

pro flex

2017

► ROLL-TO-ROLL COATING OF FLEXIBLE MATERIALS

FOCUS 2017: TECHNOLOGY SCALE UP



**PRESENTATIONS
OF THE PREVIOUS
WORKSHOPS**

New technologies for vacuum roll-to-roll coating PECVD for high barrier coatings – Sputter deposition on flexible glass

H. TAMAGAKI, T. OKIMOTO, Y. KUROKAWA, T. SEGAWA, Y. IKARI, N. OHBA
Kobe Steel Ltd. [Japan]

Ultra-thin flexible glass substrates for electronics applications

J.-M. JOUANNO
Corning Inc. [USA]

A study of adhesive improvement of a Cr-Ni alloy layer on a polyimide surface by low pressure gas plasma modification

K. MIYAUCHI, H. YAMABE, M. YUASA
Sumitomo Metal Mining Co., Ltd. [Japan]

Successful substrate cleaning in a high vacuum environment

S. HAMILTON
Teknek, Ltd. [UK]

Managing flexible webs for vacuum roll-to-roll deposition for electronic or ultra-barrier applications

C. A. BISHOP
C. A. Bishop Consulting, Ltd. [UK]

Flexible solar cells

U. BEWERSDORFF-SARLETTE
Heliatek GmbH [Germany]

Printing versus coating technologies – In which direction the future production technologies for printed electronic is going?

A. GLAWE, F. SCHÄFER
KROENERT GmbH & Co. KG [Germany]

Freeform and flexible electronics manufacturing using roll-to-roll printing and hybrid integration techniques

J. HAST, K. RÖNKÄ
VTT Technical Research Centre of Finland [Finland]

Roll-to-roll processing of flexible OLEDs

C. LEHMANN, S. MOGCK, T. WANSKI, C. MAY
Fraunhofer COMEDD [Germany]

Direct laser interference patterning, a new tool for large area surface functionalization of flexible materials

A.-F. LASAGNI, S. ECKHARDT, J. BERGER, D. BENKE
Fraunhofer IWS [Germany]

Activities of Saint Gobain in window film

C. LEYDER
Saint Gobain Performance Plastic [France]

Roll-to-roll processes and equipment for displays: State of the art and outlook

R. KUKLA, N. MORRISON, T. DEPPISCH
Applied Materials GmbH & Co. KG [Germany]

Piloting roll-to-roll ALD – Status and results with 500 mm wide web system

M. SÖDERLUND, P. SOININEN
Beneq Oy [Finland]

Spatial atmospheric atomic layer deposition for next-generation flexible devices

F. ROOZEBOOM, P. POODT, A. ILLIBERI
Holst Centre TNO [The Netherlands]

ALD and MLD passivation layers for flexible OLED and OPV

C. HOSSBACH, H. KLUMBIES, F. NEHM, C. RICHTER, A. SINGH, C. KEIBLER, M. GEIDEL, L. MÜLLER-MESKAMP, U. SCHRÖDER, M. ALBERT, J. W. BARTHA

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PPD – An innovative technology for deposition on flexible substrates

C. TALIANI, A. NERI, D. YARMOLICH

Organic Spintronics Srl. [Italy]

Flash lamp annealing: High temperature processing of layers on flexible substrates

T. GEBEL, H. LIEPACK, M. NEUBERT, W. SKORUPA, R. ENDLER

DTF Technology GmbH [Germany]

Rotatable magnetron sputtering in roll-to-roll web coating of optical layer stacks

H. PRÖHL, M. DIMER, M. HENTSCHEL, F. OTTO, J. STRÜMPFEL

VON ARDENNE Anlagentechnik GmbH [Germany]

The gas barrier and adhesion properties of organic thin layer deposited by physical vapor deposition

T. EBATA

TOYOBO Co. Ltd. [Japan]

The effects of intrinsic and extrinsic defects on moisture-barrier coatings on polymer substrates

A. SMITH, D. BIRD, D. ROBBINS, S. EDGE, A. COOK

The Centre for Process Innovation Ltd., CPI [UK]

High performance gas barrier encapsulating materials for flexible organic devices

Y. HAGIHARA, K. NISHIJIMA, S. NAGANAWA, K. NAGAMOTO, T. KONDO

LINTEC Corporation R&D Div. Research Center [Japan]

