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(54) PRECISION SHAPE MODIFICATION OF NANODEVICES WITH A LOW-ENERGY ELECTRON BEAM

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(57) ABSTRACT

Methods of shape modifying a nanodevice by contacting it with a low-energy focused electron beam are disclosed here. In one embodiment, a nanodevice may be permanently reformed to a different geometry through an application of a deforming force and a low-energy focused electron beam. With the addition of an assist gas, material may be removed from the nanodevice through application of the low-energy focused electron beam. The independent methods of shape modification and material removal may be used either individually or simultaneously. Precision cuts with accuracies as high as 10 nm may be achieved through the use of precision low-energy Scanning Electron Microscope scan beams. These methods may be used in an automated system to produce nanodevices of very precise dimensions. These methods may be used to produce nanodevices of carbon-based, silicon-based, or other compositions by varying the assist gas.