

Nanotechnologies in Application to Digital Print Media Development

*Sergey Gnatyuk, Maxim Domasev, Sergey Shavkun
St. Petersburg State University of Cinema and Television*

Abstract: Modern digital print media have complex structure each component of which has its own unique characteristics coupled with the characteristics of other components. Decomposition of this system makes it possible to introduce characteristics of each component, but on practice such detailed view can prove no use since the quality of printed image is determined with the result of dynamic interaction of the print media and inks of the printing device.

Authors studied the possibility to change printing quality by the change of chemical and physical characteristics of the print media surface by means of the complex precise chemical-physical impacts (methods of monomolecular layering, treatment of the media surface with plasma, etc).

Comparative analysis of print media characteristics before and after modification showed evident change of a series of parameters (reflection coefficient, optical density, contrast, average local contrast, sharpness, tonal dynamic range, etc). Parameters value change and peculiarities of the change depended on the conditions of chemical-physical impact and the reagents used.

Systematic analysis of principles of direct control of the processes of monomolecular layers synthesis can lead to the development of unique technology of the production of print media with controlled characteristics.

Keywords: digital print media, printing quality, nanotechnologies, print media