RF plasma polymer coating on polymeric substrates: Study of barrier properties

S. LIGOT, C. NOUVELLON, F. AJOUAOUI, F. RENAUX, R. SNYDERS

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Photochemical approach to thin barrier films for the encapsulation of flexible laminar electronic devices

L. PRAGER, U. HELMSTEDT, H. HERRNBERGER, M. MÜNCH, O. KAHLE, F. KITA, A. PENDER, M. STASIAK

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Ultra-low water vapor permeation measurement using Tunable Laser Absorption Spectroscopy (TDLAS)

W. GRÄHLERT, H. BEESE, J. GRÜBLER, J. KOCH, K. PIETSCH

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Advanced Plasma Technology for Large Area PECVD Processes on Flexible Substrates

J. LANDROCK, M. ZEUNER, M. NESTLER, S. WINKLER, D. ROST
Roth & Rau MicroSystems GmbH

Dynamic VHF-PECVD Deposition Concept Tool with Linear Plasma Sources for Flexible Substrate Coating

C. STROBEL, B. LESZCZYNSKA, M. ALBERT, T. ZIMMERMANN, J. KUSKE, J. W. BARTHA
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PVD / PECVD Web Processing Solutions

S. KREHER, L. KÖHLER
FHR Anlagenbau GmbH

Recent Developments in Fast and Fine Temperature Measurement

U. KRAUSE, M. RITZHEIMER
Advanced Energy Industries GmbH

Roll-to-Roll ALD for Coating of Polymer Webs

M. SÖDERLUND, P. SOININEN, S. SNECK
Beneq Oy

Advanced Oxygen Plasma Polymer Substrate Pre-Treatment and Coating for Flexible Electronics Applications

M. AUDRONIS, V. BELLIDO-GONZALEZ
Gencoa Ltd.

Effects of Oxygen Plasma Surface Treatment on BOPP Film

S. F. DRIBINSKIY, C. STRULLER, H.-C. LANGOWSKI
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Moisture Barrier on Plastic Substrates by Atomic Layer Deposition (ALD) and Sputtering

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Large Scale Flexible Electrochromic Devices: Towards Roll-to-Roll Processing

E. AVENDANO, S. VON KRÆMER, T. ALMESJÖ, C. G. GRANQVIST
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Production Proven Vacuum Web Coating System for Robust and Environmentally-Friendly Transparent Barriers

R. LUDWIG, H.-G. LOTZ, G. HOFFMANN
Applied Materials GmbH & Co. KG

Nanoparticulate Barrier Films and Encapsulation Method for Solar and Display Applications

S. RAMADAS, S. ZIN MA, S. SHANMUGAVEL
TERA-BARRIER FILMS PTE. LTD.

ITO for Flexible Electronics Applications

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The Development of Transparent Conductive Films of Organic-Inorganic Lamination Type

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Demands on Barrier for Organic PV on Flexible Substrates

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Characterization of Ultra-Barrier Films

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Photovoltaic and OLED Applications: Optical in-situ and in-line Metrology for Advanced Roll-to-Roll Thin-Film Processes

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Magneto-Optical Studies of Magnetic Clusters and Thin Films on PET Substrates

K. SCHMIDEGG, V. RINNERBAUER, M. HOHAGE, L. D. SUN, P. ZEPPENFELD

Hueck Folien GmbH

Imaging Technologies for Reliability Assessment in Flexible Photovoltaics

T. SWONKE, M. WAGNER, C.-J. BRABEC, U. HOYER, J. BACHMANN, C. BUERHOP-LUTZ

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Insulating Layers on Flexible Metallic Substrates

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Permeation Testing for Organic Electronics: Review of Needs and Technological Options

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System Integration Technologies on Polymer Substrates

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Laser Scribing of Organic Solar Cells

R. NEUBERT, J. HÄNEL, C. SCHOLZ, M. CLAIR

3D-Micromac AG

R2R Production Solutions for Touch Panels, Flex PV and other Flex Electronic Applications

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OLED for Lighting – R2R Fabrication and Inspection

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Low E Coatings on Flexible Substrate for IGU Applications

R. KLEINHEMPEL, G. SPITZER, A. WAHL, R. WIPFLER, J. KOZAK, L. BOMAN, R. THIELSCH

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Recent Developments in Silicon Based Solar Cells Deposited on Plastic Film

Y. ZIEGLER, D. FISCHER, L. SANSONNENS, P. COUTY

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Silicon-Light: a New EU Project on Roll-to-Roll Fabrication of Thin Film Silicon Solar Cells on Foil

