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## Photons interactions with porous ink layer of a print and image output

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The latter developments in printing industry showed that the inkjet technology delivers good print quality using the flexibility of digital printing at a breakthrough cost price. At Canon Production Printing company, we consider the inkjet technology as the flagship of our successful R&D printer design and production.

The study of ink penetration in thin porous media (paper) is a challenging task and many results, mostly regarding the liquid transport, particle transport and paper deformation have been presented within this symposium in the previous editions. One special attention is paid in the last years to the outputs of a print process, namely image quality and print robustness. This means optical and mechanical properties of the thin ink layer onto porous paper.

In this work, we propose to reveal the main interactions of photons (especially in the UV-VIS optical domain) focusing on the color properties of the prints realized with water-based ink on porous paper. Theoretical models, experimental measurements and computational methods are proposed. The VIS optical spectroscopy is employed on both the computational simulation (Scout code program) and the experimental studies to reveal the relation between the compositional properties (pigment distribution, layer thickness, concentration, and distribution of voids) of the ink layer and the color properties of the print. High resolution - SEM is used to reveal the surface topography of the ink layer, as well as the presence of the voids of various dimensions into dried ink structure. The color computational methods take into accounts both structural and compositional properties of the print.

### Country

Netherlands

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### References

**Primary author:** Dr TOMOZEIU, Nicolae (Canon Production Printing B.V.)

**Co-authors:** Mr MANSOURI, Hamid; Mr MARQUES-SAVALDOR, Helder (Canon Production Printing Netherlands)

**Presenter:** Dr TOMOZEIU, Nicolae (Canon Production Printing B.V.)

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