

# Digital Ink-jet-based Printing: Beyond Color

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## Abstract

Next generation electronic devices including OLEDs, fuel cells, thin-form batteries and smart cards all represent a significant opportunity for market growth over the next several years. One factor limiting the advancement of these technologies lies in the high cost of ownership of manufacture. Ink-jet-based printing and deposition technologies offer a multitude of advantages for the manufacture of these technologies and can be viewed as a disruptive technology poised to challenge existing manufacturing infrastructures. To aid the transition to digital, ink-jet-based manufacturing methods, Superior MicroPowders (SMP) has leveraged its core competencies to develop non-traditional, non graphic-arts inks. These inks being developed are suitable for digital and ink-jet-based deposition and fabrication processes and show significant promise in the manufacture of a variety of advanced devices in the electronic, display and alternative energy industries. This step toward integrating ink-jet-based technology for the deposition of non-graphic-arts inks into next generation device manufacture represents a significant step forward in the advancement of ink-jet-based printing technology.

## Biography

Dr. Toivo Kodas of Superior MicroPowders, is one of SMP's co-founders and leads or provides guidance in many aspects of SMP's business. He has led SMP's effort in digitally printable materials development and played a central role in development of SMP's powder technology.

Toivo has published over 200 papers, co-authored more than 50 patents/applications, and has co-edited/co-written two popular books "The Chemistry of Chemical Vapor Deposition" and "Aerosol Processing of Materials," the latter of which is now considered the seminal text on aerosol (spray)-based processing of materials. Toivo was also the 11th most highly cited author in Materials Science worldwide for the period 1990-1994 based on information gathered by the Institute for Scientific Information. He has been the recipient of a variety of awards including a Presidential Young Investigator Award from the National Science Foundation. Toivo has taught numerous invited industrial short courses.

Toivo received his Ph.D. in Chemical Engineering from UCLA in 1986 and held positions at Alcoa and IBM before becoming a full professor in Chemical Engineering at the University of New Mexico. During this period he also ran a consulting business with customers that included a number of Fortune 500 companies. This was followed by his current position at SMP.