

# From Fundamental Physics to Novel Inkjet Technology: Harnessing Innovation

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## Abstract

*Eastman Kodak Company, a recognized leader in conventional and digital printing technologies, provides unified workflow solutions for a large number of diverse applications. In the area of inkjet printing, Kodak continues to pioneer ultra-high productivity inkjet technology for applications including, but not limited to, commercial, transactional, direct mail, packaging, and book publishing. Recent advancements at Kodak in areas such as microelectromechanical systems (MEMS) technology, computer modeling of complex microfluidic systems, nanopigment ink technology, and ink-substrate interactions, enabled the development and subsequent commercialization of a new inkjet technology that offers extremely high productivity with high image quality and excellent reliability on a wide variety of substrates at a low total ownership cost. This extensible technology, referred to as "Stream," forms the basis of a technology platform that expands and allows participation in markets that rely on high-speed digital*

*print production. The fundamental physics of droplet generation and control, nanopigment ink chemistry, and the interaction of the ink with the substrate onto which it is printed, create inherent advantages in key areas such as productivity, image quality, and ink latitude. In this paper, we will describe the advancements in these areas and how these advancements enabled the successful development of Stream technology.*

## Author Biography

*James M. Chwalek is a Director of Research and Development for the Graphic Inkjet Platform Center at Eastman Kodak Company, where he is responsible for the development and commercialization of novel high-speed inkjet writing system technology. He received his PhD. degree in Electrical Engineering from the University of Michigan. He has authored over 25 technical papers in his areas of expertise and has had 64 U.S. patents issued to date.*