



## Iris Photonics to Commercialise Secure Photopolymer Technology

Iris Photonics, a UK start-up founded in 2018, has completed work on a new, fully self-contained, reflection hologram production system which is now ready for commercialisation. The system allows security printers to independently produce serialised, full colour photopolymer reflection holograms.

This latest innovation from Iris produces holograms with a strikingly different visual appearance from the traditional embossed surface relief holograms and from monochromatic reflection holograms. In addition, the technology makes a clean break from the silver-embossed surface relief rainbow holograms that have dominated the security print and product authentication sectors for 30 years and are now widespread.



Individually numbered 3D 'Hummingbird' full colour photopolymer reflection hologram.

According to Iris, the development retains the strong emotive links with tried and tested holographic security technology whilst also keeping the trusted 'hologram' definition. Moreover, the system enables every individual hologram produced to incorporate unique personalised data in the form of diffractive graphics, alphanumeric characters or machine-readable codes.

### Photopolymer holograms – a disruptive technology

Smithers PIRA predicted at the beginning of the last decade that photopolymer reflection holograms would be the 'leading disruptive technology' in security print in the following ten years, although very slow progress has been actually achieved in this sector. Dai Nippon, Kurz, Bayer/Covestro, Du Pont, Krypten, Polygrama, Zebra, XYZ, Xetos, TU Dublin and others have made significant strides in photopolymer hologram technology, but to date the technology has not gained significant market share in the security document and authentication industry.

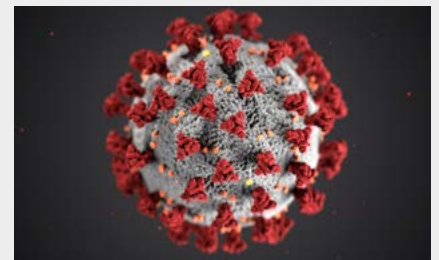
More recently, however, De La Rue's *Izon*™ photopolymer technology acquired from Du Pont (see HN December 2016) has proved that the technology is commercially viable, as have Krypten's photopolymer holographic products and others within the security industry, albeit late into the predicted 'decade'.

Contrastingly, in the holographic display sector Colour Holographic, Yves Gentet, the Hellenic Institute of Holography (HIH) and others have enjoyed success and carved out a niche that displays the full potential that reflection holographic technology offers.

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## IHMA Excellence in Holography Awards 2020 Cancelled

The International Hologram Manufacturers Association (IHMA) has cancelled the 2020 Excellence in Holography Awards due to the current coronavirus pandemic.



The annual awards have been a regular event for over 20 years and showcase the leading developments in holography technology worldwide whilst recognising innovation in this ever-changing field.

The IHMA board considered all options but, given the uncertainty the pandemic has caused and the restrictions on travel, the decision was taken to cancel this year's awards.

IHMA General Secretary Dr Mark Deakes said: 'the board considered all options and came to the overwhelming conclusion that the safest option would be to cancel this year's awards. Over the last few years the IHMA has received record numbers of award nominations which reflects both the high importance IHMA members have for the awards and also the level of innovation that the industry continues to deliver. Let's hope in 2021 we can get back on track and recognise some of the outstanding innovations the holography industry has to offer.'

[www.ihma.org](http://www.ihma.org)

# Iris Photonics *(Continued)*

A new term – ‘*OptoClones*’ – was introduced and trademarked by HiH for a Denisyuk colour hologram recorded with a minimum of three RGB lasers that set a new standard of realism in reflection hologram display technology.

## Iris’ new approach

Iris recognised that one of the limitations of existing holography processes is the time needed for the origination process. Any product manufacturer or packaging group keen to embrace surface relief embossed holography is routinely faced with a delay of many weeks before a proof hologram can be viewed, and of course the associated costs involved. Iris says that, through its innovative engineering techniques and knowledge of hologram technology, it has managed to reduce origination times from weeks to days.

Not only has Iris reduced the time necessary for origination but, thanks to its novel engineering solutions for the mastering process, the level of expertise necessary for the operation of the system is also lowered. Given the relative ease of the physical mastering process, and the shortened lead time to mass-produce a large order, modifications to the original proof can be made at relatively low cost and on a more realistic timescale.

