Fabrication of Large-area 20nm Nano-gap Electrodes for Realizing Various Applications

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Nano-gap electrodes separated from the molecular scale to the nanometer scale are fundamental building blocks for the fabrication of devices and circuits. Recently, large-area nano-gap electrodes fabrication for single molecules, including diodes, transistors, switches, and memory, has been central technical challenge for the device miniaturization. We report a new nanofabrication method for realizing large-area 20nm nano-gap electrode arrays with high efficiency and reproducibility. This method is the combination with chemical etching and an innovative technique called by secondary sputtering lithography. And this large-area nano-gap electrodes in a precise and controllable manner are fully compatible with previous nano-gap fabrication technology.