

# Delegate Registration Form

## The 2008 Conference on Optical Security and Counterfeit Deterrence

23-25 January 2008, Argonaut Hotel, San Francisco, California

**Please register the following delegate for this event** (separate forms need to be completed for additional delegates from your organisation. Photocopies of this form are acceptable.)

Name: \_\_\_\_\_  
 Position: \_\_\_\_\_  
 Organisation: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Zip/Postcode: \_\_\_\_\_ Country: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Email: \_\_\_\_\_

### DELEGATE FEES

Delegate - prices before 30 November 2007	\$1075 <input type="checkbox"/>	€780 <input type="checkbox"/>	£536 <input type="checkbox"/>
Delegate - prices after 30 November 2007	\$1275 <input type="checkbox"/>	€918 <input type="checkbox"/>	£631 <input type="checkbox"/>
Speakers/Programme			
Committee Members	\$918 <input type="checkbox"/>	€734 <input type="checkbox"/>	£505 <input type="checkbox"/>

**I wish to receive information about this and other Reconnaissance events by email**

### Payment Options (please the appropriate box)

Remittance enclosed (**payable to Reconnaissance International**)

Please invoice my company

Quote purchase order insert number if necessary \_\_\_\_\_

*Your receipt or invoice will be issued in the currency most appropriate to your location*

**Payment by Credit Card** (your fee will be processed in £ sterling at the prevailing exchange rate).

Card Type: American Express  MasterCard  Visa

Please provide your 3 or 4 digit security number.

Card Number: \_\_\_\_\_

Expiry Date: \_\_\_\_\_

Cardholder Name: \_\_\_\_\_

Billing Address: \_\_\_\_\_

### Payment

All fees must be paid in full prior to the start of the conference. The organisers reserve the right to refuse entry to participants whose fees have not been paid in full by the start of the event. **There will be an administration surcharge of \$250/€170/£130 for delegates who register and/or pay at the conference rather than in advance.** Payment can be made by bank transfer, cheque or credit card. Credit cards will be charged in pounds sterling only at the prevailing exchange rate. Reconnaissance International reserves the right to adjust non-Sterling fees in light of exchange rate movements but individual fees will be fixed once an invoice has been issued - see Terms and Conditions. VAT charged where applicable.

### SHORT COURSE ON OPTICAL DOCUMENT SECURITY

A half-day short course on Optical Document Security is offered in the afternoon of 23 January 2008. The course, taught by Rudolf L. van Renesse, surveys a broad variety of security features, ranging from classics like watermarks and intaglio printing, via tilt images and fluorescence to advanced iridescent features and other innovations.

**Fees** \$497  €358  £246

### Table Top Exhibit - 24 January, 7:00 - 10:00 pm

The conference will include an informal evening Topical Exhibit and Poster Session on real-world security problems and solutions. This exhibit is an occasion for all conference attendees to show their results in an informal ambience and this has always been a very lively event!

Please consider taking part in this event.

**Table Top Fees** \$281  €200  £138

### Cancellation

Cancellations will be accepted and fees refunded (less a 25% administration charge) if made in writing and received by **December 21 2007**. Registrations cannot be cancelled or fees refunded thereafter. Cancellations resulting from visa or other essential travel documents refusal by the authorities will result in full fees being refunded on presentation of official documentation to support the travel document refusal. Substitutions can be made at any time with prior notice.

