

Thin Film Growth Newsletter

Advanced NanoCoatings

December 2016

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[Focus on Research](#)

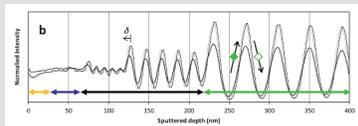
[NEW: QUBE PVD system](#)

[NEW: TITANIUM 10](#)

[NanoGen Results](#)

FOCUS on Research

MANTIS TITANIUM is used by scientists around the world. Alex Shard from National Physical Laboratory (NPL) shares how results are driven through ['The matrix effect in organic secondary ion mass spectrometry'](#)



(Sputter depth (nm))

"These results show SIMS profiles of multi-layered Irganox 1010 and Irganox 1098 created using MANTIS TITANIUM control suite. The samples provided, for the first time, a detailed understanding of molecular secondary ion generation from mixed materials."

[Special Price Offer](#)

[On Our](#)

[Mini E-Beam Evaporators](#)
[Ends 31st December 2016](#)

Quick Links

[Thin Film \(PVD, MBE, PLD\)](#)

[Low Temperature SPM](#)

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

Welcome

MANTIS-SIGMA continues to develop our premium Thin Film Research Tools. With significant recent investment in our engineering team, we are confident that the developments below along with planned future advances in PVD, MBE, and PLD will help you to lead in your materials developments and research fields.

[QUBE: Customise your Research](#)

The [QUBE](#) offers university researchers the opportunity to optimise the platform with tomorrow's ideas in mind. Why constrain your research ideas because your tools are inflexible? The [QUBE](#) can be reconfigured in minutes and is based on a compact footprint for modern space-critical laboratories. Whether your process

requires thermal evaporation, [sputter deposition](#) or [electron beam evaporation](#), the QUBE utilises MANTIS's proven class leading source technology at a budget price. Unlike other box chamber systems, the QUBE also includes options for our proprietary nanoparticle source technology ([NanoGen](#)) alongside mainstream tools. Its large hinged front door makes working with and cleaning the machine incredibly easy and the side panels can be easily replaced or modified for specialist research tools. Every QUBE is delivered with our class leading TITANIUM control suite, offering a unique recipe control module which is both intuitive and designed for advanced multi-materials research rather than processing a singular repetitive routine.



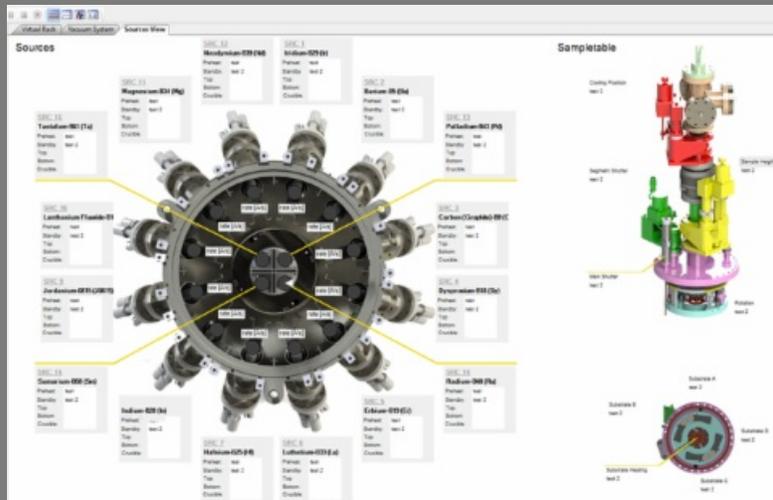
[TITANIUM 10: The Next Step in Recipe Control](#)

TITANIUM 10: Unique deposition Rate Control for university research. The MANTIS [TITANIUM](#) control suite is recognised as being the control software of choice for advanced PVD research groups. Developed alongside university researchers, the online charting and replication of the electronics rack enables the operator to rapidly create many new materials, regardless of complexity. We have researchers developing multi-layer stacks of more than 100 layers.

SIGMA Website

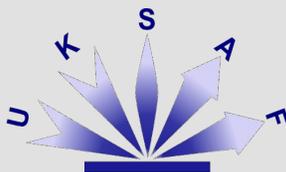


Next Edition:
FOCUS on QUBE



TITANIUM 10 is an advanced variant of TITANIUM planned for release in 2017, designed for advanced process development and new complex materials initially for MBE researchers, but in time also for bespoke PVD research. Maintaining the same control structure, TITANIUM 10 adds additionally a Materials Database, Source Configurators, SQL Express Database, Graphical Source (shown) and System views, all designed to provide the operator unprecedented control of all recipe elements. By combining materials knowledge and source control within TITANIUM 10, it is possible to grow materials of not only defined thicknesses via Thickness Monitoring, but at defined growth rates and stoichiometries. True rate control opens new unique research avenues for complex materials such as organics and is unique to MANTIS TITANIUM 10 powered systems. TITANIUM 10 changes the way of operation from a purely instrument to a process driven approach.

See us at



UKSAF Winter Meeting



SPONSORS - The 44th Conference on the Physics and Chemistry of Surfaces and Interfaces



33rd Annual Meeting of the Swiss Working Group for Surface and Interface Science

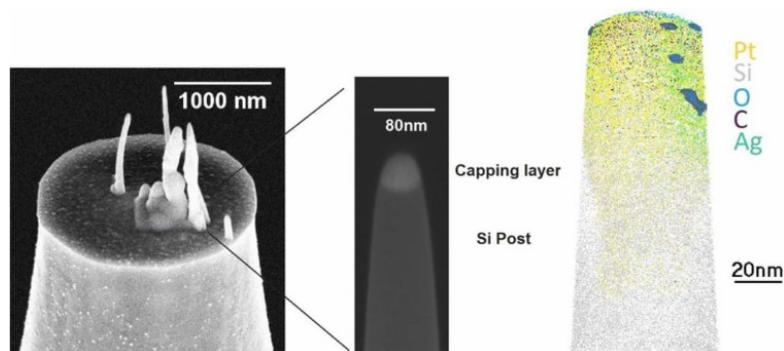
MANTIS-SIGMA
would like to thank you

NanoGen: Results Gallery

A combined approach for deposition and characterization of atomically engineered catalyst nanoparticles:

The structure and composition of catalytic silver nanoparticles (Ag-NPs), fabricated using the *NanoGen*, has been characterized by SEM and Atom Probe Tomography (APT). SEM was used to confirm the number density and spatial distribution of Ag-NPs deposited directly onto standard silicon microposts used for APT experiments.

Depositing nanoparticles directly by this method eliminates the requirement for focused ion beam (FIB) liftout, significantly decreasing APT specimen preparation time and enabling far more nanoparticles to be examined.



Q. Yang¹, D. E. Joyce², S. Saranu², G. M. Hughes¹, A. Varambhia¹, M. P. Moody¹ and P.

for your support
during 2016.

We would like to
wish you all
Seasonal Greetings,
we look forward to
working with you
in 2017.

A. J. Bagot¹

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