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**Highly Transparent Water-Repelling Surfaces based on Biomimetic Hierarchical Structure** SANGHYUK WOOH, JAI HYUN KOH, Seoul National University, HYUNSIK YOON, Seoul National University of Science & Technology, KOOKHEON CHAR, Seoul National University — Nature is a great source of inspiration for creating unique structures with special functions. The representative examples of water-repelling surfaces in nature, such as lotus leaves, rose petals, and insect wings, consist of an array of bumps (or long hairs) and nanoscale surface features with different dimension scales. Herein, we introduced a method of realizing multi-dimensional hierarchical structures and water-repellancy of the surfaces with different drop impact scenarios. The multi-dimensional hierarchical structures were fabricated by soft imprinting method with TiO<sub>2</sub> nanoparticle pastes. In order to achieve the enhanced hydrophobicity, fluorinated moieties were attached to the etched surfaces to lower the surface energy. As a result, super-hydrophobic surfaces with high transparency were realized (over 176° water contact angle), and for further investigation, these hierarchical surfaces with different drop impact scenarios were characterized by varying the impact speed, drop size, and the geometry of the surfaces.

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