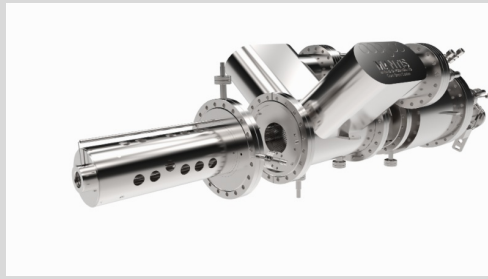


## February News



Nanoparticles can be generated with as few as 30 atoms up to those with diameters close to 60 nm depending on conditions and materials.

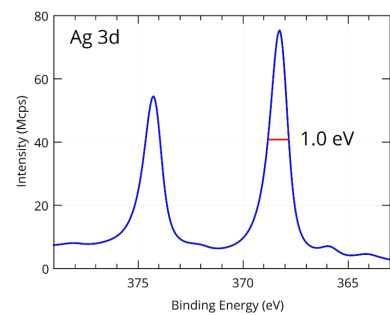
Typical applications such as Catalysts and Antimicrobial coatings use nanoparticles ranging from 5 to 20nm diameter.

### Product of the month: NanoGen, the trusted source for ultra pure nanoparticles

Our **NanoGen sources** provide a high level control of nanoparticle generation by varying three main process components: aggregation length, gas pressure and the power density applied to the target.

Recent advancements in source bias control have led to researchers controlling composition layering via soft landing at 1KeV and implantation up to 30KeV.

[Learn more about our NanoGen Sources here](#)



Ag 3d Spectra with Mg K $\alpha$  (1253.6 eV) generated with the **LAX dual-anode X-ray source**.

Setup geometry:

ASPECT and LAX at magic angle (54.7 $^{\circ}$ )

Sample is grounded and at nominal analyser working distance of 35mm.

### Results: ASPECT hemispherical Analyser and LAX X-ray source

The ASPECT analyser has exceeded **75Mcps** during analysis of a silver test sample.

Such performance is up to **10x** better than the published data of other research analysers.

**Achieved count rates at the Ag 3d $_{5/2}$  peak.**

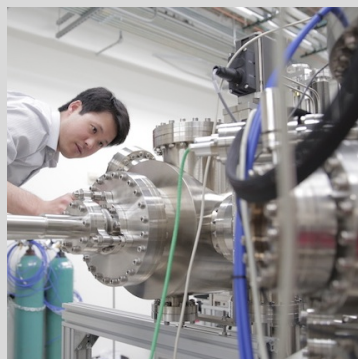
**FWHM (eV) Intensity**

0.85eV >21 Mcps

1.0eV >75 Mcps

**Find more about our products below:**

- [ASPECT Analyser](#)
- [LAX dual anode X-ray source](#)



Jason Kawasaki transfers a sample into the molecular beam epitaxy for film growth.  
Photo credit: Stephanie Precourt

STEM measurements of LaAuSb epitaxial film, revealed highly buckled planes of Au-Sb atoms, with strong interlayer Au-Au interactions and a doubling of the unit cell.

This buckling is four times larger than the buckling observed in other ABCs with similar composition, e.g., LaAuGe and LaPtSb.

### Research Highlights: First MBE growth of epitaxial LaAuSb films to tune the layer buckling in ferroic ABC intermetallics

Kawasaki et al, at the University of Wisconsin, USA, have used a customised **MANTIS M600 MBE** tool to demonstrate the first epitaxial growth of LaAuSb single crystalline films to enable detailed structural and electronic measurements.

Kawasaki et al have demonstrated the growth of LaAuSb, which with a 19-electron count, has one more valence electron than most stable ABC intermetallics. Analysis has suggested that the electron count provides a new method for tuning layer buckling in ferroic ABCs, alongside conventional epitaxial strain and chemical pressure.

[Download the full paper here](#)

**We hope to see you at these upcoming events:**



MRI & Magnetic Particles  
February 27,  
Oxford, United Kingdom.



APS March Meeting  
Booth 217  
March 4-7,  
Boston, MA, USA.



DPG Spring Meeting  
Booths 10 and 11  
March 31 - 5 April,  
Regensburg, Germany.

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