# TABLE OF CONTENTS

## PLENARY LECTURES

HOW MEGATRENDS CAN DRIVE DEVELOPMENT OF FUTURE ADVANCED COATINGS? ........................................ 1  
* S. Hajatdoost  
THE ROADMAP TO APPLICATIONS OF GRAPHENE, LAYERED MATERIALS AND HYBRID SYSTEMS ................................................................. 1  
* A. Ferrari

## SESSION 1: POLYMERS, PART I

1.1 SILICONE-BASED MATERIALS FOR COATINGS: TODAY AND TOMORROW ........................................ 2  
* D. Pierre

1.2 ULTRA-LOW VOC WATERBORNE ALKYD COATINGS WITH SOLVENTBORNE ALKYD COATING PERFORMANCE ........................................ 2  
* G. Clamen

1.3 SMALL TALK – OF TRIM PAINTS AND TINY PARTICLES ........................................................................ 3  
* R. Erhardt

## SESSION 2: CROSSLINKING & ADDITIVES, PART I

2.1 THE INFLUENCE OF CROSSLINKING TEMPERATURE AND CONVERSION ON TOPOLOGICAL IMPERFECTIONS IN CROSSLINKED POLYMERS ......................................................... 3  
* S. Croll

2.2 IN-DEPTH STUDY OF DRYING SOLVENTBORNE ALKYD COATINGS IN PRESENCE OF COBALT-FREE DRIERS ........................................................................................................ 4  
* L. Van Der Ven

2.3 THE EFFECT OF SECONDARY DRIERS ON DRYING SOLVENTBORNE ALKYD COATINGS IN PRESENCE PRIMARY DRIERS .......................................................................................... 4  
* S. Erich

## SESSION 3: PIGMENTS & NANOPARTICLES, PART I

3.1 SMART FILLERS FOR SMART COATINGS .......................................................................................... 5  
* M. Zielecka

3.2 SNAIL TRAILS AND COLOUR BRILLIANCE – HOW A NEW COMPOSITE TECHNOLOGY TACKLES DIVERSE CHALLENGES .................................................................................... 5  
* L. Gomes

3.3 DEVELOPING A COMPLETE COOL COLOURS SOLUTION FOR THE COATINGS INDUSTRY .......................................................................................................................... 6  
* D. Llado

## SESSION 4: POLYMERS, PART I

4.1 ADVANCED ISOSORBIDE-BASED WOOD COATINGS - POLYURETHANE ACRYLIC HYBRIDS ............................................................................................................................... 6  
* C. Schirp

4.2 MODIFIED STARCH AS POTENTIAL WATER-BASED BINDER SYSTEM FOR INTERIOR COATINGS ...................................................................................................................... 7  
* C. Gabriel

4.3 UNVEILING ALCOHOL RESISTANCE IN WATERBORNE COATINGS .................................................. 7  
* S. Bohorquez
SESSION 5: CROSSLINKING & ADDITIVES, PART II

5.1 NEW WATER DISPERSIBLE HDI-POLYISOCYANATES FOR 2K-PU WB COATINGS ................................................................. 8
    J. Tsujita
5.2 NOVEL ACRYLIC EPOXY HYBRID COATINGS FOR METAL PROTECTION APPLICATIONS ................................................................. 9
    G. Clamen
5.3 A SILOXANE FOR AMINE CROSSLINKED SYSTEMS ........................................................................................................... 9
    D. Pierre
5.4 STRATEGIES FOR THICKENING VINYL BINDER PAINTS WITH HEURS FOR OPTIMAL APPLICATION PROPERTIES ........................................ 10
    P. Storme

SESSION 6: PIGMENTS & NANOPARTICLES, PART II

6.1 GRAPHENE: A MULTI-FUNCTIONAL NANOMATERIAL FOR THE COATINGS INDUSTRY ........................................................................................................ 10
    L. Chikosha
6.2 CNTS AND ANTIFOULING COATINGS: SUSTAINABLE SYNTHESIS, SAFE-BY DESIGN AND RELEASE ASSESSMENT ................................................................. 11
    Y. Markakis
6.3 THERMAL BEHAVIOR OF EPOXY-POLYESTER POWDER COATINGS MODIFIED WITH NANOFILLER ........................................................................................................ 11
    J. Trzaskowska
6.4 THE EFFECTS OF NANO-SIO2 PARTICLES ON THE RHEOLOGICAL AND ANTICORROSION PROPERTIES OF AN AUTOMOTIVE ELECTROCOAT ........................................................................................................ 12
    Z. Ranjbar