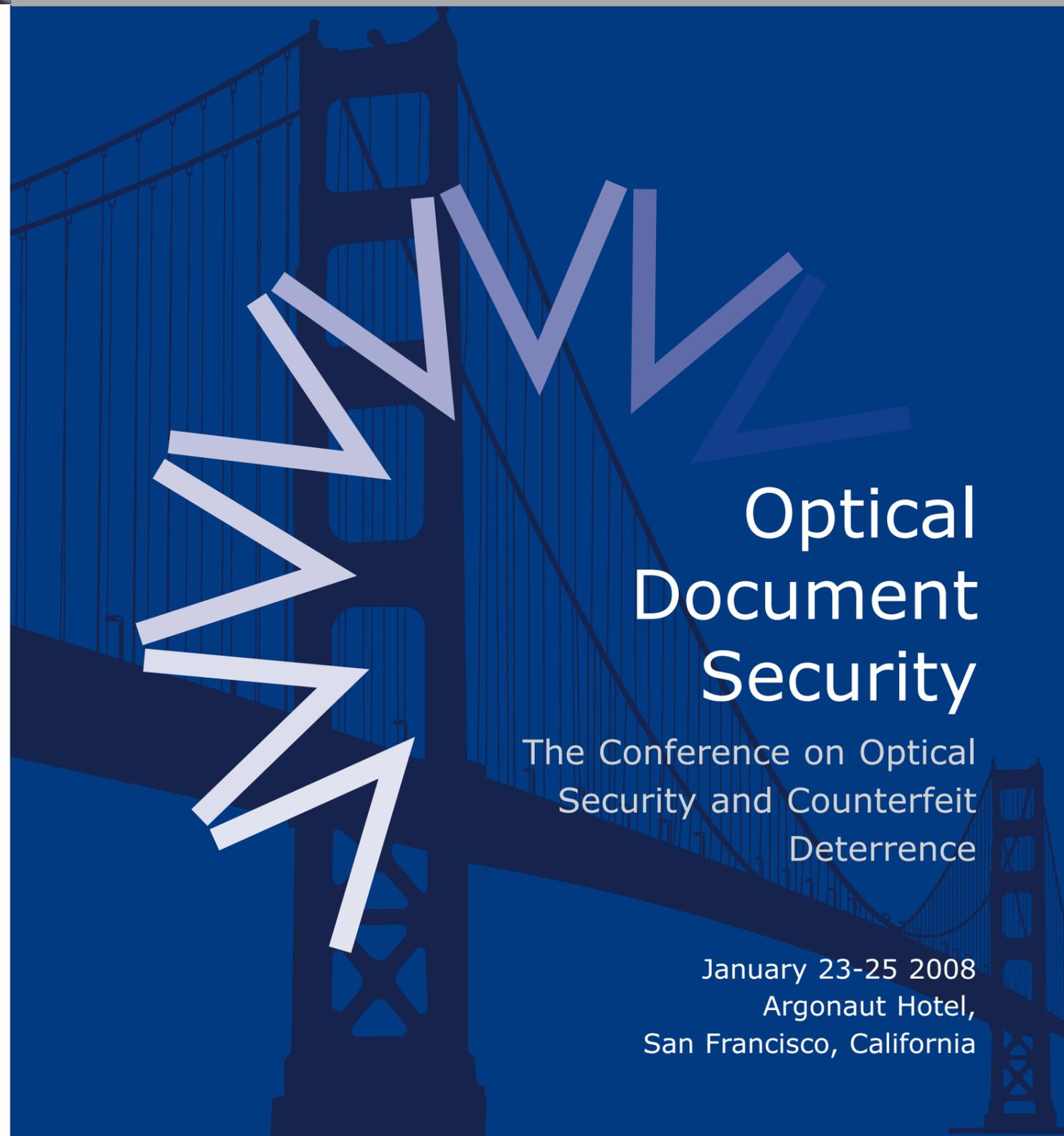
**Please register me for this event as shown in the boxes. I undertake to pay all necessary fees by the payment method indicated, to be bound by Reconnaissance International's Terms and Conditions (as available on [www.opticaldocumentsecurity.com](http://www.opticaldocumentsecurity.com)) and further agree that my details can be published on the Conference Delegate list and distributed to all participants.**

**If you require vegetarian catering please  here**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### What's Included

Fees include admission to the conference and tradeshow, documentation, lunch, light refreshments and conference buffet dinner. **They do not include travel, visas or accommodation.**



# Optical Document Security

The Conference on Optical Security and Counterfeit Deterrence

January 23-25 2008  
 Argonaut Hotel,  
 San Francisco, California



COMPLETE FORM, SIGN & FAX TO: +44 (0) 1932 269918  
 or register online at [www.opticaldocumentsecurity.com](http://www.opticaldocumentsecurity.com)



## Optical Document Security

### Who Should Attend

This conference will provide information, insight and guidance on future developments to...

