

CHEMISTRY, MATERIALS & LIGHT

21-23 SEPTEMBER 2015

CNR, AREA DELLA RICERCA DI BOLOGNA
VIA P. GOBETTI, 101 - BOLOGNA, ITALY

CHEMISTRY, MATERIALS & LIGHT

AN INTERNATIONAL EVENT FOCUSED ON INNOVATION IN THE FIELD OF LIGHT INTEGRATING ACADEMIC RESEARCH, INDUSTRIAL DEVELOPMENT AND END-USERS PERSPECTIVES.

CM&L 2015 is an international event organized by CNR-DSCTM and CNR-ISMN in the framework of the IYL2015 to brainstorm and share views on research and innovation challenges in materials chemistry for lighting technologies and applications. International experts covering the full value chain from academy, innovation-oriented research centers and industries, including end-users, will discuss on the strategic role

played by chemistry and materials manufacturing to enable novel light-emitting technologies. The meeting will cover thematic areas related to the development of innovative and tailored light-emitting materials and devices for sustainable, low-cost and easy to dispose applications in fields related to energy efficiency, lighting, display technology, environment and healthcare.

THEMATIC SESSIONS WILL INCLUDE KEYNOTE LECTURES (30')
AND SELECTED ORAL CONTRIBUTIONS (10')

THE TARGET AUDIENCE IS FROM ACADEMY, INNOVATION CENTERS
AND INDUSTRY.





THEMES

CHEMISTRY

- SYNTHETIC STRATEGIES AND MOLECULAR DESIGN
- DEFINITION OF PROPERTY-SPECIFIC AND TAILORED MOLECULAR STRUCTURES
- DEVELOPMENT OF MOLECULAR, POLYMERIC AND HYBRID FUNCTIONAL STRUCTURES

MATERIALS

- PROPERTIES OF MOLECULAR PHOTO-EMISSIVE AND CHARGE TRANSPORT MATERIALS AT THE NANOSCALE
- ADVANCED MORPHOLOGICAL AND PHOTOPHYSICAL CHARACTERIZATION TECHNIQUES
- LIGHT-GENERATION IN COMPLEX NANOSCALE SYSTEMS
- THEORETICAL AND COMPUTATIONAL APPROACHES IN THE MODELING OF LIGHT-MATTER INTERACTION

LIGHT

- REAL-SETTING IMPLEMENTATION OF LIGHT-EMITTING AND LIGHT-SENSITIVE MATERIALS
- NEW APPLICATIONS ENABLED BY NEW TECHNOLOGIES
- SUSTAINABLE TECHNOLOGIES IN THE DEVELOPMENT OF MATERIALS AND DEVICES FOR LIGHTING

INVITED SPEAKERS

THEMATIC SESSIONS OF SCIENTIFIC AND INDUSTRIAL RELEVANCE, FEATURING INTERNATIONAL EXPERTS, WILL COVER INNOVATIVE APPROACHES AT THE INTERSECTION OF CHEMISTRY, MATERIALS SCIENCE AND LIGHTING TECHNOLOGIES.

LULA ROSSO

EUROPEAN COMMISSION, DG RTD,
UNIT D3 ADVANCED MATERIALS AND
NANOTECHNOLOGIES, BRUSSELS (B)

ULLRICH SCHERF

BERGISCHE UNIVERSITÄT,
WUPPERTAL (D)

BRYCE NELSON

SIGMA-ALDRICH, MILWAUKEE (USA)

ANTONIO FACCHETTI

POLYERA, SKOKIE (USA)

ANGEL RUBIO

MAX PLANCK INSTITUTE FOR THE
STRUCTURE AND DYNAMICS OF
MATTER, HAMBURG (D)

RAINER MAHRT

IBM RESEARCH, ZÜRICH
RESEARCH LABORATORY (CH)

IFOR SAMUEL

ST ANDREWS UNIVERSITY,
ST ANDREWS, SCOTLAND (UK)

