

Preface

I believe a number of exciting developments in the near future may be anticipated from the design, preparation process, and experimental results reported in this thesis. The increase in relevant publications in this field clearly indicates that the design and synthesis of artificial responsive nanochannel materials offer a flexible venue to create various biomimetic intelligent apparatus. It is an emerging field that in many respects is still in its infancy. With the inspiration of examples from nature, our scientific community started to build up various biomimetic smart nanochannels. The ability to tune the shape and the surface chemical properties of the nanochannel materials affords a flexible venue to address a host of questions and problems at the challenging forefront of nanotechnology and materials science. In order to pursue ‘smart,’ further ambient stimuli responsive materials need to take into account properties such as magnetic response, acoustic response, and integrated various stimuli response. In addition, making smart nanochannels stable, reversible, and durable, it will remain essential for the successful implementation of the expected practical applications for real-world applications. For future progress, it will be important to further improve the fabrication for various shapes of the nanochannels and, more importantly, to maximize efforts to create more ambitious smart functional molecules to be immobilized onto the inner nanochannels.

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