Welcome to Authentication & Brand News!

Happy 2022 to all our readers – and welcome to the first issue of our new monthly publication – Authentication & Brand News™, which is replacing Authentication News®.

Our decision to provide more of a focus on brand protection comes at a time when it is more important than ever for brand owners to safeguard their intellectual property and, on the flip side, easier than ever for counterfeiters and fraudsters to abuse that property.

Brand protection has always been an important part of our coverage of authentication technologies and strategies but why is brand protection more important now than ever before?

The effects of COVID-19 have a lot to do with it, of course, but trends such as the shift to online shopping have already been happening anyway – the pandemic just accelerated the process.

In his April 2020 article 'COVID-19 and Counterfeiting: How the Pandemic is Reshaping Brand Protection', Daniel Bennett, President, Brand Protection at Corsearch, had this to say:

'It's becoming clear that all industries and brands face a heightened risk from this crisis. Many household budgets have been reduced and people are shopping online more. The supply lines of counterfeit goods from China are opening again at a time when Europeans and North Americans, unable to leave home, are looking for the cheapest possible versions of branded goods. Physical stores stocked with genuine goods have closed and their capacity to drive revenue from official sales is reduced.

'So, brands are competing for revenue and attention in this diminishing market with cheap counterfeits whose prices they cannot match. In this scenario, counterfeiters are already creating floods of new listings on online marketplaces, which do not have to close their doors. With physical anti-counterfeiting efforts from customs, police, and other authorities minimised, winning back control of the online space hijacked by counterfeits is becoming increasingly important.

'The long-term impacts of the coronavirus pandemic are unforeseeable, but there are a number of possible consequences. Perhaps most importantly, the temporary surge in e-commerce looks to continue boosting online purchases and brand presence into the future'.

Nano-Structured Features – Research Continues

Brand owners of mass-produced goods have for some time had access to a range of anti-counterfeit devices, such as holograms, security inks and nano-optic effects that provide clear visual signals of authenticity to consumers.

But now, a Swiss research group is challenging these overt techniques with nano-structured surfaces that are designed to be invisible in natural light and only searchable with specific techniques such as ultra-violet or laser illumination.

The team, based in Switzerland, has published a feasibility study in the journal Applied Nano, titled 'Low-Cost Nanostructured Thin Films as Covert Laser Readable Security Tags for Large-Scale Productions Tracking[1].'

The study describes a fabrication process that makes use of the mature nanotechnology called template synthesis to shape thin track-etched polymer film into covert laser readable tags, combining random self-organised structures with organised patterns. The team has developed techniques to drastically limit the number of fabrication steps and keep fabrication costs low, while remaining open to numerous adjustment parameters.

1   https://www.mdpi.com/2673-3501/2/4/23

LumaChrome Holographic Gives Two-Factor Authentication

Nanotech Security Corporation, now owned by Meta Materials Inc, is perhaps best known for designing, originating, recombining, and mass-producing nanotechnology-based films for securing documents of value against counterfeiting and tampering. But the Canada-based firm also offers a range of labelling solutions for advanced brand protection, to which it has now added a holographic version.
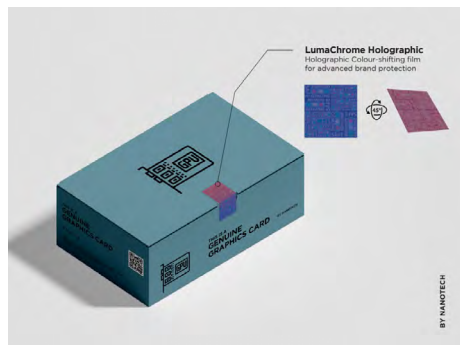
As you might expect from the name, LumaChrome™ Holographic combines Nanotech's colour-shifting LumaChrome film with an embossed holographic security

pattern to give two-factor authentication. Customers can choose the colour-shift options for LumaChrome from four different possibilities:

The colour transition and holographic image-switch effects are immediately visible when the viewing angle is changed. As a combination, says Nanotech, these unique effects are simple to recognise, difficult to replicate, and incredibly effective from a considerable distance, multiple angles, and variable lighting conditions.

