with AFM/STM, as well as insights in more advanced SPM techniques. The course will be given by Martijn Kemerink.

Apart from giving 3 hp credits, the course will lead to a license to use the Dimension 3100 AFM.

**Time:** The course will start in the first half of March, provided there is sufficient interest. We will try to adjust the schedule according to the schedule of the participants. The course is expected to be finished around the end of April.

**Organization:** The course will consist of 2-3 × 2 hr lectures, 2 × 4 h lab and some preparatory home assignments. It gives 3 hp credits

**Literature:** All necessary study material will be handed out during the lectures or be made available electronically.

**Examination:** combination of practical (lab) and written answers to home assignments.

**Topics to be treated are among others:**

- **General SPM:** Common principles and technologies used in SPM; Scanning Tunneling Microscopy (STM); Atomic Force Microscopy (AFM).

- **AFM specific:** Force detection methods; Tip/cantilever technology; AFM operation modes; Tip-surface interaction; Image artifacts; Measurements in liquids; Local force measurements; Atomically resolved AFM; Electrical and other techniques based on AFM; Practical handling issues; Off-line analysis.

- **Experimental/lab:** Instruction in the use of the D3100 instrument; Measurement and off-line analysis of unknown sample.

**Registration:** Those interested in participating should contact Martijn Kemerink by e-mail before the first of March 2019. Further information will be distributed to the participants before the course starts.

**Contact/Information:**
Martijn Kemerink
Complex Materials and Devices, Department of Physics, Chemistry and Biology (IFM)
Linköping University, campus Valla
SE-581 83 Linköping
office L308 (Fysikhuset)
t.: +46 13 28 18 75 / +46 700 895 377
e.: martijn.kemerink@liu.se