HANI KANAAN

CEA, GRENOBLE (FR)

CHRISTIAN MAY

FRAUNHOFER, DRESDEN (D)

CHRISTIAN BOSSHARD

CSEM SA & SWISSPHOTONICS,
MUTTENZ (CH)

DOMINIK PENTLEHNER

OSRAM, REGENSBURG (D)

SRIDHARAN VENK

OSRAM, TREVISO (IT)

STEFANO TOMINETTI

SAES GETTERS S.P.A., LAINATE (IT)

LUCA PORCARO

ARTEMIDE, MILANO (IT)

PAOLO GUZZINI

IGUZZINI ILLUMINAZIONE S.P.A.,
RECANATI (IT)

REINDER COELHOORN

PHILIPS RESEARCH LABORATORIES,
EINDHOVEN (NL)

MARKUS WILKENS

PHOTONICS21, DÜSSELDORF (D)

ROUND TABLE “THE IMPACT OF CHEMISTRY, MATERIALS AND LIGHT ON SOCIETAL AND ECONOMIC CHALLENGES”

LUIGI NICOLAIS (**CNR**), PATRIZIO BIANCHI (**REGIONE EMILIA ROMAGNA**), LULA ROSSO (**EC DG-RTD**), MARKUS WILKENS (**PHOTONICS21**), MAURO PRETOLANI (**INVESTOR AND MANAGER IN VENTURE CAPITAL**), SRIDHARAN VENK (**OSRAM**). MODERATOR: PAOLO MAGLIOCCO.

The round table brings together key actors from policy-making institutions, public research and business to debate on the economic and societal impact of research and innovation in chemistry, advanced materials and lighting technologies.

The speakers are outstanding experts and recognized leaders in their respective fields, who will share their experience and vision on the modalities to generate an impact from research and innovation. Practical examples of policies and business cases will be presented to stimulate an open discussion on best practices and critical issues.

Expected outcomes of the event include:

- how advanced materials, advanced manufacturing and photonics key enabling technologies (KETs) can best contribute to the renaissance of the European industry, including the creative industries, and especially to the competitiveness of European SMEs;
- how European, national and regional policy programmes can be applied in the interest of the regional and European competitiveness.



LUIGI NICOLAIS
PRESIDENT OF CNR

Luigi Nicolais is President of **CNR**, the National Research Council of Italy and Emeritus Professor of Material Science at the University of Naples “Federico II”. He founded and directed numerous research structures and technology transfer centers. He is member of scientific associations and editorial boards of the most important journals in the field. He has written 7 books and published over 400 papers and he is author of 25 patents. He is one of the Italian scientists with the largest number of citations in international scientific journals.

As elected member of the Regional Council of Campania, he was responsible for the Region’s scientific research, technological innovation and new economy. He was elected member of the Italian Parliament, where he has been Vice President of the Parliament’s Culture, Science and Education Commission. He was Minister of Public Administration and Innovation (2006-2008).



PATRIZIO BIANCHI
REGIONE EMILIA ROMAGNA

Patrizio Bianchi, was born in Copparo, in the province of Ferrara, in 1952. He graduated in Bologna, he specialized at London School of Economics. Professor of Applied Economics since 1989, was Rector of the University of Ferrara until 2010.

An expert in economics and industrial policies and development, has worked for Italian and international institutions and governments of different countries. Since 2010 he is Councillor Coordinator for development, school, vocational training, universities and research work of the Emilia-Romagna Region.



LULA ROSSO
EC DG-RTD

Since 2011, **Lula Rosso** has been working at the **European Commission**, Directorate General Research and Innovation, as Research Programme Officer in the field of Materials. Previously, she had been working for 8 years at Imperial College London and at the Medical Research Council UK Clinical Science Centre as senior scientist, in the field of computational modelling, functional image analysis and pharmacokinetics.

