# **Optical Document Security**

# Conference on Optimal Security and Counterfeit Deterrence 2008

San Francisco, California, USA 23 – 25 January 2008

ISBN: 978-1-61738-910-8

#### Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2008) by the Reconnaissance International All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact the Reconnaissance International at the address below.

Reconnaissance International 2149 West Cascade Suite 106A Hood River Oregon 97013

Phone: (541) 490-7920

info@reconnaissance-intl.com

#### Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400

Fax: 845-758-2634

Email: curran@proceedings.com Web: www.proceedings.com



# **THURSDAY 24 JANUARY**

	Session 1: <b>Currency I</b> Session Chair: Malcolm R.M. Knight, De La Rue International Ltd. (UK)	
8:30 am	<b>Technical Challenges in Designing Complex U.S. Paper Currency</b> Judith DiazMyers, Department of the Treasury, Bureau of Engraving and Printing, USA	1
8:50 am	A Path to the Next Generation of U.S. Banknotes Dennis J. Trevor, OFS Laboratories, USA	19
9:10 am	A Flow Model for Banknote Feature Evaluation Elizabeth A. Holm, Sandia National Laboratories, USA	27
9:30 am	Methodology for Establishing Bank Note Security Requirements Sara Church, Bank of Canada, Canada	35
9:50 am	Programme of Requirements – a powerful tool to develop new, secure banknotes Hans de Heij, De Nederlandsche Bank NV, The Netherlands	50
10:10 am	Break	
	Session 2: <b>Currency II</b> Session Chair: Sara Church, Bank of Canada (Canada)	
10:40 am	Automatic Sheet Inspection in Banknote Production Thomas Türke, KBA –Bielefeld, Germany	75
I I:00 am	New Concept on Quality Inspection and Machine Conditioning and Security Prints Volker Lohweg, KBA-Bielefeld, Germany	84
11:20 am	The Evolution of Banknote Wear Appearance Ernesto Gonzalez Candela, Banco de Mexico Banknote Printing Works, Mexico	93
11:40 am	Optically Variable Elements in Banknotes: New Developments Roland Isherwood, De La Rue Group R&D, UK	106
12:00 pm	Lunch	



## **THURSDAY 24 JANUARY**

	·	
	Session 3: <b>Substrate and Printing I</b> Session Chair: Volker Lohweg, University of Applied Sciences Lippe & Höxter (Germany)	
1:15 pm	Spectral Pre-compensation of printed Security Deterrents Steven J. Simske, Hewlett-Packard Labs, USA	126
1:35 pm	The Forensic Analysis of Inkjet Printed Documents  Jack Tchan, MATAR Group, London College of Communication, University of The Arts London. UK	138
1:55 pm	Interactive Elastic Photonic Crystals André C. Arsenault, Opalux Inc., Canada	148
2:15 pm	Micro Structured Taggents in Security Pigments and Inks Alberto Argoitia, JDSU Flex Products Group, USA	158
2:35 pm	Break	
	Session 4: <b>Substrate and Printing II</b> Session Chair: Dennis J. Trevor – OFS Laboratories (USA)	
3:05 pm	Printable Appearance-Changing Graphical Security Devices Vladimir-Raksha, JDSU Flex Products Group, USA	170
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	185
3:45 pm	Security Features with Polarized Fluorescence Christoph Kocher, Landqart, Switzerland	197
4:05 pm	New Optically Active Macro-crystal Technology for Security Labels Gergely Hanczar, Algenon Innovation LLC, Hungary	207
Evening Pi	rogramme	
6:00 pm	Exhibitor Move-In	
7:00 pm	Topical Table Top Exhibit and Poster Papers/Buffet Dinner	
10:00 pm	Close of First Day	



#### **FRIDAY 25 JANUARY**

	Session 5: <b>Optically Variable Devices I</b> 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	223
8:50 am	SKATE® Threads – new optical security systems Andrey Kuryatnikov, Goznak, Russia	236
9:10 am	Creation of Novel Security Features using Optically Variable Magnetic Inks Claude-Alain Despland, SICPA SA, Switzerland	243
9:30 am	Individualised Diffractive Codes for Web-based Authentication and Tracking John A. Peters, OVD Kinegram Corp., Switzerland	253
9:50 am	Diffractive OVD Features for Window Banknotes Andreas Schilling, OVD Kinegram Corp., Switzerland	261
10:10 am	Break	
	Session 6:  Optically Variable Devices II Session Chair: Roger W Phillips, JDSU Flex Products Group (USA)	
10:40 am	Complex Computer-synthesized Holograms Forming Uncaused Fields Eugene Braginet, National Taras Shevchenko University of Kyiv, Ukraine	275
11:00 am	Advances in Metameric Security Image Structures Bill Baloukas, École Polytechnique, Canada	283
11:20 am	Enhanced Zero Order Devices using Scattering Structures Valery Petiton, Hologram Industries, France	295
I I:40 am	Synthetic Holography at 500000 dpi: from Renaissance of portraits to holographic dust Libor Kotacka, Optaglio s.r.o., Czech Republic	305
12:00 pm	Lunch	



## **FRIDAY 25 JANUARY**

	Session 7:  Optical Biometrics  Session Chair: Ian M Lancaster, International Hologram Manufacturers Association (UK)	
1:15 pm	Novel Lippmann Holograms and Computer Generated Holograms for Security Applications Tomoko Kumasawa, Dai Nippon Printing Co., Ltd., Japan	318
1:35 pm	The Biometrigram: A Portable Holographic Personalisation Station Satyamoorthy Kabilan, Ver-Tec Security Systems Ltd., UK	332
1:55 pm	<b>3-D Lenticular Photo ID</b> Jan van den Berg, Sdu, The Netherlands	339
2:15 pm	Are Fingerprint Biometrics Ready for E-Passports? Ton van de Putte, Riscure BV, The Netherlands	347
2:35 pm	Break	
	Session 8: <b>Authentication</b> Session Chair: Douglas S. Dunn, 3M Safety (USA)	
3:05 pm	An ICAO Compliant Solution for BAC Deficiencies Alexander Herrigel, SECUDE International AG, Switzerland	357
3:25 pm	Mobile Interaction and Document Authentication Alexander Herrigel, SECUDE International AG, Switzerland	364
3:45 pm	Digital Authentication of Documents and Products Using Copy Detection Images: from theory to practice Justin Picard, Picard Media Security Consulting, Switzerland	372
4:05 pm	Laser Surface Authentication – natural randomness as a fingerprint for document and product authentication Russell Cowburn, Imperial College London, Blackett Physics Laboratory, UK	382
4:25 pm	The Case for Authentication Standards lan M Lancaster, Reconnaissance International Ltd., UK	397
4:45 pm	End of Conference	