

Self-folding 2D Hybrid Flexible Materials for Electronics and Biosensing

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Abstract

Two-dimensional (2D) materials such as graphene and molybdenum disulfide offer significant new prospects for electronics, optics, and biosensing due to their unique physical and chemical properties. The wrinkling, crumpling, and folding of 2D materials provide the possibility of significantly tuning their properties and also creating new types of 3D devices with small form factors. In this keynote talk, I will describe processes developed in my laboratory to create self-folding 2D materials using selective functionalization using ultrathin polymer brushes and films. I will discuss characteristics of these hybrid 2D materials and applications in electronics, optics, chemical, and biosensing.

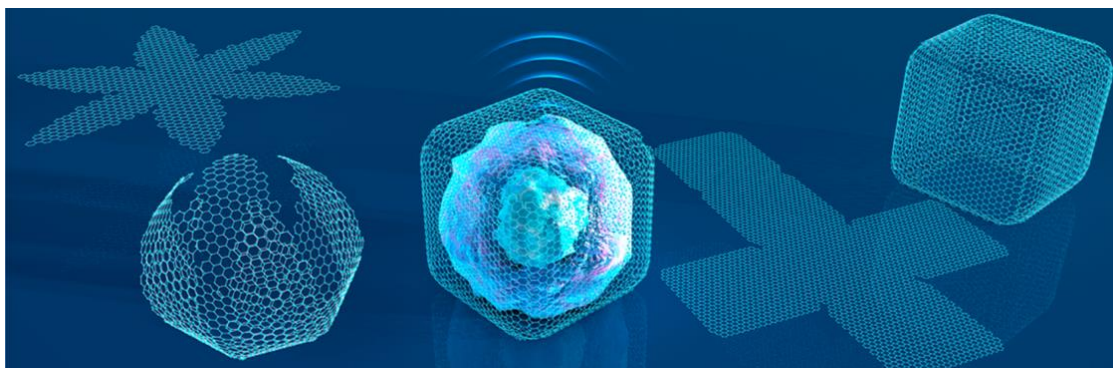


Figure 1: Schematic image of self-folding graphene. Reproduced with permission from reference [2]. © American Chemical Society.

References

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