Lula Rosso holds a degree in Physics from the University of Rome “La Sapienza” and a PhD from New York University in Computational Chemistry. Her specific interests include the creative industries and material modelling.



MARKUS WILKENS
PHOTONICS21

Markus Wilkens, Senior Technology Consultant at the VDI Technology Center GmbH (VDITZ), Department Laser and Optics Research, is managing the European Technology Platform **Photonics21** secretariat operations since its foundation. He has several years experience at the VDITZ in the set up and execution of innovation oriented initiatives at the interface of research, industry and politics.

Before his position at VDITZ he worked as a technology consultant for the Bayerische Landesbank, Munich, in the financing sector.



MAURO PRETOLANI
INVESTOR AND MANAGER
IN VENTURE CAPITAL

Mauro Pretolani focuses on value generation from the existing portfolio in the mobile and digital media technologies and services. He is currently on the board of mobile and internet companies in Europe and serves as COO at a European mobile company in the TLcom portfolio on a part time basis. Mauro also leads a number of Direct Secondary investments.

While at TLcom, Mauro was CEO and Chairman of the Board at CommProve. Previously, Mauro was a Manager in Bain & Company's TMT practice. Before joining Bain, he worked in the Marketing and Treasury departments of Procter & Gamble in Greece and Italy. Mauro holds a Summa cum Laude Laurea Degree in Business Administration from the University of Rome "La Sapienza" and an MBA with distinction from Harvard Business School.



SRIDHARAN VENK
OSRAM

Sridharan Venk, Ph.D. is flexible substrate and integrated solutions 'Concept to Realization' technical and management expert. Completed a range of Disk Drive Assembly component enhancements through combining new design, materials and processes. Extensive background in world-wide supplier networking and solutions integrating. Developed Flip Chip on Flex process at Seagate and Western Digital Corporations, currently nearly 100% usage in Disk Drive Actuator Assemblies, billions produced every quarter, year after year.

Key Inventor of the PET based Light Module for Osram, through unique combination of available technologies and optimization, resulting in a potential mass volume application platform, supporting LED revolution. Product currently unveiled for commercialization. Seeking next generation novel developments in Light and Electronics Engines, based on plastics and composites substrates, for higher efficiency and environmental friendliness, through Osram led dedicated teams internally and externally at strategic Institutions.

MONDAY 21.09

10.00 - 14.00 REGISTRATION

14.15 - 14.40 WELCOME ADDRESS, LUIGI AMBROSIO (**CNR - DSCTM**), MICHELE MUCCINI (**CNR - ISMN**)

14.40 - 15.30 SESSION I

14.40 - 15.00 LULA ROSSO, **EC DG-RTD**: "MATERIALS AND LIGHT IN HORIZON 2020"

15.00 - 15.30 BRYCE NELSON, **SIGMA-ALDRICH**: "ILLUMINATION, INNOVATION AND COLLABORATION AT ALDRICH MATERIALS SCIENCE"

15.30 - 16.50 SESSION II

15.30 - 15.50 MARKUS WILKENS, **PHOTONICS21**: "PHOTONICS PPP IN HORIZON2020 - MAKING EUROPE MORE COMPETITIVE"

15.50 - 16.20 CHRISTIAN BOSSHARD, **CSEM**: "PHOTONICS: A KEY ENABLER FOR SWITZERLAND"

16.20 - 16.50 ANTONIO FACCHETTI, **POLYERA**: "NEW MATERIALS THAT PROCESS LIGHT AND CHARGES"