## Process integration

Iris’ approach enables the production of master holograms within an ‘ordinary’ factory working environment, by eliminating the traditional requirements for isolation tables and strict environmental controls. The approach involves a new method to the processes previously employed in traditional holography mastering facilities.

As a result, a much smaller physical space footprint is required. The new process integrates the origination, mass production, personalisation and adhesive lamination processes into a single integrated system that requires minimal floor space and without the need for cleanroom facilities.



Full colour photopolymer reflection hologram web prior to die-cutting.

The integrated four part web-based process involves the following:

1. An automated camera system that rapidly creates hologram artwork from real-life objects or models. Imaging software can be used to edit and embellish the artwork/photography with graphics and/or alphanumeric;
2. A compact laser-powered unit then produces two generations of master holograms, automatically converting stereographic camera data into three-dimensional full-colour contact master holograms;
3. A mass production unit replicates full-colour master gangs (stepped and repeated master images) onto photopolymer film. During the laser scanning process, unique diffractive personalisation data is added to each individual hologram;
4. The holographic photopolymer film is then laminated with a special adhesive to produce rolls of film ready for die-cutting and finishing to produce labels or laminates.

## Benefits

Iris’ technology provides the following benefits:

- The ability for security printers to originate and mass-produce photopolymer reflection holograms in-house at production speeds compatible with the printing, without contracting out the mastering technology;

- The production of reflection holograms in full and stable colour. By eliminating the rainbow effects of embossed surface relief holograms, realistic colour portraits can be made, opening a route to apply this technology in identity documents;
- A new differentiated security feature for use in product authentication and identity systems;
- The incorporation of unique personalised/serialised data can be included within every individual hologram;
- The creation of a thin, transparent overlay with permanent pressure-sensitive adhesive that can be easily finished to labels or laminate formats without the use of new or additional processes or equipment.

## Materials and diffractive data

To record the volume reflection holograms, Iris utilises a photopolymer film (*Bayfol*<sup>®</sup> HX photopolymer film from Covestro, formerly Bayer MaterialScience) which has polychromatic sensitivity and provides a consistent full colour 3D image matrix space that can be enhanced with graphics, variable alphanumeric or machine-readable QR codes. These features can over-write or eliminate the main 3D image in the film surface and can therefore appear within the 3D image space, or at the margins of the image.

This ability to write diffractive data in real time into a full-colour hologram, using a reel-to-reel film transport system, particularly lends itself to the process of protecting identity documents. This would be a state-of-the-art application of the technology. In the illustrated example, a holographic portrait authenticates the adjacent identical photographic image.



Example of full colour photopolymer reflection holographic passport overlay film with individual holographic data authentication.

## Next steps

Having created this fully integrated, stand-alone, highly advanced technology, Iris Photonics is seeking partners within the security print industry to complete its commercialisation.

[www.irisphotonics.co.uk](http://www.irisphotonics.co.uk)

e-mail: [info@irisphotonics.co.uk](mailto:info@irisphotonics.co.uk)

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# Magic Leap Charts a New Course and Raises More Money



Magic Leap, a US-based start-up that released a head-up-display (HUD) device called *Magic Leap One* that superimposes 3D computer-generated images onto real-world environments using light fields, recently announced a change in strategy to focus on the enterprise market rather than the consumer sector. As *Holography News*® went to press, Magic Leap was rumoured to have raised a further \$350 million in investment.

Magic Leap was projected to be one of the next big tech giants for consumer hardware devices and hit the headlines for the level of investment it received (over \$2.6 billion) from companies including Google, Alibaba and Saudi Arabia's Public Investment Fund.

But according to industry sources, approximately 1,000 employees were going to be laid off, with CEO Rony Abovitz citing the uncertainty caused by the current COVID-19 pandemic and the need to shift focus to enterprise applications for its technology.

'Adapting our company to these new market realities and our increased focus on enterprise means we must align our efforts to focus on the areas of our business that advance our technology, ensure delivery of *Magic Leap 2*, and expand product-market fit and revenue generation,' Abovitz wrote.

Magic Leap unsuccessfully competed with Microsoft for a military contract to bring AR technology to the US army.

