

Welcome to the 8:th ROND Conference

# Spectral Printing

– Challenges, Opportunities and Outlook



**ROND**

Örnsköldsvik  
March 14 2013



# ROND

ROND, Research ON Digital printing on paper media, is an annual conference arranged by Digital Printing Center at Mid Sweden University, each year with a specific "Theme" related to digital printing. Some of the previous themes have been "High Speed Inkjet", "Paper Optics with New Eyes", "Innovative Packaging", "Inkjet for Industrial Applications". This year the theme is "Spectral Printing" covering digital printing technology, multi channel printing and the appearance of printed products.

## Spectral Printing

Ever since its origin in the late 19th century, a colour reproduction technology has relied on a trichromatic colour reproduction approach. This has been a very successful method and also fundamental for the development of colour reproduction devices. Trichromatic colour reproduction is sufficient to approximate the range of colours perceived by the human visual system. However, trichromatic systems only have the ability to match colours when the viewing illumination for the reproduction matches that of the original. Furthermore, the advancement of digital printing technology has introduced printing systems with additional colour channels. These additional colour channels are used to extend the tonal range capabilities in light and dark regions and to increase colour gamut. By an alternative approach the additional colour channels can also be used to reproduce the spectral information of the original colour. A reproduced spectral match will always correspond to original independent of lighting situation. On the other hand, spectral colour reproductions also introduce a more complex colour processing presenting new challenges to overcome.

## Keynote speakers

Three invited keynote speakers will give their view on colour reproduction and the importance of correct colour reproduction, the influence of viewing situation and the challenge of developing a spectral printing system.

### **Dr. Ján Morovic**

Master Technologist, Hewlett-Packard, Large format printing R&D, ICC profiling and director of CIE Division 8: Image Technology

### **Kristina Brink**

Senior Lecturer and Director of Graphic Design, Mid Sweden University

### **Joseph Padfield**

Conservation Scientist, Digital Imaging, National Gallery, London

### **Interactive session**

Ongoing work from the Colour Printing 7.0: Next Generation Multi-Channel Printing (CP7.0) research project funded by Marie Curie Initial Training Networks (ITN). The project is collaboration with five full network partners and six associated partners from academia and industry throughout Europe. The project addresses a significant need for research, training and innovation in the printing industry. This project covers research in the colour printing field by fully exploring the possibilities of using more than the conventional four colorants (CMYK) in printing and focusing particularly on the spectral properties. The goal will be to train a new generation of printing scientists who will be able to embrace science and technology leadership in this established technological sector.

**Registration: [www.miun.se/dpc](http://www.miun.se/dpc)**



# ROND 2013

## Spectral Printing

### – Opportunities, Challenges and Outlook

## Program

Thursday March 14:th, Örnsköldsvik, Sweden

10:00 **Registration - Coffee**

10:30 **Welcome**

11:00 **Opportunities**

What Colour Rendering Index and Colour Temperature Actually Mean:  
Comparing Light Sources and Light Exposure