- Specifiers and designers of banknotes, ID documents, tax documents and other secured government-issued documents
- Specifiers and designers of commercial or private sector secured documents, including those issued by banks and financial institutions, educational institutions, retailers, transportation companies, concert and sports events promoters
- Specifiers and designers of personnel access and identity documents
- Producers and suppliers of security-printed documents
- Producers and suppliers of components for security-printed documents
- Researchers in the security component, biometrics and security printing fields.

### The conference on Optical Security and Counterfeit Deterrence Techniques since 1996

The increasing threat of document fraud and product piracy stimulates unceasing and worldwide R&D on fraud deterrent strategies and security features. Organisations such as IATA and the US Department of Homeland Security are introducing new standards for ID documents, while there are additional challenges to banknotes, tax certificates and other secured documents issued by governments and the private sector.

Novel ideas are continually developed in government, corporate and academic research laboratories, and the acquired experience and knowledge need to be presented to the security community. Therefore, the objective of this conference is to offer a platform to researchers, developers, manufacturers and users of security devices to present their findings on a high technical and scientific level. Some of the most significant developments in document and product security have been first published at these conferences and our 2008 conference will undoubtedly continue this tradition.

This conference is now held for the first time as a stand-alone event, which will allow delegates to be vetted in advance so that only those with a legitimate interest in the topic will be registered, and there will be a security inspection before anyone is allowed into the conference rooms, adding a level of confidentiality that was not previously feasible.

#### THE CONFERENCE PROGRAM

- **Currency** - As always, the first sessions of our conference are devoted to currency protection, covering important subjects such as security requirements, production inspection of security features, security evaluation and the effects of banknote circulation. Two papers are presented by authors of the recent US National Research Council study *A Path to the Next Generation of U.S. Banknotes*, while the Bureau of Engraving & Printing examines its immediate and long-term impact.
- **Substrates and Printing** - The conference then turns to new developments in the field of substrates and printing, which together form the cornerstone of document and product security. This session includes papers on the examination of documents, as well as presentations on new coatings and ink components.
- **Optically Variable Devices** - Conceivably OVDs are the crown of document and product security. And as usual, the second conference day sees a wealth of contributions presenting the inventive results of the continual research in the diverse field of OVDs. Both complex imaging technology and complex optical structures will be presented.
- **Optical Biometrics** - The newly-critical arena of personal identity is covered in this new conference session. Papers will examine the role of optical security techniques in ensuring that the holder of an ID document is the person described on the document.
- **Authentication** - Authentication is the act of determining whether something or someone is, in fact, what or who they claim to be. In this session papers are presented on the authentication of documents, things and persons, the subjects varying from digital watermarking to biometrics and from holography to authentication standards.

The well-known *Security Exhibit and Poster Presentation* is again held in the evening of conference day 1. This has always been a very vibrant informal event, where new developments were often first shown, hands on, to the security community by the contributors of the conference papers.

I look very much forward to meeting you all in San Francisco at our January 2008 Optical Document Security Conference.

Rudolf L. van Renesse



## The Conference on Optical Security and Counterfeit Deterrence



### Your Event Organiser

Reconnaissance International is the leading source of intelligence and insight on authentication technologies and strategies for document and product protection, with offices in the US and the UK. Reconnaissance publishes **Holography News®**, **Authentication News®** and (through a joint venture) **Currency News**. The company also organises anti-counterfeiting and holography conferences, including **Holo-pack•Holo-print®**, the **Authentication Connections Forum** and the **Global Forum on Pharmaceutical AntiCounterfeiting**.

Since 1993 Reconnaissance has provided the Secretariat to the International Hologram Manufacturers Association and, since it was founded in January 2007, also provides the Secretariat to the International Authentication Association.

Through its Director, Ian M Lancaster, Reconnaissance has been represented on the committee for Ruud van Renesse's conference since it began and is now pleased to welcome **Optical Document Security** into its stable.

Reconnaissance regularly uses its in-depth knowledge and insights on anti-counterfeiting and authentication to guide companies in developing their authentication product strategies or their product and brand protection strategies, and was a lead participant in the FDA's Product Surety initiative. Reconnaissance has been recognised by the Chinese Ministry of Public Security as authorised anti-counterfeiting experts.

