

Surface Analysis Newsletter

Introduction to Low Temperature SPM

May 2016

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Introducing the new specialists in Surface Analysis



SIGMA Surface Science is a specialized company in the field of materials research focussing on the development and production of instruments for UHV SPM and ESCA.

The team consists of physicists and engineers with more than 200 years of combined experience gained in corporate development departments.

Our long term relationship and cooperation with leading researchers from science and industry allows us to design and build instruments to meet current and future needs for nanoscience research.

Quick Links

[SIGMA Website](#)

[MANTIS Website](#)

[Low Temperature SPM
ESCA \(XPS, UPS, AES, ISS\)](#)

Welcome

MANTIS-SIGMA is excited to present our new advanced range of UHV Surface Analysis tools from *SIGMA Surface Science*. In this newsletter we present our latest tools for UHV Scanning Probe Microscopy (SPM). It is our aim to collaborate with you and progress your research, through rapid development of new instrumentation and techniques. We hope you will be part of our story...

STREAM Flow Cryostat UHV SPM

The *STREAM SPM* is a new development in Flow Cryostat SPMs combining advantages of cost effectiveness with the class leading performance of the *TRIBUS SPM*. It includes 3D coarse motion, high intrinsic stability, easy tip and sample exchange, optical access and low LHe consumption.



The *STREAM SPM* platform is purpose built for high resolution STM, qPlus®-AFM, and spectroscopy experiments in a temperature range between <10K and 420K.

SXM SPM Control System

The new digital *SXM Control System* incorporates advances in state-of-the-art electronics and latest software algorithms to fulfill the needs of today's and future challenges in scanning probe microscopy. Whilst developed for SIGMA SPMs, the *SXM Controller* was crafted as an update option for existing SPM instruments from companies such as ScientaOmicron, offering significant price savings over other products and including a guarantee of compatibility for applicable models.



The *SXM Controller* features low noise, large detection bandwidth, high resolution 24 bit D/A and A/D converters, easy software and hardware handling, accessible and simple file format and a basic data analysis software package. In combination with 32 bit data handling, the outstanding fast 22 bit D/A converter for Z regulation sets a new benchmark for SPM controllers as it overcomes the classic restrictions of existing 16 or 20 bit solutions.



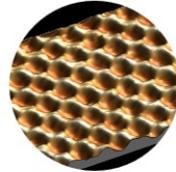
Next Edition: Ultra Fast XPS



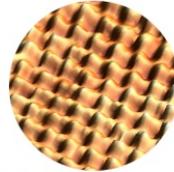
TRIBUS: Results Gallery

With its small atomic corrugation of only a few pm, Au(111) is an ideal reference sample to demonstrate the high stability of the TRIBUS SPM head at low temperatures and in high magnetic fields. Over the full range from $B = -12\text{T}$ to $B = +12\text{T}$ atomic resolution on Au(111) has been achieved.

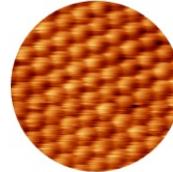
STREAM SPM incorporates TRIBUS SPM technology.



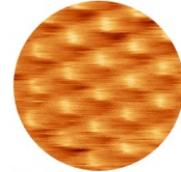
$B = +7\text{T}$, $T = 589\text{mK}$



$B = +9\text{T}$, $T = 589\text{mK}$



$B = +12\text{T}$, $T = 679\text{mK}$



$B = -12\text{T}$, $T = 585\text{mK}$

If you would like to know which Conference events we will be exhibiting and presenting at please view our Calendar page. [Click Here](#)

Events

76th Physical Electronics Conference
PEC 2016 June 20-23
Fayetteville, Arkansas

IOP Institute of Physics
19th International Conference on Non-Contact Atomic Force Microscopy
25-29 July 2016, East Midlands Conference Centre, Nottingham, UK