## Further investment

According to media outlets a further investment of \$350 million has now been secured, which will help to secure the jobs of the 1,000 or so employees who were to be laid off.

However, the question still remains whether, with all the hype around Magic Leap and the low level of sales it has achieved versus Microsoft's *HoloLens* devices, the company has the products and resources to compete with Microsoft, which has already established itself in the enterprise market.

[www.magicleap.com](http://www.magicleap.com)

## Vacuum Deposited Antimicrobial Polymer Coating

Idvac, the UK-based specialist vacuum metallising developer and consultancy, has developed a new novel process using vacuum metallising to deposit a thin layer of anti-microbial polymer onto flexible metallised substrates such as polyester and fabric that could have applications in health products, secure packaging and brand protection.

Results from antimicrobial testing on the vacuum deposited polymer carried out by Gencoa, UK, using the new Gencoa-Miller method for antimicrobial efficacy, indicated that the PET film presented very high levels of antimicrobial properties, (approximately 100% on the Gencoa-Miller scale).

In addition to providing antimicrobial characteristics, the vacuum deposited polymer also adheres well onto some metal or metal oxide surfaces and provides a level of protection for the metal from the environment.

## Application

The novel polymer can be applied as a single layer or polymer/metal multilayer coating onto a moving web of film, fabric etc. using roll-to-roll vacuum metallising equipment.

The advantage of vacuum metallising enables the deposition of materials in a clean, dry environment without the use of solvents or wet chemicals and at high speed, which helps to reduce the cost of the end product.

## Next steps

Idvac will conduct further biochemical/ biomedical investigations of the polymer coating against some common viruses that may possibly include COVID-19.

Polyester, cotton fabric or paper filters coated with the polymer could be used to make antimicrobial face masks, hospital bed sheets, air filters, protective clothing for health applications, secure packaging and brand protection.

In such applications, the innovative polymer exhibits excellent antimicrobial properties and does not only block the penetration of the virus or bacteria but also eliminates it in a very short time.

[www.idvac.co.uk](http://www.idvac.co.uk)  
[idvac@aol.com](mailto:idvac@aol.com)

# Landqart Chooses Diavy for Future Business Expansion



An example of Diavy's DMB 900 foil stripe application machine in Euro 2 configuration.

Diavy srl, based in Soliera in northern Italy and a leading producer of technologies for optical and holographic structures along with foil application equipment, has recently been selected by Swiss-based security substrate supplier Landqart as its preferred supplier for holographic foil stripe application equipment for banknotes. The new foil stripe application equipment – the DMB 900 machine model – is planned to be in operation in the last quarter of 2020.

The selection of Diavy by Landqart builds on the previous success of Diavy in supplying both Fedrigoni and Valoricarta with specific multifunctional stripe application machines for euro second series production.

This latest foil stripe application machine for Landqart is tailored to a specific configuration and includes new innovations in the motion system for a total integration of functions, with proprietary software and mechanical platform.

## Diavy background

Diavy was founded in 1971 by the current management, originally specialising in sheet metal processing and in the manufacture of speciality machinery for the converting industry. Over the years, focused investments have enabled the company to extend its activities to encompass other industrial sectors, including the holographic sector at the end of the 1980s.

Taking advantage of this experience, Diavy has today become a unique provider of all the technologies involved in the production of optical and holographic materials, up to and including the application of those materials on multiple substrates such as paper or polymer.

In particular, Diavy has focused on designing and building bespoke machinery and/or turnkey solutions that include:

- A recombining machine;
- Galvanic electroforming tanks;
- In-line coating/embossing machines;
- Seamless embossing machines;
- Soft embossing up to 2,750mm;

- A hard embossing machine for foils and polycarbonate;
- UV casting machines;
- In-line printing and demetallisation machines;
- Multi-functional lines for stripe application on banknote paper or polymer;
- Special purpose machines.

The equipment is designed and manufactured in Italy, and exported all over the world.

## Multifunctional line for foil stripe application

The market-tested DMB 900 equipment currently used in the production of the Europa series €20, €50, €100 and €200 banknotes offers a complete solution to apply foil stripes onto all banknote substrates accurately. It can be tailor made to customer needs and has units offering in-line processes including:

- Application in register of multiple hot-stamping foil tracks on both side of the substrate;
- Screen printing (single or double station) for security feature printing;
- Punching or laser for security windows production and microperforation;
- Coating.