### The Venue

The location for the 2008 Conference on Optical Security and Counterfeit Deterrence is San Francisco, renowned for its chilly summer fog, steep rolling hills, an eclectic mix of Victorian and modern architecture, and its peninsular location surrounded on three sides by the Pacific Ocean and San Francisco Bay. Famous hallmarks and landmarks include the Golden Gate Bridge, Alcatraz Island, the cable cars, the Transamerica Pyramid, Coit Tower, and Chinatown.

The conference venue is the 265-room 4-star waterfront Argonaut Hotel. Just 30 minutes from San Francisco International Airport the Argonaut is located by the famous Fisherman's Wharf in downtown San Francisco, adjacent to the Cannery and within easy walking distance of Aquatic Park, Ghirardelli Square and great nearby restaurants.

### Travel and Accommodation

Delegates are responsible for arranging their own travel and for booking their accommodation. Reconnaissance has negotiated a special rate at the Argonaut Hotel of \$179 (approx. £89 / €131) for a single or double room. Rates quoted are per night and are exclusive of applicable state and local taxes (currently 14%, which are subject to change without prior notice). Breakfast is not included. Please contact the hotel for rates for executive rooms and suites. Check-in time is 3:00 pm and check-out is 12:00 pm. Please make sure you quote Optical Security & Counterfeit Deterrence if telephoning to reserve your accommodation to receive the group rate.

Argonaut Hotel  
495 Jefferson Street at Hyde,  
San Francisco, CA 94109  
Phone: +1 415.563.0800,  
Toll-free: 866.415.0704

Website: [www.argonauthotel.com](http://www.argonauthotel.com)

#### RELEASE

Reconnaissance International accepts no liability for personal injury or any loss of or damage to participants' personal effects. Reconnaissance reserves the right to cancel, modify or postpone the event without prior notice and to refuse to register or to refuse admission to any person who does not have a legitimate interest in the subject of the event and will not be obliged to refund any registration fees in the event that admission is refused on these grounds.

### Contact Us

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Friday, 25 January 2008 cont'd...

SESSION 7:  
OPTICAL BIOMETRICS

SESSION CHAIR: Ian M. Lancaster - Reconnaissance International (UK)

1.15 pm **Synthetic Holography at 500000 dpi: from Renaissance of portraits to holographic dust**

Libor Kotařka and Vladimír Kolář, Optaglio s.r.o., Czech Republic

Nano-engraving allows (1) the revival of human portrait security by introducing visual relief, (2) producing OVDot®, a microscopic "holographic dust" displaying kinetic effects, image switches, micrographics, and covert laser-viewable images, and (3) covert laser readable holographic codes.

1.35 pm **Novel Lippmann Holograms and Computer Generated Holograms for Security Applications**

Tomoko Kumasawa, Makio Kurashige, Tsuyoshi Yamauchi, Mitsuru Kitamura, Masachika Watanabe and Kenji Ueda, Dai Nippon Printing Co., Ltd., Japan

Animated multiplexed Lippmann holograms with 100+ image frames from computer graphics and video movies have been realized. Furthermore, embossed 3D computer-generated holograms using E-beam-lithography have been created with high resolution texture mapping to render more natural images.

1.55 pm **The Biometrigrum: A Portable Holographic Personalisation Station**

Satyamoorthy Kabilan, John D. Wiltshire, David Winterbottom, Ben Bowmaker, Ver-Tec Security Systems Ltd., UK

A silver halide volume reflection hologram contains multiple biometric and/or digital information. Rapid and secure information recording at the point of issue and full interoperability with any biometric recognition software is possible. Current developments include full colour holographic recording.

2.15 pm **3-D Lenticular Photo ID**

Jan van den Berg, Sdu, The Netherlands

Improved laser engraved lenticular 3D photographs are presented as a first line security feature. Their combination with other lenticular security features like a 3-D country code, moiré effects and moving print is shown and explained.

2.35 pm **Break**

SESSION 8:  
AUTHENTICATION

SESSION CHAIR: Douglas S. Dunn - 3M Safety (USA)

3.05 pm **Are Fingerprint Biometrics Ready for E-passports?**

Ton van de Putte and Harko Robroch, Riscure BV, The Netherlands

Most countries favour optical fingerprint technology for E-passports. Experiments show that its security is inadequate: spoofing has become easier and live finger detection does not meet crucial requirements. Investigating the feasibility of alternative biometrics is recommended.

