## THE GREEK PRINT-MEDIA ENGINEERS AT VIRTUAL DRUPA 2021







HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS

www.helgramed.gr

#### A tradition of drupa attendance since 1977





Greek Graphic Arts
Technology Engineers
To DRUPA

1977 - 2016
The tradition continues







#### THE GREEK PRINT-MEDIA ENGINEERS AT VIRTUAL DRUPA 2021











### HELGRAMED

HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS

#### Who we are?

The leading organization in Graphic Communication, Print, Media and Packaging in Greece

http://www.helgramed.gr/en/index.php



#### Who we are:

The professional and scientific organization of the Greek Print - Media Engineers of the Tertiary education First established 1981 – Reorganized 2013 Legal entity Non-profit Some 600 members





#### Fields of activities

- Research & Development for the Graphic Communication,
   Print, Media and Packaging sectors/industries
- Human Capital Development Education and training projects
- Organization of conferences, seminars and events
- Preservation and promotion of the cultural heritage of Typography and Graphic Arts
- Guidelines and specifications for print-media professions
- Job profiles and occupational standards development,
   Curricula development and learning outcomes for education programmes





#### **Activities - indicative**

- International cooperation at various projects
- Active cooperation with the printing industry
- Research projects in the entire field of print media technology
- Organization of scientific conferences and events
- Organization of training seminars and summer schools
- Active participation at Greek and International printing and packaging exhibitions (DRUPA, Graphica, Fespa, Syskevasia)
- Events on Typography and Printing History Heritage







Research from Greece... to the World of Print!





### Research Topic: Color Management and Expanded Gamut Printing Color Guide for Fine Print Reproduction



Antonis Tsigonias, Michalis Manonas, Aikaterini Pagkrati, Marios Tsigonias, Anastasios Politis



#### Research introduction

- Six (6) channel separation (CMYKOG)
- Tonal Separation export to sixteen (16) equal tonal value channels + hybrid separation – halftone and tonal separation on specific areas
- Formulation and pilot manufacturing of silkscreen printing inks (conventional + security printing inks)
- Creation of prototype color guides and tonal value charts
- Standardization of the printing process

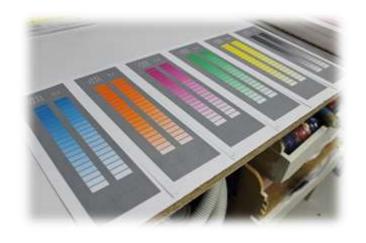




#### Methodology

- Advanced color management
- Definition of the separation workflow
- Advanced image processing
- Film output quality control
- Ink development and formulation colorimetry
  - Creation of ink recipes
- Standardization of the printing process for wide color gamut printing







#### Research results

- Extended color gamut CMYKOG vs CMYK
- Resolving moiree effect to more than 4 separations
- Controlled dot gain for smoother image reproduction
- Prototyping of tonal image separation by 4 X 2<sup>x</sup> (4 channels X 2<sup>x</sup> tonal values) produced inks
- Repeatable and stable printing results





#### Information and contact

HELGRAMED (Hellenic Union Of Graphic Arts and Media Engineers )
G.A.R.D.EN Institute (Graphic Arts Research Development Engineering)
GRAPHMEDLAB, The Hellenic Graphic Media Research Lab, University of West Attica
UNIWA (University of West Attica Athens-Greece)



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#### Research topic:

Synthesis and characterization of fluorescent ceramic pigments for special ink applications

#### Eirini Pavlou, eirinipav@gmail.com

Advanced Ceramics and Composites Laboratory
Institute of Nanoscience and Nanotechnology
NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS", GREECE



### Synthesis and characterization of fluorescent ceramic pigments for special ink applications

#### Research objectives

- Development of pigments for the ink and graphic arts industry with advanced physical, chemical and mechanical properties using higher efficiency and lower cost methods.
- Production of pigments based on Cobalt by Solution Combustion Synthesis SCS.
- Clarification of the new pigments advantages and their utilization by the Printing Industry



### Method of production of inorganic pigments with Solution Combustion Synthesis - SCS



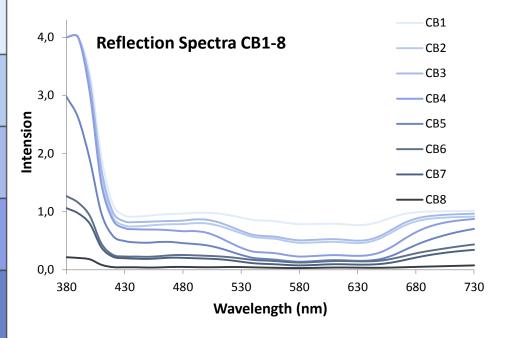
- Exothermic reactions of metal nitrates in an aqueous solution with an organic fuel produces oxide nano-structured pigment powders. Glycine and Urea are suitable fuels due to their amino acid content and can be used to produce complexes of metallic ions.
- The exothermic reactions initiate during pre-heating (T = 500-600°C) and reach a maximum reaction temperature which self-sustains for short period which leads to the final compound.

