



NanoScope is entering its 3rd year as an independent lab, and now adding non-destructive techniques for plastic package analysis.

Dear Lab Customer – Sehr Geerhte Kundin/Kunde

We would like to send you future updates on email rather than by post. We invite you to send us your email address, (or unsubscribe), at correctme@NanoScopeServices.com
As a thank-you, the next time you use our services we will cover the return shipping costs.

New Technique Introduction

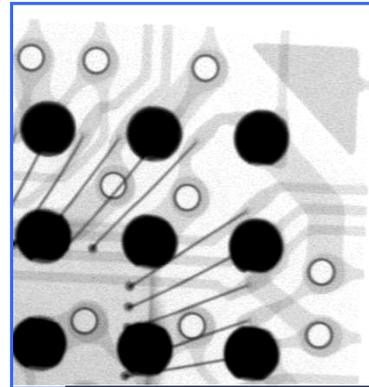
CSAM and X-ray microscopy of packaged parts

Device packaging is evolving quickly. There are many drivers for packaging technology advances, including higher performance, smaller size, new (environmental) legislation compliance and the need to mix technologies (multi-die) within a single package. New packaging and bonding materials plus new geometries and bonding strategies, bring with them new problems for device performance and product lifetime.

Effective quality control and failure analysis means that looking inside packaged parts before decapsulation, is becoming increasingly important. To support you better, NanoScope now offers the complimentary non-destructive techniques of Scanning Acoustic Microscopy (CSAM) and X-Ray microscopy of packaged parts, to help diagnose the external factors affecting device performance.

X-ray imaging provides information about metallic features such as leadframe, die-attach and wiring defects. Also information about the wire bonding integrity can be obtained before decap.

CSAM can provide information about the internal interfaces (and sometimes the stresses and delamination of them) between the device and the package. Additional information might be available about the uniformity of the die-attach compound and even mould voids, or die cracks. Together these techniques can help you understand the link between the electrical behaviour you see in test, and the physical behaviour of the device within its package.



Focus on – TEM Services and (S)TEM sample preparation

Using FIB to prepare (S)TEM foils is common place. TEM analysis with the options of EDS or EELS is a well proven way to understand the smallest structures or features in a sample.

Whether site specific sample prep for IC metrology, or specific foil geometries for Materials Science investigations, we can routinely prepare your samples, and then either return them, or perform the required TEM analysis for you.

Customised foils with specific characteristics can be specified

Ultra thin foils, wedge shaped foils, standard parallel foils, low 'altered layer' foils, even foils from materials of low structural rigidity, can be prepared and analysed as required.

Foils can be extracted to a number of different TEM grids depending on your analysis, just ask when scheduling your work. Support films are generally from either carbon or silicon.

TEM analysis options

We can provide the highest quality TEM results from 200 or 300kV, with EDS or EELS results as additional options.

Image results are sent electronically at high resolution, and calibrated for 'at home' metrology using well known shareware such as 'ImageJ' or similar. We are also happy to provide detailed written reports and interpretation of complex results as needed.

NanoScope is now two years old

In July of this year NanoScope Services reached an important milestone. We celebrated our second full year as an independent service provider.

During this time we have grown steadily month on month, and in our second year of business we succeeded in our primary goal of doubling both our business size and also our base of customers.

Throughout the last 2 years we have remained focused on our main value point – your work is the most important thing we do. Fulfilling your requests, with the right turn-around and at the right cost, but always with the highest level of delivered quality, remains our core (and indeed only) objective.

Some of the projects have not always been 'routine', but by adapting existing techniques and adding new ones to deal with these new challenges, we have continued to successfully prove that we have the expertise to satisfy all of our customer requests.

As we now enter our 3rd year of independent trading, we can look to the future with a positive attitude despite the recent turbulent economic times. Our basic recipe of having the best (most experienced) people using the highest specification equipment and with only 1 goal (your project), will not change.

Expert service, applied, when you need it

We wish you a Happy Christmas 2008!

We will be trying (!) to shut down for the holiday period on the 19th December, and then re-opening 2 weeks later on the 5th January. There will be no 'standard' scheduling over this period, but we will have our usual emergency cover in place, **just in case**.

NanoScope competition – a unique way to decorate your work place.

Five replies to this newsletter, selected at random, can have a unique image made into a personal poster for their workplace or home. To enter - just send a simple email to Alan.Miller@NanoScopeServices.com with your contact details, where you would like the poster

sent, and a simple (less than 1 megabyte) black and white image (not greyscale) (formats BMP, JPG or TIFF) of whatever you like, and we will machine it onto a bondpad and send you a poster print of the image acquired. It could be your company logo – or a festive greeting, you decide, but apply now, and you could get it "Nano'd" by Christmas.

Staying in touch

We will keep you updated as new techniques come on line – and we continue to welcome your requests for techniques you need to help your projects directly.

Send your requirements to

Contact@NanoScopeServices.com

Focus on – FREE lab time

Is your budget getting squeezed?

We are all feeling the pinch a little these days – so for our **valued regular customers** we are extending our usual volume discount scheme so smaller jobs qualify, and larger jobs attract a significantly higher discount. For 5, 10 and 20hr orders, we are now offering 5, 10 and 20% discounts respectively. (4x our normal discounts and effectively the best hourly rate in Europe)

For our '**occasional**' customers we have issued 200 'free 1 hour' vouchers (selected at random) with this newsletter, to help you take care of those important little jobs when budgets are tight. (1 per job)

The additional discount scheme and 'free hour' vouchers are valid until the 1st February 2009 – so don't delay!



Image: a 12 µm wide 'NanoScope Services' logo ion beam milled onto a aluminium bond pad (showing metal grains, variable milling rates, boundary contamination and surface roughness)



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