All the software for the motion control feature is developed in-house thereby enabling precise customisation and integration of any security features in register with the substrate in one pass.

[www.diavy.it](http://www.diavy.it)



An example of a Diavy Hard embosser with inseting capabilities.

# UniKLasers Secures Funding and Appoints New CEO

UniKLasers, based in Scotland and a precision laser manufacturer, recently announced that it has completed a new financing round worth £750,000, and is planning to expand its manufacturing and research and development efforts as a result. The company also announced the appointment of a new CEO.

UniKLasers was founded by world renowned laser physicist Prof Fedor Karpushko in 2013.

Since its founding the company has achieved substantial growth, received private and venture capital investments, received support from Scottish Enterprise and won several Innovate UK awards to develop its lasers for commercial use in quantum technology applications.

## Unique laser technology

*Holography News*® readers may recall the 2019 launch of *Solo 640*, UniKLasers' new continuous wave diode pumped solid state (DPSS) laser, emitting at 640nm with 1000mW output power suitable for holography and other applications (see HN May 2019).



UniKLasers Solo 640 DPSS laser.

The company designs and manufactures single frequency lasers in a wide range of wavelengths using a technique called Bragg Range Michelson Mode Selection (BRaMMS), a proprietary pioneering technology platform.

The technique replaces the laser cavity end mirror with a volume Bragg grating (VBG) and Michelson interferometer to select lasing at one of the cavity longitudinal eigenmodes whilst suppressing others. The result is an ultra-stable laser output that is mode-hop and drift free and has a high spectral purity, with coherence lengths of over 100m. Since the bandwidth of VBG reflectivity is down to ~1nm, it allows users to select a number of wavelengths anywhere within the gain of laser material.

This increases the wavelength options available for single frequency performance, at both fundamental and second harmonic wavelengths. The resultant increased efficiency leads to higher available power and reduced thermal management requirements.

This proprietary patented technology provides reliable, cost effective, compact all-solid-state solutions for both well-established and currently unavailable wavelengths in the NIR (near infra-red) and visible spectrum range, as well as in the emerging UV (ultra-violet) range, whilst maintaining environmentally sound methodologies.

## Latest funding

The latest funding – led by Par Equity with support from the Scottish Investment Bank – means that UniKLasers has now raised £2.3 million since 2017.

Among Par Equity's other forays into the photonics sector are two more Scottish firms – waveguide and photonic integrated circuit (PIC) developer Optoscribe, and pureLiFi, the Edinburgh University spin-out.

UniKLasers will use this funding round to expand and upgrade its manufacturing and research and development capability, continue to build its global sales and marketing pipeline and significantly increase its workforce to further capitalise on a market directly relevant to its application, estimated to be worth \$1.46 billion according to the laser firm.

## New CEO

The expansion drive will be overseen by new Chief Executive Officer (CEO) Alan Faichney; he will take over the lead executive role from Karpushko who will become Chief Technology Officer. Faichney has prior experience in the photonics industry thanks to a period at spectrometer firm Edinburgh Instruments, overseeing its 2013 sale to Hong Kong-based Techcomp Holdings.

Chief Operating Officer Anastasia Bombrys, said: 'this month is a very important milestone in laser history. It marks the 60th anniversary of the invention of the world's first laser by American physicist Theodore Maiman. The intervening period has seen lasers become crucial to manufacturing, engineering and academic research across the world.'

[www.uniklasers.com](http://www.uniklasers.com)

# Komori and Gietz Enter Strategic Partnership

Komori Corporation Japan, one of the world's largest manufacturers of printing presses, has entered into a strategic partnership agreement with Gietz AG Switzerland, a leading manufacturer of hot foil stamping equipment, to promote its range of equipment to the worldwide security printing industry.



The Gietz FSA 1060 Foil Commander NOTA.

According to Komori, it will take this opportunity to further harness its brand of 'quality and trust' and maintain its position as the competitive and preferred security press supplier in the industry. Working with Gietz will allow it to expand its product portfolio and offer turnkey solutions to its customers.

