

**46<sup>th</sup> Annual International Conference on Graphic Arts and Media  
Technology Management and Education**

**Double Hidden Information  
with Infrared Dyes**

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***RGB + GR = CMYK, CMYF, CMYVZ***

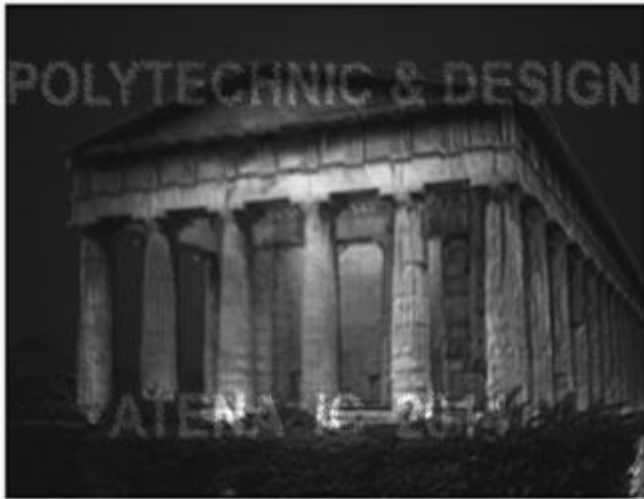


POLYTECHNIC & DESIGN

ATENA IC 2014

RGB image + GR image

***RGB + GR = CMYK, CMYF, CMYVZ***



Composite image in C  
channel



Composite image in M  
channel

***RGB + GR = CMYK, CMYF, CMYVZ***



composite image in Y  
channel



incorporated **Z** image channel

# Expanding Double Hidden Information with Infrared Dyes

$$\begin{aligned} D_C &= C_0/M_0 + C_0/Y_0 \\ E_Y &= Y_0/M_0 + Y_0/C_0 \quad ; \\ G_M &= M_0/C_0 + M_0/Y_0 \end{aligned} \quad (1)$$

Relations are set:

$$X_{40} = A * T \quad ; \quad (2)$$

Where A denotes data array on 40% coverage with carbon black dye:

$$X_{40} = \begin{bmatrix} C_{40} \\ M_{40} \\ Y_{40} \end{bmatrix} \quad ; \quad (3)$$

$$T = \begin{bmatrix} G_M \\ E_Y \\ D_C \\ Y_0 \\ M_0 \\ C_0 \\ 1 \end{bmatrix} \quad (4)$$

Dedicated profile settings

- [Tomica Nada knjiga slike\INFRA ART knjiga i html](#)