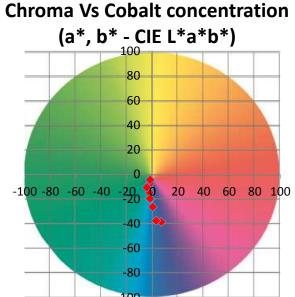
The properties of the produced powders depend to a great extent on the process parameters



πειράμα τος	Σύνθεση αρχικού μίγματος	Θερμοκρασία έψησης	Τιμές χρώματος στο CIE L*a*b* (D60/2°)	Παραγόμενο Χρώμα χρωστικής
CB1	81,5% Al(NO <sub>2</sub> ) <sub>2</sub> 10,73% Ba(NO <sub>2</sub> ) <sub>2</sub> 7,77% Mg(NO <sub>2</sub> ) <sub>2</sub> 0,1% Co(NO <sub>2</sub> ) <sub>2</sub> 60% urea	600°C	L*=93,02 a*=-2,19 b*=-7,68	
CB2	81,5% Al(NO <sub>2</sub> ) <sub>2</sub> 10,73% Ba(NO <sub>2</sub> ) <sub>2</sub> 7,77% Mg(NO <sub>2</sub> ) <sub>2</sub> 0,5% Co(NO <sub>2</sub> ) <sub>2</sub> 60% urea	600°C	L*=81,89 a*=-1,82 b*=-20,01	
CB3	81,5% Al(NO2)2 10,73% Ba(NO2)2 7,77% Mg(NO2)2 1% Co(NO2)2 60% urea	600°C	L*=74,48 =*=0,2 b*=-26,49	
CB4	81,5% Al(NO2)2 10,73% Ba(NO2)2 7,77% Mg(NO2)2 2% Co(NO2)2 60% urea	600°C	L*=65,28 a*=6,94 b*=-38,68	
CB5	81,5% Al(NO2)2 10,73% Ba(NO2)2 7,77% Mg(NO2)2 5% Co(NO2)2 60% urea	600°C	L*=54,59 a*=2,99 b*=-37,68	
CB6	81,5% Al(NO2)2 10,73% Ba(NO2)2 7,77% Mg(NO2)2 7,5% Co(NO2)2 60% urea	600°C	L*=46,59 a*=-2,31 b*=-14,94	
CB7	81,5% Al(NO2)2 10,73% Ba(NO2)2 7,77% Mg(NO2)2 10% Co(NO2)2 60% urea	600°C	L*=40,11 a*=-1,95 b*=-19,76	
CB8	81,5% Al(NO <sub>2</sub> ) <sub>2</sub> 10,73% Ba(NO <sub>2</sub> ) <sub>2</sub> 7,77% Mg(NO <sub>2</sub> ) <sub>2</sub> 20% Co(NO <sub>2</sub> ) <sub>2</sub> 60% urea	600°C	L*=25,10 a*=-1,78 b*=-4,56	

#### Visible Chromatography







Pigments CB1, CB2, CB3 with foamed structure after SCS in the system Al-Co-Ba-Mg-O (81,5%  $Al(NO_3)_3+10,73\%+Ba(NO_3)_2,77\%$   $Mg(NO_3)_2+XCo(NO_3)_2+60\%$  urea).





#### Pilot silk screen printing using our SCS pigments



Solution Combustion Synthesis can produce controlled compositions of fluorescent pigments and produce high-quality inks for silk screen printing with excellent stability.



#### Research & development in digital print standardization

Scientific field:
Digital Printing
Researcher:
Christos Trochoutsos





#### Research & development in digital print standardization

- -Fields of digital printing
- -Standardization in printing
- -Standardization in digital printing
- -Factors that affect standardization



#### Methodology

- Current researches and standardization methods:
  - -Fogra (Europe)
  - -IDEAlliance (America)
    - -GMG software



#### **Research results**

## Comparison & measurements in commercial digital printing with different substrates

**Christos Trochoutsos** 

chris.Trochoutsos@gmail.com

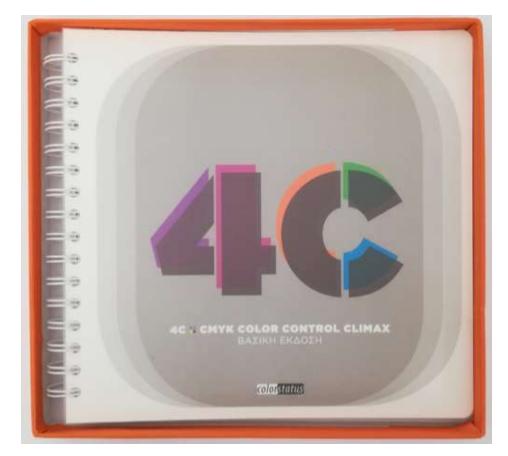
PhD student, Hellenic Open University, Greece IT Director & Project Manager, Pressious Arvanitidis S.A.