3.25 pm **An ICAO Compliant Solution for BAC Deficiencies**

Alexander Herrigel, SECUDE International AG, Switzerland

A security problem of the anticipated rollout of the E-Passport with the Basic Access Control (BAC) scheme exists. Strong cryptographic key entropy is more limited than expected and thus real strong DES key generation on the basis of ICAO specifications is not feasible. The paper presents a solution.

3.45 pm **Digital Authentication of Documents and Products Using Copy Detection Images: from theory to practice**

Justin Picard, Picard Media Security Consulting, Switzerland

A key property of Copy Detection Images (CDIs), such as some digital watermarks, is to discern copies from originals by automated detection. Problems relating to score stabilization are discussed. The claim that some of these CDIs cannot be successfully copied is questioned. Various attacks are discussed.

4.05 pm **Laser Surface Authentication – natural randomness as a fingerprint for document and product authentication**

Russel Cowburn, Imperial College London, Blakett Physics Laboratory, UK

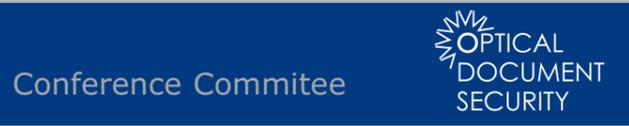
A laser beam is focussed on random surface structures and the diffuse scatter is captured by six photo-detectors at different angles. The processed signals provide a unique identifier for the scanned surface, which identifier is robust to substantial surface damage. Laboratory experiments on 500 samples have resulted in very low error rates. LSA is now being trialled across a range of industries.

4.25 pm **The Case for Authentication Standards**

Ian M. Lancaster, Reconnaissance Int., UK

ISO is known to be considering the introduction of standards for the production and supply of security printed documents and security products, and there are already such standards published by ANSI (North America) and CEN (Europe). What is the role of standards in optical document and product security and how can suppliers be involved to ensure they are appropriate?

4.45 pm **Close of Conference**



CONFERENCE CHAIR:

Rudolf L. van Renesse  
VanRenesse Consulting, author of *Optical Document Security*.

PROGRAMME COMMITTEE:

- Sara Church, Bank of Canada
- Douglas S. Dunn, 3M Safety, Security, & Protection Services Lab
- Malcolm R. M. Knight, De La Rue International
- Ian M. Lancaster, International Hologram Manufacturers Association
- Volker Lohweg, University of Applied Sciences Lippe & Höxter
- Roger W. Phillips, JDSU Flex Products Group
- Sybrand Spannenburg, Joh. Enschedé Security Print
- Wayne R. Tompkin, OVD Kinogram
- Dennis J. Trevor, OFS Laboratories

Conference Programme

Short Course on Optical Document Security

Presenter: Ruud van Renesse, VanRenesse Consulting, The Netherlands



Wednesday 23 January 2008, 1.00 – 5.00 pm.

The number of different security features for valuable documents and products has mushroomed with the advance of digital colour copying systems since the late 1980s. Efficient countermeasures were developed that made an obvious distinction between genuine products and digital copies. Counterfeiters soon caught up with passable imitations and the race for adequate counterfeit resistance escalated with a pace never seen before, with image and structural complexity as the main defences. Most of these security measures are of an optical nature.

What makes a document a genuine one? There is no single security feature yet in existence that allows us to quickly and securely discriminate between genuine and professional counterfeit. At least some fundamental knowledge is required of the great variety of existing security features and common counterfeiting methods in order to be able to assess a questioned document. This course surveys a broad variety of security features, touching the basics of substrate, ink, print

and foil based security. Classic security features as well as recent security developments are discussed. Extensive image material is presented and the relative security value of different features is assessed with the methods available to professional counterfeiters in mind.

Ruud van Renesse, based in The Netherlands, is an independent consultant in the field of document and product security for government departments, banking and financial institutions and industry. Van Renesse is the author of *Optical Document Security*, an internationally - recognized textbook on all aspects of document security.