*Joseph Padfield, National Gallery, London*

Digital Dome, in the middle of the action

*Jérémie Gerhardt, Fraunhofer FOKUS, Berlin.*

The Future of Packaging Design and the Charms of Colour

*Kristina Brink, Mid Sweden University, Sundsvall*

12:30 LUNCH

13:30 **Challenges**

The Spectral Printer: From Technical Challenge to Business Case

*Dr. Jan Morovic, Hewlett-Packard, Barcelona*

ICC Colour Management: Scope and Possibilities for Spectral Processing

*Srikrishna Nudurumati, Gjøvik University College, Gjøvik*

Spectral Image Reproduction Workflow: From Pixel to Print

*Prof. Philipp Urban, University of Darmstadt, Darmstadt*

Angle Resolved Colour of Prints

*Dr. Ludovic Gustafsson Coppel, Mid Sweden University*

16:00 **Outlook**

CP 7.0, Next Generation Multi Channel Printing

*Prof. Jon-Yngve Hardeberg, Gjøvik University College, Gjøvik*

16:30 **Interactive session with refreshments**

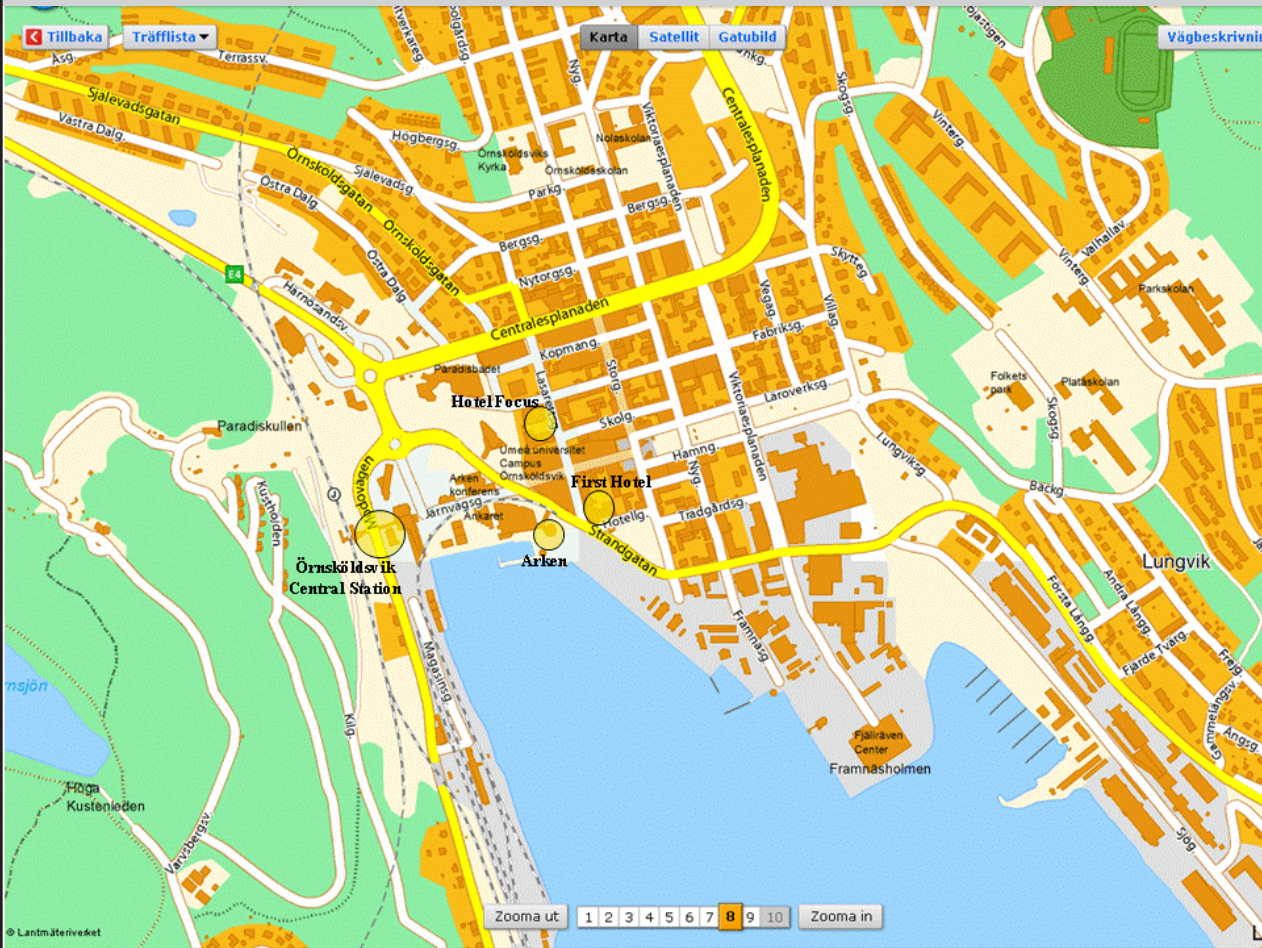
CP 7.0 Project and Packaging Design

18:00 **Summing up**



# Conference Venue

## Arken Tjänstecentrum, Lecture-hall Pinassen



### Where to Stay

Hotell Focus, Lasarettsg. 9, +46(0)-660-821 00, [www.hotellfocus.se](http://www.hotellfocus.se)

First Hotel Statt, Lasarettsg. 2, +46(0)-660-26 55 90, [www.firsthotels.se](http://www.firsthotels.se)

Hostel - Örnköldsviks Vandrarhem, Viktoriaesplananden 32, +46(0)-660-29 61 11

### How to Get There:

From abroad, go via Stockholm and from there chose to go by train or fly.

- Train information can be found at [www.sj.se](http://www.sj.se) (duration 5.30 – 6 hours).
- Direct flights from Stockholm Arlanda to Örnköldsvik is provided by Högakusten Flyg [www.hogakustenvlyg.se](http://www.hogakustenvlyg.se) (duration 50min).
- Alternative rout from Stockholm is via Umeå (nearest larger airport) and then by train (45min) to Örnköldsvik. Flight between Stockholm and Umeå is provided by:
  - SAS, [www.flysas.com](http://www.flysas.com)
  - Norwegian, [www.norwegian.com](http://www.norwegian.com)
  - Malmö Aviation, [www.malmoaviation.se](http://www.malmoaviation.se) (from Bromma airport in Stockholm)