



KEEP A CLOSE EYE

ON OBDUCAT WITH OUR NEW
NEWSLETTER, OBDUCAT INSIGHT

INTERVIEW

WITH THE PRESIDENT OF
LUXTALTEK, DR. SEAN LIN

INSIGHT



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WELCOME TO OUR NEW NEWSLETTER – OBDUCAT INSIGHT

This quarterly newsletter will feature articles with focus on customers, partners, technology and individuals that are part of the Obducat world.

In this first issue we will address display technology which is driving the developments of our TV's and what kind of improvements we can expect in the coming years. We will also talk to Dr. Sean Lin, President of Luxtaltek, on the expectations in the LED industry.

I hope that you will enjoy the reading!



Patrik Lundström
CEO





TOKYO TO MALMÖ

As a company in a very specific and narrow field, Obducat has a tradition of collecting talent both near and far. Our line of work often require an advanced level of education and experience, making Malmö, or even Sweden, just a fraction of our recruiting ground. Though the proximity to several renowned universities helps, many coworkers come from abroad. One who has come a long way is Shoko Yamada, part of Obducat's R&D group and a native of Tokyo, Japan.

Shoko, a chemist, works mainly with measurement and analysis aspects of process development. Her daily routines revolve around various customer projects, the current focus being LED applications. Her own words may, or may not, enlighten you:

– I evaluate stamps (masters) produced in-house, substrates provided by customers and imprints (replicas) executed in-house using AFM, SEM and optical microscopes.

The path leading to Obducat began with a bachelor's degree in applied chemistry at the Tokyo University of Science. On a hiatus she went to Helsinki as part of an exchange program. While completing her master's thesis

there, Shoko worked for Vaisala, a Finnish producer of measurement equipment. When back home, she continued working for the Vaisala Tokyo branch for two years. But Scandinavia had evidently struck a chord, since fate soon brought her back west (fate in this case meaning love), this time to Sweden.

Working in the field of nanotechnology hasn't been a goal per se, but when she saw an ad for an opening she didn't hesitate. That it meant moving from Gothenburg to Malmö was of little significance. Then again, by Shoko's standards, some 270 km should hardly count as moving at all. Her instincts about the job proved right, however. Since starting at Obducat, she has come to like both the region and her new field of expertise.

Shoko is obviously a fast learner in other fields as well. Having moved to Sweden only two years ago, and studying the language a mere nine months, she speaks fluent Swedish without effort.

When asked about something that surprised her about Sweden, one thing that came to mind was the unexpectedly high work morale. Having no other working experience in Sweden, Shoko couldn't say if it's a characteristic unique to Obducat, or if it applies to Sweden as a whole.

LED ACCORDING TO LUXTALTEK

Under this headline – Close to Obducat – Obducat InSight takes a closer look at one of Obducat's partners or customers. First up is Taiwan-based LED maker Luxtaltek. In August, Obducat received an order for two Sindre® systems from them.

Luxtaltek Corporation is a young company founded only earlier this year, but it is built on a solid combination of new technology and old wisdom. Behind it stands Taiwanese LED makers **Taiwan Oasis Technology Corp.** and **Uni-light Touchtek Corp.** Luxtaltek was founded by a team specializing in III–V* semiconductor materials and the company is led by Dr. Sean Lin, an expert on photonic crystals. Judging from the people forming the company, it's no wonder that the main objective for Luxtaltek is commercialization of photonic crystal LED. As a first step, Luxtaltek will provide the market with wafer PhC patterning services and customized PhC LED chips and modules.

Obducat InSight took the liberty to ask Dr. Lin a few questions about Luxtaltek and his take on its future.

WHAT IS LUXTALTEK'S BUSINESS FOCUS?

Professional photonic-crystal and quasi-crystal manufacturing for optoelectronic devices, such as LED, OLED, and PV solar cells, to name a few.

WHICH ARE THE DRIVING FORCES THAT WILL CREATE GROWTH FOR LUXTALTEK?

For LED applications, solid state lighting will require high reliability, high current performance and efficiency; TV backlight will require high uniformity and high system couple efficiency. Luxtaltek provides a patented PQC solution for those two main LED applications. Both applications will grow rapidly, by a CAGR (compound annual growth rate) of more than 50% over the next 5 years.

What kind of applications and products will Luxtaltek's products be used in?

As for LED applications, general lighting with high-power driving and display backlight are two applications that will benefit from Luxtaltek's solution.

What are your predictions for the next couple of years concerning Luxtaltek on a general level?

With the full arm on deploying fundamental patents, EM wave designing, nanofabrication and manufacturing skills, Luxtaltek will be the first professional PC/PQC company with capabilities of designing and manufacturing in the world.

How come Luxtaltek chose Obducat as a supplier?

Obducat is the pioneer in the field of NIL. Considering the advantages of Obducat's patented IPS® and STU® technologies, Obducat's solution provides high stability and high throughput, both of which are important factors in manufacturing. This combined with an experienced technical team made Luxtaltek choose Obducat as our first priority supplier for the nanofabrication process.

