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Title: Preparation of Stable Superhydrophobic Film on Stainless Steel Substrate by a Combined Approach Using Electrodeposition and Fluorinated Modification

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- Nickel film with micro-nano binary structure was fabricated on the SS316L substrate using electrodeposition techniques.
- The surface morphology of the nickel film at micro/nano scale was characterized at different electrodeposition current densities.
- The water contact angle is higher than 160° when the current density fall in the range from $5\text{A}/\text{dm}^2$ to $9\text{A}/\text{dm}^2$.
- The superhydrophobic nickel film has satisfied stability both in strong acid and alkaline solutions.
- The superhydrophobic property of nickel film can keep well under ambient conditions.

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