

Photonic water cosmetics: colored cosmetics consisting almost entirely of water

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The periodic microstructures selectively reflect light and show vivid colors (structural colors) despite the absence of dye molecules. Currently, we have intensively investigated the possibility of creating highly ordered dynamic photonic crystals composed almost entirely of water by utilizing charged nanosheets. In this context, we accidentally discovered photonic structures (photonic water) that can be prepared simply by dispersing plant-derived phospholipid in water. Conventional photonic structures have low biocompatibility because the majority of the dispersion consists of colloidal particles, which are reflective bodies for achieving structural colors. Our photonic water is a colloidal dispersion consisting almost entirely of water (>98%), which quickly loses the structural color when sprayed on the skin. This means that the photonic water is expected to have high biocompatibility. When the subcutaneous permeability and biocompatibility of this photonic water was systematically evaluated, it was revealed that, unlike conventional photonic structures, it has a high potential for use in color cosmetics.