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# Engineering nanowrinkled microfibers composed of eggshell membrane and graphene

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## Abstract

We present a facile method for designing and manipulating eggshell membrane-based nanowrinkled microfibers (EMNMs) using graphene and a spin-coating technique. Graphene is simply spin-coated on the eggshell membrane to form multiscale structures of nanowrinkled microfibers. We demonstrate that the EMNMs combine the unique properties of the raw eggshell membrane and graphene, such as micro- and nanoscale hierarchical morphologies, specific crystalline structures, and surface wettability. We also show that the properties of the EMNMs can be controlled by adjusting the concentration of graphene.

**Keywords:** Eggshell membrane, Graphene, Nanowrinkled microfiber, Multiscale structure

## 1. Introduction

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