

Application of Perfluoropolyether for the Patterning of Polypyrrole

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The fluoropolymer has low surface energy such that it has both properties of oleophobicity and hydrophobicity. In this study, these properties of fluoropolymer was exploited to make a polypyrrole (PPy) pattern through the single polymerization in the aqueous solution. A fluoropolymer, perfluoropolyether (PFPE) was layered on the substrate as a passivating layer preventing PPy deposition. Due to its oleophobicity, the PPy was selectively deposited on the hydrophilic patterns with carboxyl surface groups. This approach enabled us to make a conducting polymer pattern in a single step through the chemical deposition method without additional fabrication process. The outcomes of this study would contribute to the development of process useful to pattern organic materials.