16.50 - 17.10 COFFEE BREAK

17.10 - 18.00 SESSION III - CONTRIBUTED TALKS

PAOLA MANINI, DEPT. CHEMICAL SCIENCES, UNIVERSITA DI NAPOLI FEDERICO II, NAPOLI, ITALY - MELANINS AND LIGHT: WHEN NATURAL PIGMENTS INSPIRE THE DESIGN OF BIOCOMPATIBLE ELECTROLUMINESCENT MATERIALS **FABRIZIO MARIANO**, CNR NANOTEC, LECCE, ITALY - FULLY EVAPORATED ORGANO-METAL HALIDE PEROVSKITE LIGHT EMITTING DIODE BASED ON P-I-N HETERO-STRUCTURE **MARIACECILIA PASINI**, CNR ISMAC, MILANO, ITALY - POLAR CONJUGATED POLYMERS AS INTERFACIAL LAYER FOR EFFICIENCY IMPROVEMENT IN A WIDE CLASS OF FULLY SOLUTION-PROCESSABLE LIGHT-EMITTING DEVICES (LED) **ANNA TAMPIERI**, CNR ISTE, FERRARA, ITALY, INSPIRATION FROM NATURE: A NEW APPROACH FOR FUNCTIONAL NANOMATERIALS

18.00 - 19.00 POSTER SESSION

TUESDAY 22.09

9.00 - 10.30 SESSION IV

9.00 - 9.30 ULLRICH SCHERF, **BERGISCHE UNIVERSITAET WUPPERTAL**: “TUNING THE LUMINESCENCE PROPERTIES OF CONJUGATED POLYMERS”

9.30 - 10.00 HANI KANAAN, **CEA**: “OLED TOP EMISSION TECHNOLOGY FOR LIGHTING AND MICRO DISPLAY”

10.00 - 10.30 REINDER COELHOORN, **PHILIPS**: “CHARGE TRANSPORT AND PHOTOPHYSICS OF ORGANIC LIGHT-EMITTING DIODES FOR LIGHTING APPLICATIONS”

10.30 - 11.00 COFFEE BREAK

11.00 - 12.30 ROUND TABLE “THE IMPACT OF CHEMISTRY, MATERIALS AND LIGHT ON SOCIETAL AND ECONOMIC CHALLENGES”: LUIGI NICOLAIS (**CNR**), PATRIZIO BIANCHI (**REGIONE EMILIA ROMAGNA**), LULA ROSSO (**EC DG-RTD**), MARKUS WILKENS (**PHOTONICS21**), MAURO PRETOLANI (**INVESTOR AND MANAGER IN VENTURE CAPITAL**), SRIDHARAN VENK (**OSRAM**). MODERATOR: **TBD**.

LUNCH

14.00 - 15.30 SESSION V

14.00 - 14.30 STEFANO TOMINETTI, **SAES GROUP**: “CHALLENGES AND SOLUTIONS FOR SSL LIFETIME AND PERFORMANCES EXTENSION”

14.30 - 15.00 RAINER MAHRT, **IBM**: “LIGHT-MATTER INTERACTION IN POLYMERS: FROM WEAK-COUPLING TO BOSE-EINSTEIN CONDENSATION”

15.00 - 15.30 ANGEL RUBIO, **MAX PLANCK INSTITUTE HAMBURG**: “SIMULATING LIGHT-INDUCED DYNAMICAL PROCESSES IN LIGHT HARVESTING COMPLEXES”

15.30 - 15.50 COFFEE BREAK

15.50 - 17.20 IUPAC SPECIAL SESSION

15.50 - 16.00 LUIGI AMBROSIO, ITALIAN **CNR** COMMITTEE FOR IUPAC, WELCOME ADDRESS AND INTRODUCTION

16.00 - 16.20 LIDIA ARMELAO, **IENI-CNR**, “PAIRS OF LANTHANIDE ANTENNA COMPLEXES AS LUMINESCENT RATIO-METRIC SENSORS”

16.20 - 16.40 MASSIMO OLIVUCCI, MARCO PAOLINO, **UNIVERSITY OF SIENA**, “FROM COMPUTATIONAL PHOTOBIOLOGY TO THE DESIGN OF LIGHT-DRIVEN MOLECULAR MOTORS”

