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(54) COMPLEX NANOSTRUCTURE CONFIGURABLE AS A TRANSISTOR, MULTIPLEXER, OR INFORMATION

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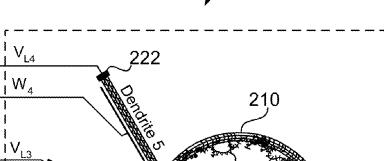
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ABSTRACT

A complex nanostructure, which includes a first nanostructure component having at least one aperture in a side thereof; at least one second nanostructure component having a first end and a second end, wherein the first end of each of the at least one second nanostructure is inserted through a corresponding one of the at least one aperture in the first nanostructure, thereby forming at least one junction. Embodiments of the complex nanostructure include a bifurcated nanostructure transistor constructed of linear carbon nanotubes, a multiplexer constructed of a circular carbon nanotube and multiple linear carbon nanotubes, and an information unfolder constructed of linear or a combination of linear and circular carbon nanotubes. The nanotubes may optionally be decorated with genetic material such as single-strand or double-strand human DNA segments and/or may be modified by e-beam or ozone gas to add defects into the nanotubes to alter electrical/functional characteristics.



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