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Synthesis and application of organic-soluble noble metal nanocrystals toward printed electronics

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In this study, the organic-soluble noble metal nanocrytals such as gold, silver and copper were synthesized directly from metal salts in the fully organic phase. The synthesized nancorystals had the narrow size-distribution below 9 nm and the hyrdocarbon monolayer-proctected nanocrystal structure, which resulted in excellent dispersion-stability in the nonpolar solvents. Furthermore, the noble nanocrystals were inkjetted on the plastic substrate by inkjet printing and then metallized at low temperature < 250 ℃. The metallic patterns showed exhibited very low specific electrical resistance < 10 uOhm•cm.

Keywords: noble metal, nanocrystal, inkjet

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Synthesis of molecular precursors and their application as metallic conductors for ink-jet printing

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Recently, printed electronics technology has attracted so much attention and research efforts to substitute for the previous electronics, because of its low cost and environmentally benign process. Printing technology needs basically suitable inks such as conductor, dielectrics and semiconductor. We have developed new molecular precursors such as copper, nickel and other metals, which could be used to form metal nanoparticles or conducting inks. Inthis talk, we will discuss the properties of the precursors and their application as a conducting ink material.

Keywords: inkjet printing, nanoparticle, conductor, molecular precursor, ink