

# A One-Pot Synthesis towards Eco - Friendly Conductive Ink

Manju Lata Rao

Materials and Inks , NCFLEXE, IIT Kanpur

## Abstract

Conductive inks make up one of the largest markets in printed electronics as they enable the fabrication of key elements such as electrodes, antennas and bus bars for current collectors using various printing techniques such as gravure, aerosol jet, inkjet or screen printing. The journey towards the technological innovation of developing a conductive ink for a writing device, such as pen, however, evolved after dedicated efforts involving research and development considering the pen design, flow parameters, ink composition etc. The ‘ease’ of a ‘writing pen’ that contains a well-dispersed conducting-medium of inks that readily permeate the paper substrate is novel. This conducting ink pen provides scope for circuit - interconnects expanding the range of applications of printed electronics as an Educational circuitry tool. It thus holds a huge opportunity in the market, targeting applications in both high end and conventional schools. In this talk, I will walk the audience through the journey from ‘one-pot’ synthesis to a ‘functional conductive writing pen’!

## About the presenter:

Dr. Manju Lata Rao is a Senior Project Scientist with the Materials and Inks Team, NCFLEXE, IIT Kanpur. She has completed her Bachelors and Masters in Chemistry from the North Eastern Hill University, NEHU Shillong to join IIT Kanpur for her PhD program from the Dept of Chemistry. She graduated from IIT K, Dept of Chemistry in 2004 with a thesis on Nanomaterial synthesis using high frequency sound waves, which received commendable remarks from the (*Late*) President Sir, Abdul Kalaam. Subsequently, she joined the Centre for Materials and Information Technology (MINT), University of Alabama, Tuscaloosa, USA for post-doctoral research until 2006 and further served as a Research Faculty at the Pennsylvania State University, State College, USA, till 2009. Dr. Manju Rao is a recipient of Dr. Shankar Dayal Sharma President’s Gold Medal in 1998 and has been a participant of the prestigious ‘Meeting of Students and Nobel Laureates’ at Lindau, Germany in 2004. She has about 25 international journal publications and three patents including a US patent. She is presently with the Inks Team, Flexe from 2017.