WHO SHOULD ATTEND?

This course will benefit everyone involved in the design, production and examination of valuable documents and products, whether management or technical personnel. A general understanding of basic optics, but no prior experience in document security, is required.

Thursday 24 January 2008

Session 1:  
CURRENCY I

SESSION CHAIR: Malcolm R. M. Knight - De La Rue International Ltd. (UK)

8:30 am **Technological Challenges in Designing Complex U.S. Paper Currency**

Larry Felix, Department of the Treasury, Bureau of Engraving and Printing, USA

Overview of the security threats to U.S. currency with emphasis on the redesigned \$100 note and the new \$5 note. BEP's consideration of the NRC study *A Path to the Next Generation of U.S. Banknotes* and focus on the changing face of the counterfeiter and the proactive strategy to deter counterfeiting.

8.50 am **A Path to the Next Generation of U.S. Banknotes**

Dennis J. Trevor, et al, OFS Laboratories, USA

Trevor, a co-author of the NRC study *A Path to the Next Generation of U.S. Banknotes*, reviews the group's work with a focus on the advanced feature platforms that the committee suggested, reviewing what was found as their potential for developing new features, including limitations that need to be overcome.

9.10 am **A Flow Model for Banknote Feature Evaluation**

Elisabeth A. Holm, et al, Sandia National Laboratories, USA

Discussion of the flow model for counterfeiting notes from production through stockpiling to passing and recirculation, published in the NRC study *A Path to the Next Generation of U.S. Banknotes*, and the evaluation of security features with the flow model.

9.30 am **Methodology for Establishing Bank Note Security Requirements**

Sara Church, Theodoros Garanzotis, Martine Lacelle and Andrea Firth, Bank of Canada, Canada

A Security Matrix, based on threat assessment, scanning of current and future security technologies and identifying security gaps. The methodology and the resulting R&D program to develop specific new security features for future use are discussed.

9.50 am **Programme of Requirements – a powerful tool to develop new, secure banknotes**

Hans de Heij, De Nederlandsche Bank NV, The Netherlands

A Programme of Requirements (PoR) is essential in designing banknotes. Separate PoRs are required for design, printing proof, zero production run and mass production and issue. A PoR template and essential requirements are provided, focussing on security features and ISO 9000 series.

10.10 am **Break**

SESSION 2:  
CURRENCY II

SESSION CHAIR: Sara Church - Bank of Canada (Canada)

10.40 am **Automatic Sheet Inspection in Banknote Production**

Thomas Türke, Harald Willeke and Stephen Brown, KBA-Bielefeld and KBA-Giori S.A., Germany

Real-time banknote sheet inspection by a new generation of field programmable gate arrays that allows colour inspection as well as inspection of security features such as windowed threads, embedded threads, OVDs, watermarks and screen printing.



Thursday 24 January 2008 cont'd...

11.00 am **New Concept on Quality Inspection and Machine Conditioning for Security Prints**  
*Walter Dyck, Thomas Türke, Johannes Schaede and Volker Lohweg, KBA-Bielefeld, KBA-Giori S.A. and Lippe and Höxter University of Applied Sciences, Germany*  
Improvement of inspection techniques and an inspection methodology that warrants comprehensive quality control. Data compression by principal components analysis based on optical, acoustical and other machine information without much loss of information.

11.20 am **The Evolution of Banknote Wear Appearance**  
*Ernesto Gonzalez Candela, Adrian Gómez Castellanos and Benjamín Osuna Cámara, Banco de Mexico Banknote Printing Works, Mexico*  
A cyclic wearing method is developed to obtain artificially worn banknotes with different deterioration levels. This allows establishing the time evolution behaviour of banknotes, and to generate wear appearance evolution curves. The wear resistance of security features is evaluated.

11.40 am **Optically Variable Elements in Banknotes: New Developments**  
*Roland Isherwood, De La Rue Group R&D, UK*  
Colour shifting dichroic materials, diffractive elements and thin film structures with reference to banknote security features embodied in De La Rue's StarChrome®, Depth Hologram™ and Optiks™.

