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Robust and elastic superhydrophobic breathable fibrous membrane with *in situ* grown hierarchical structures

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Abstract

A superhydrophobic fibrous membrane (FM), which consists of elastic polyurethane (PU) and chromatic polydiacetylenes (PDA), is fabricated using an electrospinning technique, followed by short-time UV irradiation and heating treatment. The FM with fine hierarchical roughness exhibits excellent superhydrophobicity and breathability under even 300% strain of biaxial stretching. It can effectively separate the oil–sea water mixture, solely using gravity, with

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