SESSION 7: CHARACTERIZATION & PROCESSING

7.1 UNDERSTANDING OPEN TIME: FUNDAMENTAL MECHANISMS FROM PARTICLE MOTION TO PAINT WORKABILITY ................................................................................................. 12
    A. Van Dyk
7.2 WHY TEST INKS CANNOT TELL THE FULL TRUTH ABOUT SURFACE FREE ENERGY ........................................................................................................ 13
    N. Hearn
7.3 FUTURE DISPERSION TECHNOLOGY IN LACQUER AND PAINT PRODUCTION ................................................................................................. 13
    H.-J. Jacob

SESSION 8: EXTERIOR DURABILITY

8.1 TEST PRECISION OF THE EN 927-6 ARTIFICIAL WEATHERING TEST FOR WOOD COATINGS ......................................................................................................................................................... 14
    M. Arnold
8.2 CAN ACCELERATED WEATHERING PREDICT INFLUENCE OF TIO2 ON OUTDOOR DURABILITY OF WHITE TOPCOATS? ........................................................................................................ 14
    A. Verhaege
8.3 PREDICTION OF COLOUR DEVELOPMENT OF COATED WOOD SURFACES DURING WEATHERING AND MAINTENANCE ......................................................................................................................................................... 15
    B. Forsthuber
SESSION 9: APPLICATION PROCESS, PART I

9.1 LED-CURED SELF-REPLENISHING HYDROPHOBIC COATINGS BASED ON INTERPENETRATING POLYMER NETWORKS ........................................................................................................ 15
  Y. Zhang

9.2 CHEAP AND ROBUST 3D PRINTED APPLICATORS FOR USE IN ROBOTIC HIGH-THROUGHPUT FILM APPLICATION ........................................................................................................ 16
  P. Van Den Berg

9.3 NEW CONTINUOUS PRODUCTION METHOD OF LARGE AREA EL-SYSTEMS .......................................................... 16
  C. Cornelissen

SESSION 10: SUSTAINABILITY & BIOBASED MATERIALS

10.1 BRINGING THE WORLD TO LIFE: THE BCF SUSTAINABLE DEVELOPMENT POLICY, 7 YEARS ON ................................................................. 17
  T. Mash

10.2 THE IMPORTANCE OF ENERGY PRICING IN BUILDING A SUSTAINABLE FUTURE FOR THE COATINGS INDUSTRY ................................................................. 17
  J. Bourne

10.3 THE FIRST BIOBASED DIISOCYANATE AND A NEW BUILDING BLOCK FOR POLYURETHANE COATINGS: PDI ........................................................................ 18
  G. Behnken

10.4 THE NEXT GENERATION OF HIGHLY-SUSTAINABLE BINDERS ........................................................................ 18
  S. Austin

10.5 LACTIDE: REDUCED ALKYD RESIN VISCOSITY AND IMPROVED DRYING TIME IN DECORATIVE COATINGS ........................................................................ 19
  A. Michel

10.6 BIOBASED PAINT FOR WOOD, THE INFLUENCE OF THE BINDER STRUCTURE ON PERFORMANCE ........................................................................ 19
  S. Kervyn

10.7 BIOBASED PROTOTYPICAL COATINGS FOR INTERIOR METAL SURFACE APPLICATION ................................................................. 20
  M. Wanner

SESSION 11: EXTERIOR DURABILITY & CORROSION RESISTANCE, PART I

11.1 UNDERSTANDING THE BARRIER PROPERTIES OF WOOD COATINGS ON WATER TRANSPORT BY MEANS OF MAGNETIC RESONANCE ........................................................................ 20
  O. Gezici-Koc