12.00 pm **Lunch break**

SESSION 3:  
**SUBSTRATE & PRINTING I**  
*SESSION CHAIR: Volker Lohweg - University of Applied Sciences Lippe & Höxter (Germany)*

1.15 pm **Spectral Pre-compensation of Printed Security Deterrents**  
*Steven J. Simske, Jason S. Aronoff and Margaret Sturgill, Hewlett-Packard Labs, USA*  
Spectral pre-compensation: optimization of deterrent colours based on foreknowledge of the intended print technology and subsequent reading/scanning technology. Psychometric application to human perception and spectrometric application to machine reading.

1.35 pm **The Forensic Analysis of Inkjet Printed Documents.**  
*Jack Tchan, MATAR Group, London College of Communication, University of The Arts London, UK*  
Identification of printing machines using high resolution digital image systems, based on irregular movements of the print engine. New results for the analysis of inkjet printers.

1.55 pm **Interactive Elastic Photonic Crystals**  
*André C. Arsenault, Opalux Inc., Canada*  
Newly developed Elastic Photonic Crystals, consisting of inverse opal films, permeated with nanoscale ordered pores, diffract brilliant colours over wide angles. The films are user interactive (intuitive self-authentication) and can incorporate latent data content.

2.15 pm **Micro Structured Taggants in Security Pigments and Inks**  
*Alberto Argoitia and Kees-Jan Delst, JDSU Flex Products Group, USA*  
Microscopic pigment flakes with specific geometrical sizes and shapes containing graphics. The flakes can be combined with colour shift, magnetic printing and machine readable taggants. Second line inspection can be performed with a handheld microscope.

2.35 pm **Break**

SESSION 4:  
**SUBSTRATE AND PRINTING II**  
*SESSION CHAIR: Dennis J. Trevor - OFS Laboratories (USA)*

3.05 pm **Printable Appearance-Changing Graphical Security Devices**  
*Vladimir Raksha, Tom Markantes, Paul Coombs, Roger Phillips, Eric Kurman and Kees-Jan Delst, JDSU Flex Products Group, USA*  
Colour shifting pigment platelets are arranged in different orientations with regard to the substrate. Stereoscopic observation of printed patterns results in background and object having different colours, generating an illusive 3D perception with the object floating beneath the substrate.

3.25 pm **Magnetic Inks in Security Documents and Use of TRIZ Method to Create Inventive Solutions in Security Applications**  
*Ted Rygas, Canadian Bank Note Company, Canada*  
Security inks with a large variety of magnetic substances to create printed marks with alternating magnetic properties. Use of low-cost magnetic reading heads with extremely high resolution. Selection of materials and methods is facilitated by TRIZ, the theory of inventive problem solving.

3.45 pm **Security features with Polarized Fluorescence**  
*Christoph Kocher, Landqart, Switzerland*  
Two novel types of Polarisafe® features consisting of anisotropic fluorescent fibres, threads and coatings that react selectively to polarized UV are discussed: a group of monochromatic fluorescent features and a group allowing for multiple fluorescent colours in any desired arrangement.

4.05 pm **New Optically Active Macro-crystal Technology for Security Labels**  
*Gergely Hanczar, Algernon Innovation LLC, Hungary*  
A spark led through an optically active macro-crystal layer induces irreproducible random patterns. The tamper-proof layers, applied to plastic substrates, can be verified with simple scanners equipped with polarizing filters, using image-recognition algorithms based on crystallite formation rules.

4.25 pm **End of First Day Sessions**

7.00 pm **EVENING PROGRAM**  
**Buffet Dinner**  
**Topical Table Top Exhibit and Poster Papers** *(see over for details)*

Thursday 24 January 2008

7.00 pm **EVENING PROGRAM**

POSTER PAPER

**Mobile Interaction and Document Authentication**  
*Alexander Herrigel, SECUDE International AG, Switzerland*  
Watermarked document verification by mobile phone image capture can be executed at any place having GSM coverage. The captured image is relayed to the verification server by MMS, which server checks the digital image and returns an SMS that contains the verification result.