The company, it says, is providing equipment to be more responsive to the needs of the industry, working closely with customers and partners to enable them to offer more flexible solutions to match ever-changing requirements.

Gietz produces machinery for the application of holograms (registered patches, registered and unregistered stripes) onto banknotes and other complex security documents and will bring its extensive knowledge of this niche market sector to the partnership.

Furthermore, the complete product range of Gietz will continue to be available through the various sales structures in different regions and will also provide Komori with the opportunity of benefitting from this well-functioning distribution network and vice versa.

[www.komori-currency.com](http://www.komori-currency.com)

[www.gietz.ch](http://www.gietz.ch)

# 3DAG Announces SmartPack Digital Security Label Solution

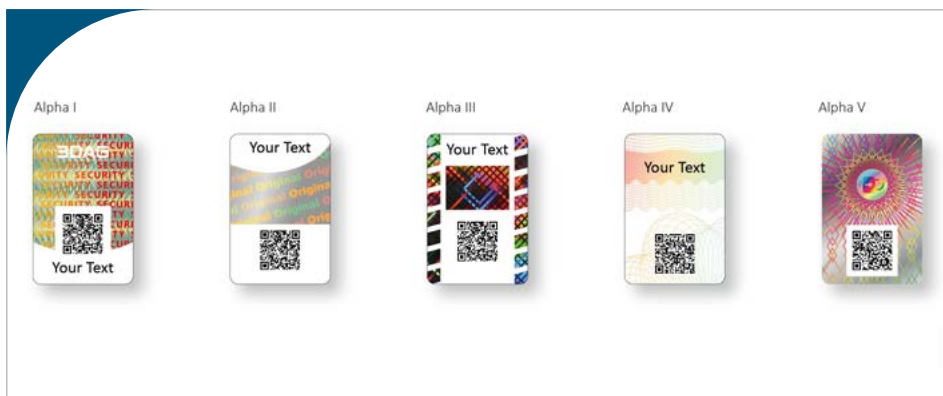
3DAG – the Swiss-based family-owned business that specialises in micro and nanotechnology and holography – has partnered with Scantrust, a connected goods platform company also based in Switzerland, to launch *SmartPack*<sup>™</sup>. This is a digital holographic tamperproof security label with a smart, serialised QR code which provides a customisable product digitalisation technology that can be implemented in just a few days.

As the global COVID-19 pandemic forces changes to our way of living, working and shopping, many businesses are adapting by rethinking their current partnerships, supply and distribution chains, and consumer engagement strategies.

And according to 3D and Scantrust, companies are looking to innovate quickly with cost-effective solutions to create confidence in their products and services with physical brand and product protection solutions, as the surge of activity from fraudsters and counterfeiters continues and shows no signs of weakening.

## SmartPack solution

A solution to this problem, says 3DAG, is SmartPack, which comprises digital holographic tamperproof security labels with smart, serialised QR codes that provide an easy-to-implement, customisable and comprehensive product digitalisation solution. The serialised QR code is the gateway to mobile authentication, fraud detection, track and trace, and business intelligence. Setup is easy and can be done in a few days.



3DAG's SmartPack holographic labels.

Customers can choose from 3DAG's pre-designed secure holographic stock layouts (*3DAG Etimogram*<sup>™</sup>). Each holographic label layout was created through many years of experience in high-security holography and can be customised with a brand logo and/or a short text.

3DAG has also implemented a simple but secure order and onboarding process to set up the specific digital content for the SmartPack labels on the platform. Each order from the 3DAG website is personally verified by 3DAG's customer support team. This approach allows only legitimate companies and authorised persons to order the SmartPack digital security labels, which costs CHF 500 per 1,000.

Martina Müller, CEO of 3DAG, said: 'digitalisation doesn't have to be complicated or difficult to implement. Nor does it have to be expensive. We created

the SmartPack digital security label solution together with our partner Scantrust. You can now be up and running with unit-level product digitalisation and take advantage of all the benefits in less than a week and for a fraction of what a solution of this kind usually costs.'