11.2 CHARACTERIZING THE SURFACE STRUCTURE – FROM SUBSTRATE TO TOPCOAT ........................................................................ 21
  M. Osterhold

11.3 ACCELERATED SCREENING OF NEW INHIBITOR PIGMENT SYSTEMS ........................................................................ 21
  P. Dodds

11.4 FUNCTIONAL ADDITIVE TECHNOLOGIES FOR IMPROVED METAL SURFACE PROTECTION ................................................................. 22
  E. Pajunen

11.5 ADVANCED WATERBORNE BARRIER COATINGS FOR THE CORROSION PROTECTION OF STRUCTURAL STEEL ........................................................................ 22
  B. Skerry

11.6 ANTICORROSIVE PERFORMANCE OF ZN-MG-AL COATINGS IN AUTOMOTIVE MULTI-METAL PROCESS ........................................................................ 23
  U. Christ

11.7 INFLUENCE OF SiO2 ON THE CORROSION PERFORMANCE OF CARBON STEEL ........................................................................ 23
  L. Mora
SESSION 12: FUNCTIONAL COATINGS, PART I

12.1 ENCAPSULATED BIOCIDE ENSURING LOW BIOCIDE CONTENT IN ANTI-FOULING TECHNOLOGY ................................................................. 24
   E. Wallstrom
12.2 INTRINSIC SELF-HEALING COATINGS ............................................................................................................. 24
   A. Wittmer
12.3 INTRINSIC HEALING PROTECTIVE COATINGS REINFORCED WITH HYBRID NANOCONTAINERS ................................................................. 25
   E. Karaxi
12.4 ADVANCED FUNCTIONAL COATINGS – ADDING VALUE TO STEEL ........................................................................... 25
   D. Thakur
12.5 THE USE OF EASY-TO-CLEAN, ANTIMICROBIAL COATINGS IN THE FOOD INDUSTRY ................................................................. 26
   H. Van Den Rul
12.6 HYDROPHOBATION OF TIMBER WITH ORGANOSILICON COMPOUNDS – AN UPDATE FROM THE SILEX LIFE+ PROJECT .................................................................................................................. 26
   J. Lecomte
12.7 VARNISH DEVELOPMENT FOR ENHANCED GAS BARRIER AND ANTIMICROBIAL PROPERTIES OF FOOD PACKAGING ........................................................................................................... 27
   B. Naden

SESSION 13: PACKAGING COATINGS

13.1 FUNCTIONAL COATINGS FOR BIODEGRADABLE FOOD PACKAGING ........................................................................................................... 27
   S. Amberg-Schwab
13.2 EFFECT OF THE COMPOSITION OF NEW BISPHENOL A NON-INTENT COATINGS FOR INTERIOR CAN COATING ........................................................................................................... 28
   K. Weber

SESSION 14: EXTERIOR DURABILITY & CORROSION RESISTANCE, PART II

14.1 GREEN INHIBITORS FOR CORROSION PROTECTION OF METALS ........................................................................................................... 28
   A. Szelag
14.2 ORGANIC-INORGANIC HYBRID AEROGELS AS COATING MATERIALS ................................................................................................. 29
   K. Suwala

SESSION 15: FUNCTIONAL COATINGS PART II

15.1 ASSESSMENT OF ADVANCED EASY-CLEAN DURABLE COATINGS ................................................................................................. 29
   A. Wojdyla-Cieslak
15.2 BENCHMARKING DIRT PICKUP RESISTANCE OF COMMERCIALLY AVAILABLE ARCHITECTURAL EXTERIOR COATINGS ........................................................................................................... 30
   A. Cooper

POSTER PRESENTATIONS

POSTER 1: ANTI-MICROBIAL POLYETHYLENE SURFACES ........................................................................................................... 31
   K. Siegmann
POSTER 2: SELF-CROSSLINKABLE LATEX WITH COVALENTLY LINKED FLAME RETARDANT ................................................................................................. 31
   A. Ruckerova
POSTER 3: MOLAR MASS OF ACRYLIC MICROGELS IN RELATION TO COATING PROPERTIES OF SELF-CROSSLINKING LATEXES ................................................................................................. 32
   J. Machotova
POSTER 4: NOT ONLY PAINTS! ELECTROCHEMISTRY CAN ALSO PROTECT AND COLORIZE ................................................................................................. 32
   A. Maciej
POSTER 5: THERMAL STABILITY OF HEAT RESISTANT PIGMENTS
T. Pozman