The LumaChrome Holographic material is available in a variety of label constructions. The tamper-evident format is comprised of, from the uppermost layer down:

- Layer 4 – customised brand elements, serialisation.
- Layer 3 – holographic security pattern.
- Layer 2 – LumaChrome colour-shifting film.
- Layer 1 – tamper-evident layer.
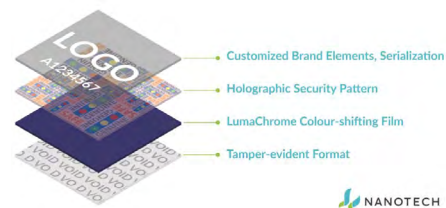
To support the high-volume production of LumaChrome Holographic, Nanotech utilises two large roll-to-roll optical thin film deposition coaters in its high-security production facility. With the ability to operate up to four separate deposition zones simultaneously, Nanotech can produce highly customisable films, very cost effectively. Operating each coater at peak output, it has the capacity to achieve more than 250,000m^2 of film a month.

Film and labels are available in multiple formats and can be used for brand protection, anti-counterfeiting, and smart packaging in industries such as pharmaceuticals, cannabis, retail membership and gift cards, electronics, and imaging supplies.

Bringing Motion Graphics to Security Print Without Additional Materials

Fathom Optics has patented a software-based process using light field technology to bring 3D and motion graphics to security print without additional materials such as lenticular sheets or metallic foils.

The company's 'Fathom Effects' authentication features are made by printing special patterns on two sides of a clear substrate, using conventional presses and inks. The process assigns effects to spot colours in the original design from which Fathom generates additional plates to produce the enhanced design.

One recent application for the solution involved Little Sparrows Technologies, a Boston-based medical device company, which had introduced 'bili·ruler', a tool to aid in the visual assessment of infant jaundice that doesn't require access to mobile networks or electricity.

Given the range of environments where the tool could be used, Little Sparrows Technologies was concerned about potential knockoff devices that would

pose a high risk to patients. In particular, it was seeking a solution for product authentication that did not require mobile phones or access to electricity.

To meet these challenges, the company partnered with Fathom to create a customised optically varying authentication feature that looks visually distinct from other products in the market.

Fathom authentication features are generated for the specific press that they will be run on, further enhancing the security of the printed device.

Fathom built its expertise in this regard by carefully characterising many dozens of printing presses at various production sites to understand how the technology can robustly add depth, motion, and chromatic effects to a wide range of print applications, including labels, shrink sleeves, and point-of-purchase displays. Its authentication solutions are built upon experience gained in that process, which allows it to provide a more secure authentication solution for firms like Little Sparrows Technologies.
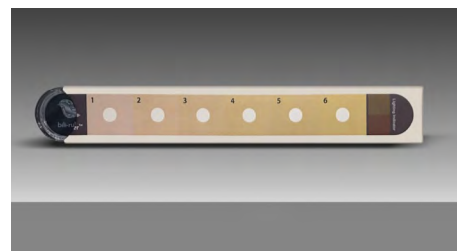
Product showing Fathom feature on the left (© Little Sparrows Technologies).

To produce and integrate the optically varying feature, Fathom and Little Sparrows Technologies partnered with Amherst Label, a family-owned converter that has operated for over 40 years in New Hampshire, USA. Amherst applied the Fathom feature depicting a moving, stylised Little Sparrows Technologies' logo, using a permanent adhesive on a layflat polypropylene material.

Nye Hornor, president of Amherst Labels, said: 'the best thing about the technology that Fathom has developed is that you get the 'lenticular' effect without the cost of using the true lenticular technology'.