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Catalyst-free electroless Cu plating of fluoropolymer surface through an atmospheric pressure plasma assisted self-assembly[1]
NOBUYUKI ZETTSU, HIROKI AKIYAMA, KAZUYA YAMAMURA, Research Center for Ultra-precision Science and Technology, Graduate School of Engineering, Osaka University, UPST TEAM — In this work, we address the issue of surface copperization of fluoropolymers by electroless plating for the fabrication of printed circuit boards. Herein, we have demonstrated catalyst-free electroless deposition of an adhesion Cu layer on a P4VP-g-PTFE surface through an atmospheric pressure plasma assisted self-assembly. The polymer surface densely and homogeneously seeded with the self-assembled Cu nanoparticles enable to initiate autocatalytic electroless deposition of Cu layer without need for any prior sensitizingconventionally used $SnCl_2$ and Pd species. A high adhesion Cu layer can be obtained without requiring an anchoring effect. The adhesion strength was substantially improved to more than 100 times magnitudes in comparison to the bare PTFE surface.

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