

## Fabrication of one-dimensional colloidal packings in electrospun nanofiber

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The monodisperse colloidal self-assembled structures have attracted great interest due to their wide range of applications such as photonic crystals, chemical sensors and catalytic supports. Recently, several methods were suggested to fabricate the one-dimensional colloidal packages using patterned substrates as a confined geometry. These methods require additional procedures to prepare the patterned substrates. In this work, electrospun nanofibers were used as a confined geometry to fabricate one-dimensional colloidal packages. To do this, mixed solution of colloidal particle and polymer solution was prepared, and then, the mixture solution was introduced into a capillary needle to which high electric fields were applied. As the electrospun fiber was thinned due to the instability region of whipping, the colloidal particles added to the polymer solution began to arrange by shear-induced self-assembly. After calcining at 500°C, one-dimensional colloidal packings without the polymeric matrix could be obtained.