www.pressious.com



#### Research topic

Advanced CMYK Color guide for printing standardization and specification



**Researcher: Christos Koutrouditsos** 

e-mail: christos@diagramma.com.gr



#### **Advanced CMYK Color guide according to ISO 12647**

- Color management
- Color comparison
- ISO 12647 compliant
- FOGRA 39 compliant
- CMYK evaluation
- ΔE Error / Difference





### Research conducted during the Master's degree diploma thesis

Design and implementation based on specifications from scientific data

Incorporating elements from the prepress and printing production process and a long-established field research in printing technology

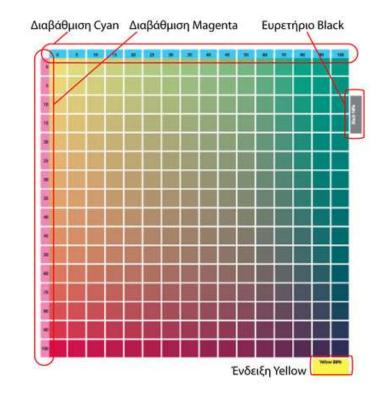
With a high degree of accuracy

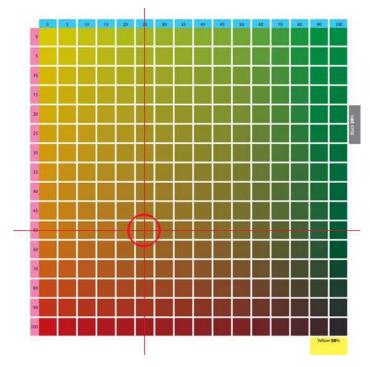




#### Results

- User Friendly Design
- Accurate Color Calibration and Correction
- Linearization
- Printing Measurement and comparison
- Final Print Output Control































































# HELGRAMED Education HELLENIC LINION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS EDUCATION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS HELLENIC LINION OF GRAPHIC ARTS AND MEDIA TECHNO

**Print Promotion Seminar 2019** 









Media Pro Erasmus Intensive programme 2010-2012 Hellenic Open University, Athens TEI & HELGRAMED Intensive courses in print media science and technology Athens 2010, Berlin 2011, Bern & Burgdorf CH, 2012







## HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS EVENTS

Athens TEI 2013













## HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS LECTOR OF CONTROL OF CONT

Athens TEI 2014



## HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS LECTRIC DESCRIPTION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS LECTRIC DESCRIPTION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS

TEI Athens 2014





## HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS LECTOR OF CONTROL OF CONT

IC 2014











46th Annual International Conference

on Graphic Arts and Media Technology, Management and Education

25-29 May 2014, Athens and Corinthia, Greece

http://www.ic2014athensgreece.gr









## HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS A WARD A STATE OF THE STATE OF THE

FESPA 2020 Virtual Awards





### HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS A WARD A COLOR

**Printing Awards 2020** 



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## HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS A WAGE OF STREET OF THE STREET OF THE

**Printing Awards 2020** 





### Syskevasia 2016 - FESPA Hellas







**Graphica 2017** 









#### **HELGRAMED** at virtual drupa 2021

#### **Exhibitor**

https://virtual.drupa.com/vis/v1/en/exhibitors/drupa2020.2682813?oid=45809&lang=2&\_query=HELGRAMED

#### Co-organization of the virtual Conference











Participation at the World Print Campus event for young Talents

https://events.drupa.de/en/event/print-your-future-world-print-campus-hdm

### Organization of IC and iarigai conferences 2021



47th iarigai and 52nd International Circle Conferences

19-24 September 2021, Athens, Greece | www.iarigai-ic-athens2021.org









Around 50 papers have been submitted at both conferences Registration will open soon



#### We are here for you!

# for cooperation on activities and projects for the Graphic Communication, Print, Media and Packaging World!

Contact us! .....

www.helgramed.gr, helgramed@gmail.com

### HELGRAMED

HELLENIC UNION OF GRAPHIC ARTS AND MEDIA TECHNOLOGY ENGINEERS

Cooperation based on trust and reliability, with knowledge and experience, for the future of **Print!** 



#### **Appreciation to the Team!**

Antonis Tsigonias, Michalis Manonas, Jenny Pagani, Eirini Pavlou, Georgios Vlachos, Aikaterini Pagkrati, Georgios Gamprellis, Makis Vonitsanos, Tasos Pallas, Dimitris Zevgolis, Marios Tsigonias, Pinelopi Gkountara, Christos Koutrouditsos, Christos Trochoutsos, Chrysoula Gatsou, Iliana Apostolidou, Giannos Gerolymatos, Diana Tsimis, Manolis Vairamakis, Manolis Politis, Nikos Raftopoulos, Orfeas Kivotidis, Aggelis Dimopoulos, Andriani Goutou, Kostis Arapis, Manolis Laoutaris, Giannis Stefanoudakis, Margianna Noe, Maria Antonopoulou, Vassilis Dimakis, Giannis Pallas, Soulianna Xantzispyrou, Christos Argyriou Pinelopi Nikitopoulou, Daria Tretiyakova, Dimitris Trimmis, Anastasios Politis