

# Electroless deposition of ZnO on Pd catalyst

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## Abstract

Future microelectronics technology requires the construction of micro/nano devices of functional materials. Micropatterning technique is regarded as inevitable in various applications and new micropatterning techniques available at low temperatures are desired. Recently, the present authors have succeeded in low-temperature fabrication of 1-mm width ZnO line patterns using phenyl/OH-terminated patterned SAM as a template and demonstrated cathodoluminescence of visible light from the ZnO patterns. Catalyst of Pd/Sn colloid for selective electroless plating of metals was adhered to the phenyl-surfaces. ZnO was grown on the catalyzed phenyl-surfaces by the electroless deposition method in an aqueous solution containing dimethylamine-borane. When using a Pd-catalyzed substrate, ZnO was grown only on the substrate. In order to improve the pattern resolution and the film properties, it is necessary to understand and control the deposition process more precisely. In the present paper, we have investigated the deposition manner of ZnO on the Pd catalyst in more detail to clarify the mechanism of the film growth.