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Rigid and Flexible Solar Modules from a CIGS Roll-to-Roll Pilot Line

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Manufacturing and Applications of Cu(In,Ga)Se₂ Solar Cells on Flexible Substrates

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Magnetron Based PECVD: an Innovative High-Speed Process

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Control of a sheet resistance and light transmission in TCO production

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About the manufacturing of EMI-NIR locking filter based on Ag and ITO multi-layer coatings on flexible substrate for plasma display panel application

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Study of influence of under layer on Indium Tin Oxide crystallization

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2D Web coating simulator software

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Recent developments in plasma generation for web coating applications

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Roll-to-roll surface modification of fluoropolymers

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Plasma surface treatment

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Precise power for flexible substrate coating

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Wet coating - opportunity for ultrathin layers

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Flexible printing of transparent conducting oxides for display applications

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Roll to roll sputtering for flexible electronic applications

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Laser machining of thin films on top of flexible substrate carriers

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Permeation Barrier Properties of Oxide Layers on Polymer Film Deposited by Pulsed Magnetron Sputtering

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Specialty films for organic solar cells

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Flexible Silicon based solar cells: challenges and chances

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CIGS thin film solar cells on polymer substrates – the next generation of photovoltaics

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The European Project FLEXCELLENCE: roll to roll technology for the production of high efficiency low cost thin film solar cells

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Production and coating techniques for polymer solar cells

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High efficiency flexible solar cells: challenges and prospects of manufacturing and applications

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Permeation measurements at 0.001 g/m²/day and below for applications in flexible electronics

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In-line monitoring of ultrathin metallic films on PET substrates with sub-nm resolution

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Roll-to-roll fabrication of OLED on metal foils for lighting applications

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Advanced process control for surface treatment in roll-to-roll and other processes

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XRF-Inline measuring unit - an important tool to control coating processes

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On-line plasma monitoring for product optimization

D. MONAGHAN, V. BELLIDO-GONZALEZ, B. DANIEL, S. COUNSELL

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In-situ layer thickness measurement by spectral reflectance measurement

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Development of new linear ion beam source for vacuum web coating

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High adhesion coatings on polymer films for flexible circuit boards

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Design Features of Sputter Roll Coaters and Application of Optical Multi Layers on Flexible Substrates

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SMARTWEB, A new Vacuum Web Coater with Multiprocess Capabilities

R. KUKLA

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Copper-Indium-Gallium-DiSelenide based Thin Film Solar Cells on Polyimide

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ColorSwitch - A New Security Feature Made by Ultra-Thin Coating Technique

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Influences on resistance heated boats in web coating

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Leybold Optics GmbH

Sputter-coated plastic web for FPD-applications

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Optical in-situ process monitoring using spectroscopic ellipsometry and Raman scattering

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Electron Beam Web Coating of Silicon Oxide On Production Scale

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Alcan Packaging Services Ltd.

Barrier films for vacuum insulation panels

D. KACZMAREK, S. JACOBSEN

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Ion track technology for the production of polymeric foils with nanostructures and for vacuum surface treatment methods

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Linear Ion Source for In-Line Treatment of Polymers and Glass

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Production and Applications of flexible printed circuits

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Microwave assisted sputtering for polymers

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Vacuum Equipment for TCO and AR Coatings Deposition by Reactive Magnetron Sputtering

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Sidrabe Inc.

SiOx Hard Coat Films Deposited at High Rates by a Novel PECVD Roll to Roll Process

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Reactive Gas Control of Non Stable Plasmas

D. MONAGHAN, V. BELLIDO-GONZÁLES, B. DANIEL, J. COUNSELL

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Permeation Studies of Gas Barrier Films

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EBPVD Roll Coater and Related Technology Issues for Coating on Flexible Materials

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Low damage processing of thin films on flexible substrates by ultra-short pulse lasers

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Roll-to-roll laser patterning of vacuum coated flexible substrates

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In-line Monitoring of coating processes with fiber optical spectrometers - possibilities and limitations

C. P. RENSCHEN

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Forgery-proof optical codings made by vacuum coating

R. DOMNICK

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UV Curing: Plain and structured coatings as sub- and superstrate for vacuum web coatings

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Thickness and element contents of thin films on foils - measured online by X-ray

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Coating of polymer films with low resistance transparent electrodes

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