16.40 - 17.00 MARIO MALINCONICO, **IPCB-CNR**, PRESENTATION OF THE 21ST CONFERENCE IUPAC CHEMRAWN ON “SOLID URBAN WASTE MANAGEMENT”, ROME 6TH-8TH APRIL 2016

17.00 - 17.20 PIETRO TUNDO, **UNIVERSITY OF VENEZIA CÀ FOSCARI**, PRESENTATION OF THE 6TH IUPAC GREEN CONFERENCE, VENICE, 4TH-9TH SEPTEMBER, 2016

17.20 - 18.10 SESSION VI - CONTRIBUTED TALKS

FRANCESCO ANTOLINI, ENEA, FAENZA, ITALY - IN SITU FORMATION AND PHOTO PATTERNING OF EMISSIVE QUANTUM DOTS **MASSIMO BARONCINI**, DIPARTIMENTO DI CHIMICA “G. CIAMICIAN”, UNIVERSITA' DI BOLOGNA, ITALY - PHOTOINDUCED REVERSIBLE PHASE CHANGE IN POROUS MOLECULAR CRYSTALS BASED ON STAR-SHAPED AZOBENZENE TETRAMERS **ALBERTO BOSSI**, CNR ISTM, MILANO, ITALY - NEAR INFRARED EMITTERS BASED ON [1-(BENZO[B]THIOPHEN-2-YL)ISOQUINOLINE] IR(III) COMPLEXES WITH PRACTICAL APPLICATION IN SOLUTION PROCESSED OLEDs: STRUCTURE-PROPERTY-DEVICE CORRELATIONS **LUANA PERSANO**, CNR NANO, LECCE, ITALY - NEXT-GENERATION ORGANIC LASERS BY NANOFIBERS AND PHYSICALLY TRANSIENT MATERIALS **MARINELLA STRICCOLI**, CNR IPCF, BARI, ITALY - QUANTUM DOTS BASED HYBRID NANOSTRUCTURES WITH WHITE EMISSION

SCHEDULE

WEDNESDAY 23.09

9.30 - 10.45 SESSION VII

9.30 - 10.00 IFOR SAMUEL, **ST. ANDREWS UNIVERSITY**: “VISIBLE LIGHT COMMUNICATION: OPPORTUNITIES FOR ORGANIC SEMICONDUCTORS”

10.00 - 10.30 CHRISTIAN MAY, **FRAUNHOFER-FEP**: “ENCAPSULATION AND INTEGRATION OF FLEXIBLE OLED FOR LIGHTING APPLICATIONS”

10.30 - 10.45 SRIDHARAN VENK, **OSRAM**: “INNOVATIVE LIGHTING PRODUCTS AND THE LINK TO RESEARCH”

10.45 - 11.15 COFFEE BREAK

11.15 - 12.45 SESSION VIII

11:15 - 11:45 LUCA PORCARO, **ARTEMIDE**: “SSL IN LIGHTING SYSTEM: THE POINT OF VIEW OF LIGHTING PRODUCERS”

11.45 - 12.15 DOMINIK PENTLEHNER, **OSRAM**: “OLEDs FOR AUTOMOTIVE LIGHTING”

12.15 - 12.45 PAOLO GUZZINI, **IGUZZINI**: “IMPACT ON MARKET OF NEW LED TECHNOLOGIES”

12.45 - 13.00 CONCLUSIONS

Chairs

Luigi Ambrosio (DSCTM - CNR)

Michele Muccini (ISMN - CNR)

Scientific Committee

Manuela Melucci (ISOF - CNR)

Francesco Mercuri (ISMN - CNR)

Stefano Toffanin (ISMN - CNR)

Gabriella Leo (ISMN - CNR)

Organizing Committee

Giovanna Guidicelli (ISMN - CNR)

Simona Aldrovandi (ISMN - CNR)

Valeria Pignedoli (MIST E-R)

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