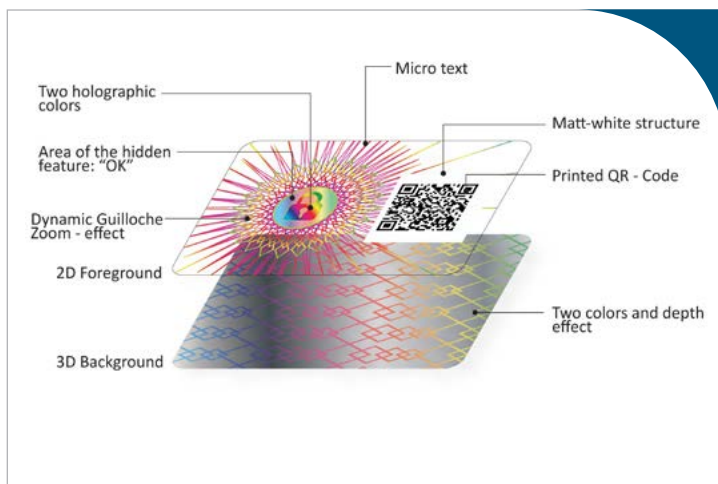
Scantrust's CEO Nathan Anderson, added: 'our product digitalisation platform and analytics dashboard is already being used by global Fortune 500 clients in several major markets. Through our partnership with 3DAG we are now able to empower smaller companies to take advantage of those same functionalities, including Active Brand Protection, with the SmartPack digital security label solution from 3DAG.'

[www.3dag.ch](http://www.3dag.ch)

[www.scantrust.com](http://www.scantrust.com)



SmartPack digitisation platform powered by Scantrust SA.



An example of 3DAG's SmartPack holographic label structure and features.

# OVDs Among Finalists for IACA Currency Awards

The International Association of Currency Affairs (IACA) recently announced the finalists for the IACA Excellence in Currency 2020 Technical Awards, with OVDs featuring strongly across two award categories.

The awards comprise three categories: Best New Currency Feature, Best New Currency Innovation and, for the first time, Best New Environmental Sustainability Project. OVDs featured in the first two categories.

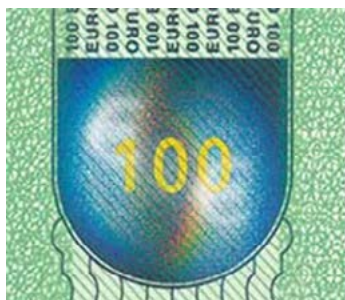
The OVD finalists in the two categories are as follows:

## Best New Currency Feature or Product Finalists

### Satellite Hologram feature – European Central Bank

The last two banknote denominations in the new euro Europa series – the €100 and €200 – incorporate the 'satellite hologram' feature in the top section of the diffractive stripe (above the portrait window).

The feature shows small € symbols which move around the denomination number and become clearer under direct light.



An example of the new 'satellite hologram' feature on the €100 banknote.

### Projection-Based Image feature – Reserve Bank of Australia and the Walt Disney Company

The Projection-Based Image (PBI) is a security microlens refraction-based feature that utilises a clear window of a polymer banknote. Without illumination, the window appears as a mottled noise pattern; however once illuminated using an external light source a high contrast image is projected onto a background surface.

The feature provides a means of banknote authentication by various users that is simple and quick to use with little or no education. Any focussed light of sufficient intensity is able to illuminate the feature, including a smartphone flashlight, LED light and sufficiently bright sunlight.



An example of the Projection-Based Image (PBI) feature.

The microlens arrays used to create the image are generated using a groundbreaking algorithm which also takes into account the requirements of banknote manufacture, including limits on lens thickness.

### Oman 50 Rial Varifeye ColourChange Patch – Central Bank of Oman, Giesecke + Devrient

*Varifeye*® *ColourChange Patch* brings together: 'front to back' security window technology, colour, gloss, glittering, bright micro-mirrors and other aesthetic effects. The feature combines micro-mirror and hologram technologies. In direct light, the main motif of the patch shimmers in gold, while in translucent light the *LaserCut*™ window appears blue. This effect is visible from both sides of the banknote.

In the Oman 50 rial banknote, the gold patch on the front of the note depicts the Central Bank of Oman. On the reverse, in reflection, the same is depicted in a smaller window size. However, in transmission the gold image turns bright blue.



