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## **Scanning Probe Microscopy**

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# Electron Microscopy: Imaging and Analysis

**Short Courses 13 – 17 November, 2000**

University of Surrey  
Guildford, Surrey, UK

## **AIMS**

The course aims to introduce the various signals produced by specimen/beam interactions, the detection of these signals and their exploitation in both scanning and transmission electron microscopy.

## **LEARNING OUTCOMES**

At the end of the course delegates should know how to interpret images, diffraction patterns and analytical data obtained from scanning and transmission electron microscopes. The course also equips delegates to decide which electron microscopy techniques are applicable to specific industrial and research problems.

## **COURSE CONTENT**

The course integrates lectures, practical demonstrations and supervised examples classes. Extensive use is made of the electron microscope facilities of the MicroStructural Studies Unit.

Electron Microscopy: Imaging and Analysis is part of the Advanced Materials Technology Programme: a range of eighteen short courses which may be taken individually or from which seven may be selected and linked together to form a modular MSc Degree Course.

# Scanning Probe Microscopy

**Short Courses 4–8 December, 2000**

University of Surrey,  
Guildford, Surrey, UK

## **AIMS**

The aim of this five-day intensive course is to introduce the principles and practice of Scanning Tunnelling Microscopy (STM), Atomic Force Microscopy (AFM) and other methods of Scanning Probe Microscopy (SPM). The physical concepts employed in the instrumentation of STM and AFM are simple, but the interpretation of the STM and AFM results can be complicated because of the convolution of several interactions in the measurement process. To help to alleviate this problem, we felt it necessary to bring together in this course the essential components of STM and AFM studies, namely, the practical aspects of STM and AFM, image simulation and the qualitative evaluation of tip-force-induced surface corrugations.

The primary goal of this course will be to describe how the surfaces of various materials are characterised by employing different methods of SPM and what physical/chemical features can be deduced from their images. This will be achieved through a balance of lectures, tutorials and laboratory demonstrations.

## **THE METHOD**

The course will offer high quality instruction in a laboratory environment. Lectures given by SPM experts will be supported by demonstrations in which typical experimental problems in SPM will be discussed. The School has three STM and AFM microscopes and much of the subject matter will be demonstrated on these instruments; however, we also plan, as in previous years, to offer manufacturers the opportunity to demonstrate state-of-the-art equipment.

Scanning Probe Microscopy is part of the Advanced Materials Technology Programme: a range of 18 short courses which may be

taken individually or from which 7 courses may be selected and linked together with assessments and a project to form a modular, part-time MSc Degree Course.

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