Obducat has since the deal went through progressed together with Luxtaltek and the first Sindre® system cleared the Factory Acceptance Test in early September. The system will be installed at Luxtaltek shortly.

* The classification 'III–V' refers to where the elements forming the compounds are located in the periodic table.

” OBDUCAT IS
THE PIONEER IN
THE FIELD OF NIL

Dr. Sean Lin, President, Luxtaltek



THE FLATSCREEN COMES ALIVE

The organic TV has arrived. Although the classical meaning of "organic" refers to something living, the life of the TV will continue to consist of what is shown on the screen, not the screen itself. (So far, anyway.) 40-inch OLED TVs are said to hit the consumer market in 2011, but several competing techniques are in the running.

The current LCD and plasma techniques will continue to be the mainstream TV technologies for another couple of years, but the competition is on for a next generation.

A main contender is FED, field-emission display, which in its turn is a development of SED, surface-conduction electron-emitter display. FED's future as TV screen material is fairly uncertain, but since it's Sony experimenting with it, it's definitely worth mentioning. The developments within SED displays is mainly driven by Canon Inc.

Mitsubishi thinks laser is the way of the future. With three beams projecting the image, the technique is supposed to lower energy consumption and improve resolution and color reproduction. The technique has so far yielded a 65-inch prototype.

But among the principal contestants for being dubbed the next generation of TVs, the organic light-emitting diode screen – or OLED screen – is arguably a strong candidate. Screens as large as 40 inches are predicted to be on the market and available to customers in three years' time, in 2011, however this time schedule is still not confirmed by the manufacturers.

OLED screens generate their own light and therefore need no backlighting, as today's flat screens. They can be made thinner than today's displays and consume less energy. The first commercial OLED TV was launched by Sony in November last year. There is still some way to go, however – the screen in question is a mere 11 inches wide. Another giant, Samsung, has already answered by showing off an 31" OLED display at a major home electronics exhibition. Small OLED monitors are currently used in

some mp3 players, mobile phones and GPS navigators.

The LCD makers on the other hand continues to develop the existing technology and thinner displays will soon be available on the market – Sony will launch a 40" LCD using LEDs as backlight technology making it possible to produce a display that is only 9.9mm thin.

” THE RACE
FOR BIGGER AND
BETTER DISPLAYS
IS OBVIOUSLY ON

AN OBDUCAT OPENING

The race for bigger and better displays is obviously on. Obducat's technology, NIL (nanoimprint lithography) in particular, offers several benefits as a potential production technique, especially in terms of cost-efficiency. From Obducat's point of view, the most interesting possibilities lie in the production of different types of display components for the purpose of projection, light diffusion and contrast enhancement. Another competitive forte is Obducat's Soft Press™ technology, which makes it possible to imprint large areas in a simultaneous process, which is a key function in the manufacturing process, irrespective of technology base.

THESE ARE THE STAKES

How come the industry is so interested in developing display technology – aren't they thin enough? There are in fact plenty of reasons for not settling with today's standard, even beyond the obvious benefits of a paper-thin TV. Here are a few, of which the last two will grow ever more important.

- **EXQUISITE SHADES OF BLACK**
New technology can offer a contrast ratio around a million to one, resulting in very deep blacks, as well as colors and subtleties that conventional displays cannot match.
- **SMOOTHER FAST-MOVING OBJECTS**
Spontaneous control of the light emitted from various material layers reproduce smooth yet natural images of fast-moving action.
- **HIGH PEAK BRIGHTNESS REPRODUCES PICTURE GLOW**
Efficient light emission and high peak brightness gives a more faithful reproduction of light flow, such as sunlight reflection and fireworks.
- **LOW POWER CONSUMPTION**
Several future display solutions does not require a separate light source and can be powered using very low voltages.
- **LESS RAW MATERIAL IS USED**
The thinner the screen, the lesser amount material needed.

Sources: Ny Teknik, M3, Sony



GUSTAV & ERIK



GUSTAV DIEBITSCH is responsible for purchasing and production at Obducat Technologies, making sure that the supply chain holds its end up in manufacturing and delivering NIL systems.

1. WHAT PROJECTS ARE YOU INVOLVED IN AT THE MOMENT?
Various development projects concerning our HVM systems, mainly from a procurement and production-planning point of view.

2. STATE A LITTLE KNOWN FACT ABOUT OBDUCAT.
Obducat is located just a stone's throw from the beach. When I started here I thought: 'Great! I'll go for a swim during lunch.' Sad to say, it's been three years and I still haven't gotten that far from the office.

ERIK MARNUNG is responsible for sales to universities and industrial customers in selected markets, which involves daily contact with customers and sales agents in Europe, US and Japan.

1. WHAT PROJECTS ARE YOU INVOLVED IN AT THE MOMENT?
Mainly industrial projects under non-disclosure agreement targeting development and production of components for solid-state lighting and displays.

2. STATE A LITTLE KNOWN FACT ABOUT OBDUCAT.
I used to work for an international company and thought Obducat would be more domestic. It was the other way around. With coworkers from Germany, India, Japan and Ukraine, to name just a few, Obducat has a really inspiring mix of people.



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