

2D Materials for Supercapacitors

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Abstract:

Triggered by discovery of graphene, more and more two-dimensional (2D) nanomaterials have been developed by versatile methods. The supercapacitor performance of these new 2D materials have caught wide interests for both science and industry communities. In this presentation, we will show the progress from our group.

Smart micro-/nano-devices or stimuli-responsive devices, which can be engineered to respond to a variety of inputs, such as pH, ions, heat, light, magnetic field, etc., have also attracted substantial attention due to a wide range of needs for smart modern electronics. However, it is still a great challenge to integrate various kinds of stimuli into modern functional devices without affecting the device performance, most probably due to the poor compatibility between stimuli, active materials and processing technologies. On-chip micro-supercapacitors (MSCs) are one kind of new-generation micro-sized power sources and have attracted considerable attention due to their small size, controllable patterning, in-plane feature and outstanding electrochemical performance. We will also demonstrate the fabrication of the stimulus-responsive and flexible MSC (SR-MSC) from our group.

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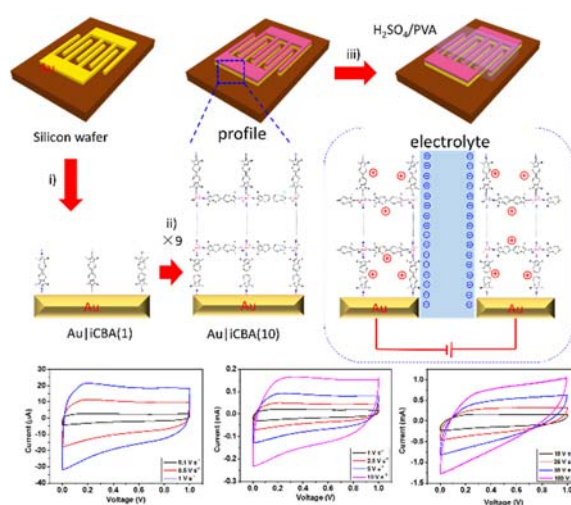


Figure 1. Coordination polymer framework based on-chip micro-supercapacitors with AC line-filtering performance.^[1]