POSTER PAPER

**Correlation between Visible Optical Density Characteristics and Invisible Features within the Ink for an Optimal Combination of Statistical Process Control of Notes and Visual Inspection of Sheets**  
*Alain Würsch, Ronald A. Pitfield, Stephen Brown and Johannes Schaede, KBA-Giori, Switzerland*  
Existing machine inspection of visible feature quality during banknote production renders data that correlate to a high degree with the functionality of invisible features. This allows statistical process control of the invisible features without requiring additional readers, which results in waste reduction.

10.00 pm Close of First Day

Friday, 25 January 2008

SESSION 5:  
**OPTICALLY VARIABLE DEVICES I**  
*SESSION CHAIR: Wayne R. Tompkin - OVD Kinegram Corp (Switzerland)*

8.30 am **Spatially and Angularly Resolved High Dynamic Range Reflectance Measurements for Forensic Document Inspection**  
*Mikael Lindstrand, GonioLabs, Sweden*  
Trichromatic reflectance measurement for detailed and specific characterisation of OVDs and other components. Data can be scanned by visualisation tools or processed mathematically, to provide a method of measuring aspects such as colour shift.

8.50 am **SKATE® Threads – new optical security systems**  
*Andrey Kuryatnikov, Goznak, Russia*  
A new multilayered window thread, 3-4 mm wide that shows different effects from front and back sides of paper: the SKATE colour-shifting effects in reflected light, and the CHAMELEON effect which is seen in transmitted light.

9.10 am **Holo-Mosaic Images for Security**  
*Steve McGrew, New Light Industries, Ltd., USA*  
A holo-mosaic is a dot matrix type photo-mosaic. Each photograph is a 100 x 100 pixel superposition of 3 gratings of various pitches corresponding to Red, Green and Blue. Protection is provided against most common counterfeiting techniques, verification is possible by naked eye or by magnifier or microscope.

9.30 am **Creation of Novel Security Features using Optically Variable Magnetic Inks**  
*Claude-Alain Despland, Mathieu Schmid and Pierre Degott, SICPA SA, Switzerland*  
Optically Variable Magnetic Ink (OVMI) allows the combination of visible colour shift and robust magnetic images. These images are created by pigment orientation in specially designed magnetic fields and cured at the full speed of industrial printing machines.

9.50 am **Individualised Diffractive Codes for Web-based Authentication and Tracking**  
*John A. Peters and Wayne Tompkin, OVD Kinegram Corp., Switzerland*  
Web or internet based, visual or machine authentication and tracking and supply-chain management of products at the item-level using a diffractive code. The authentication device is an OVD containing a secure code and secret features, allowing authentication at all levels, from consumer to forensic inspection.

10.10 am **Break**

SESSION 6:  
**OPTICALLY VARIABLE DEVICES II**  
*SESSION CHAIR: Roger W. Phillips - JDSU Flex Products Group (USA)*

10.40 am **Diffractive OVD Features for Window Banknotes**  
*Andreas Schilling and Wayne Tompkin, OVD Kinegram Corp., Switzerland*  
Novel diffractive OVD features for a window in a paper substrate are presented: see-through features, front-to-reverse image and foil appearance changes, and lenses. Industrially produced sample banknotes show synergies between substrate, diffractive OVD features, and print.

11.00 am **Complex Computer-synthesized Holograms Forming Uncaused Fields**  
*Eugene Braginets, et al, National Taras Shevchenko University of Kyiv, Ukraine*  
A complex computer-generated hologram (CGSH) of which the conjugate image is removed in order to increase brightness, provide a whole-plane image scene instead of a semi-plane and enhance security due to higher diffractive topology complexity. Comparisons with kinoforms are made.

11.20 am **Surface Relief Blazed Grating by Holographic Recording**  
*C. Lenaerts, S. Habraken, V. Moreau, V. Petiton, A. Noizet, Hololab and DEIOS, Belgium*  
Asymmetric gratings which have different diffraction efficiencies between the positive and negative orders, made using a holographic Fourier filtering process.

11.40 am **Enhanced Zero Order Devices using Scattering Structures**  
*V. Petiton and Alexandre Noizet, Hologram Industries, France*  
Zero Order Devices (ZOD's) can be easily inspected under diffuse illumination, but under point source illumination the specular foil reflection hinders inspection. By adding scattering, non-periodic grating structures, ZOD effects become clearly visible under all lighting conditions.