Bi-stable Nanoswitch

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Description

In current devices, SWNT sheets are used as actuation elements, wherein high switch voltage is required. Furthermore, a greater number of fabrication and processing steps are carried out for device designing, which leads to higher production cost. Such devices have less storage density due to an absence of nanoscale dimensions. Other prior art systems use SWNTs in forms of assembled nanowires as memory devices, which are difficult to produce and commercialize due to associated chemical assembly problems. **This novel bistable nanoswitch overcomes most of these prior art limitations, providing a high density and a low power non-volatile storage system.**

Value Proposition

The nanoswitch:

- Is simpler and much more cost effective as compared to conventional switches
- Employs one or more nanotubes (such as SWNT) as the actuation element as compared to patterned sheets of nanoelements used in other devices
- Achieves a 5-fold reduction in voltage as compared to other devices
- Doesn't require any restoring electrode as opposed to other devices
- Would be commercially useful for the following applications:
    - Incorporation into existing CMOS processes to fabricate non-volatile memory devices
    - Production of sensors such as radiation detectors, chemical sensors, thermal sensors, and biological sensors
    - Fabrication of latches, flip-flops, registers, and other components used in microprocessor chips for computers

Intellectual Property Status

Issued Utility Patent 8,031,514

License Status

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