Oman 50 rial banknote incorporating Varifeye ColorChange Patch.

### Other entries include:

Solomon Islands New \$5 Featuring *SUSI Flip*™ and 'Optimising the Visualisation of Security Thread in Banknotes,' from the Central Bank of the Bahamas, Landqart, and Canadian Bank Note Company.

## Best New Currency Innovation Finalists

### KINEGRAM APL – KURZ

*KINEGRAM*® *APL* enables banknote printers to create window features for paper banknotes at their own premises, thus retaining both process control and value creation.



Examples of Kinegram APL with Kinegram zero, Kinegram Colors, Flux effect, Kinegram Volume, Kinegram HDM and Kinegram Review on the The Essential Element house note series.

*KINEGRAM APL* is available in four varieties with different technology combinations that include the following: *KINEGRAM ZERO*. *ZERO*® fine line partial metallisation in combination with *KINEGRAM COLORS*® technology; *FLUX* movement effect and *KINEGRAM COLORS* technology; *KINEGRAM VOLUME*® technology with its unparalleled 'on-off' effect and *KINEGRAM*® *HDM* (High Definition Metallisation) technology, and an entirely different diffractive optical effect on the reverse side, created with the *KINEGRAM REVIEW*® technology.

### Hybrid micro and nanostructures – Nanotech Security Corp

The nomination recognises Nanotech's advances in its *KolourOptik*® technology platform, specifically its innovative process of using hybrid micro and nanostructures to create optically variable banknote security features. *KolourOptik* features are less than 5 microns thick, are fully customisable and 'always on', available in a range of colours, high resolution and exhibit movement and 3D depth.



An example of KolorDepth stripe applied to a house banknote.

### Other entries in this category include:

Singapore bicentennial commemorative note pre-order process from the Monetary Authority of Singapore and Advanced DLR Analytics from De La Rue.

[currencyaffairs.org](http://currencyaffairs.org)

# IQ Structures Strengthens Tax Stamp Protection

**IQ Structures – the Czech based optical nanotechnology specialist – recently announced the launch of a new set of visual security elements for protection of tax stamps, vouchers and similar documents against counterfeiting.**



The new portfolio of visual protection features is, says the company, backed by several years of research and development, industry knowledge and experience, and the use of a combination of origination techniques such as electron beam (e-beam), laser and nanoprinting to thwart counterfeiters.

This recent announcement comes on the back of IQ Structures' launch of a new portfolio of optical security devices for banknotes that include a keyhole hologram (see HN February 2020) and a number of announcements and innovations in the secure identity sector, including two-sided holograms for transparent windows in polycarbonate (PC) cards (see HN September 2019).

## Centre of excellence

IQ Structures operates an excellence centre, where technology experts and graphic designers work closely together. The centre has recently undergone expansion and creates specific visual effects developed by IQ Structures. These effects are based on unique in-house created mathematic algorithms, using a combination of origination techniques and are able to create illusion objects that cannot be developed by any other technology.

Petr Franc, the Director of the company's Security Division, said: 'the protection of stamps needs a different approach than ID cards. Even a single successful imitation of an ID card compromises the entire project. The attackers use sophisticated laboratories, and governments spend significant budgets on protection.'

'In the area of tax stamps, criminals focus on mass production of fakes. There is strong pressure on costs and most users pay almost no attention to protection elements. We need to take into account all these facts.'

He added that, for effective anti-counterfeit protection of tax stamps, it is critical to find the right combination of visual effects and graphical designs to ensure that:

- It is distinctive, and users can identify it easily;
- Protection elements are integrated into the overall design of the stamp;
- Optimal space covered (visual effect versus costs).

[www.iqstructures.com](http://www.iqstructures.com)

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## Events

Virtually all the ID and secure document industry conferences taking place from March through to June have now been postponed until later in the year or early 2021.

**18–20 JANUARY 2021**

**HIGH SECURITY PRINTING ASIA**  
Colombo, Sri Lanka  
[hsp-asia.com](http://hsp-asia.com)

**2–4 FEBRUARY 2021**

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[digitaldocumentsecurity.com](http://digitaldocumentsecurity.com)

**8–10 MARCH 2021**

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