POSTER 6: EXPLORATION OF CERIUM-DOPED INORGANIC PIGMENTS AS A CONCEPT FOR UV-PROTECTION OF COATINGS
M. Bohem

POSTER 7: IMPROVEMENT OF CORROSION PROTECTION OF OFFSHORE WIND TURBINES BY MECHANICAL CHARACTERIZATION OF PROTECTIVE COATINGS
I. Lopez

POSTER 8: EVALUATION OF THE PHYSICAL-MECHANICAL AND ANTICORROSION PROPERTIES OF PAINT FILMS USING NANOTECHNOLOGY
K. Nechvilova

POSTER 9: ANTICORROSION EFFICIENCY OF ZINC-FILLED COATINGS CONTAINING CONDUCTIVE
A. Kalendova

POSTER 10: UNSATURATED POLYESTER MICROSTRUCTURES ON STEEL: MAPPING COATINGS ON A NANOMETRIC SCALE BY AFM
S. Muhler

POSTER 11: SYNTHESIS OF CHEMICAL RESISTANT POLYMERS THROUGH FORMATION OF CYCLIC CARBONATES
A. Halhuber

POSTER 12: A METHOD TO GET ROUND THE CARBONATION OF AMINES IN EPOXY COATINGS
M. Blain

POSTER 13: EFFECT OF GRAPHENE OXIDE ON SELF-STRATIFICATION OF EPOXY-SILICONE COATINGS
S. Ekbatani

POSTER 14: INFLUENCE OF PAINT QUALITY ON THE ENVIRONMENTAL FOOTPRINT OF ARCHITECTURAL PAINTS
J. Rommen

POSTER 15: INFLUENCE OF TITANIUM DIOXIDE SURFACE TREATMENT ON THE PROPERTIES OF POWDER COATINGS
D. Kotova

POSTER 16: CHARACTERIZATION OF CARBON-BASED MATERIALS WITH COMBINED RAMAN SPECTROSCOPY & TRIBOINDENTATION
I. Hayward

POSTER 17: EFFECT OF WOLLASTONITE EXTENDER ON THE PROPERTIES OF EXTERIOR ACRYLIC PAINTS
S. Ozbil

POSTER 18: SMALL AMPLITUDE OSCILLATORY RHEOMETRY FOR OPTIMIZATION OF COATINGS FORMULATIONS
A. Kostitsyn

POSTER 19: THE EFFECT OF PIGMENT SURFACE MODIFICATION ON FILM FORMATION OF COATINGS
N. Skopintseva

POSTER 20: SYNTHESIS AND CHARACTERIZATION OF COVALENTLY BONDED STABILIZER
Z. Nadvornikova

POSTER 21: HIGH PERFORMANCE DISPERSANTS FOR ECONOMY PAINTS
A. Van Dyk

POSTER 22: A NON-CONTACT, MULTI-LAYER COATING THICKNESS SENSOR
R. May

POSTER 23: OPTIMIZATION OF A BIOBASED 2K-PU COATING MADE FROM A POLYHYDROXYLATED OLIVE-OIL
S. Yam

POSTER 24: PRELIMINARY STUDIES ON SYNTHESIS AND CHARACTERIZATION OF SILICONE-ACRYLIC/STYRENE DISPERSIONS
I. Ofat-Kawalec

POSTER 25: IMPROVING CORROSION PROTECTION THROUGH MICA
M. Smit

POSTER 26: THE EFFECT OF NEW BIO-BASED RESINS FROM PLANT OILS ON PROPERTIES OF ARCHITECTURAL COATINGS
A. Sliusarczyk
POSTER 27: SYNTHESIS OF BIOBASED-POLY(LACTIC ACID) ACRYLATE RESIN FOR UV-CURABLE COATING APPLICATIONS ........................................................... 44

N. Jiratunnakul

Author Index