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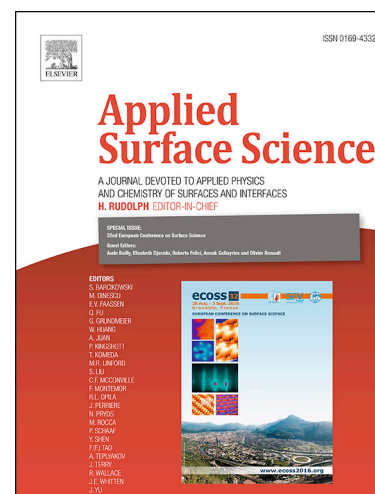
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**One-step solution immersion process for the fabrication of low adhesive underwater superoleophobic copper mesh film toward high-flux oil/water separation**

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**Abstract**

In this paper, a new method for preparation of oil/water separation film is reported. The film is prepared by simply immersing the copper mesh substrate into the ethanol containing HS(CH<sub>2</sub>)<sub>11</sub>OH for a certain time. The research results indicate that the reaction between thiol and copper can not only enhance the hydrophilicity of the film due to the presence of hydroxyl groups, but also produce a lot of nanostructures. As a result, the film can obtain the low adhesive underwater superoleophobicity. Based on the film, many mixtures composed of oil and water can be separated with high flux (higher than 120000 L m<sup>-2</sup> h<sup>-1</sup>) and separating efficiency (higher than 99.8%). This work provides a novel strategy for preparing oil/water separating film. Given the simple fabrication process and high separating ability of the film, it is expected to be potentially applied in numerous fields except the oil/water separation, for instance,

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