

## **Nanomembranes: From e-skin technologies to reconfigurable microrobotics**

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### **Abstract**

Nanomembranes are thin, flexible, transferable and can be shaped into unique 3D micro- and nanoarchitectures. This makes them attractive for various scientific disciplines and application scenarios ranging from flexible e-skin applications to unique 3D microsystems for functional deployment both on and off the chip. If assembled into microtubes, rolled-up nanomembranes represent cylindrical microobjects with intriguing optical, plasmonic, electronic and magnetic properties. These lead to exciting application potential in 3D electronics and photonics, sensorics and energy storage units. As off-chip components rolled-up microtubes address novel biophysical and biomedical applications such as biomimetic microelectronics and powerful self-propelling microautonomous systems. Based on these concepts, reconfigurable motile microelectronic systems are devised and cellular cyborg machinery is put forth as a new scheme for targeted drug delivery and reproduction technologies.