Review of: "The changes in the width of the nano transistor channel due to the field effect of the gate around can cause undesirable changes and loss of mobility"

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Potential competing interests: No potential competing interests to declare.

> *Note: Since the fin width in a nanotransistor (GAAFET) approaches 5nm, changes in the nanotransistor channel width due to the gate field effect around can cause undesirable changes and loss of mobility.*

A gate nanotransistor—the gate around the FET—can circumvent the problem. And in terms of electrostatics, an all-gate gate is a nanotransistor in which a gate is placed on all four sides of the channel. It is basically a silicon nanowire around which the gate rotates. In some cases, the surrounding FET can have a common gate or other material in the channels. Horizontally layered nanosheets appear as the consensus for the 5 nm transistor. These devices start with alternating layers of silicon and silicon germanium (SiGe) that are patterned into pillars. The creation of the initial Si/SiGe heterostructure is straightforward and the columnar pattern is similar to the fin structure for nanotransistors. For nano GAAFET sheet transistors, the indentation in the SiGe layers creates an internal gap between the source/drain, which is eventually placed next to the pillar and the space where the gate gate of the nano transistor is located. This opening distance determines the width of the gate. Then, once the internal spacers are in place, an etch removes the free SiGe channel. The dielectric nano layer places the gate and metal in the spaces between the silicon nanowires. To minimize lattice distortion and other defects, the germanium content of SiGe layers should be as low as possible. The selectivity of the nano layer in the surrounding gate nanotransistor increases with the content of Ge or germanium, and the erosion of the silicon layers during the indentation of the inner gaps or the gate of the nano transistor release channel and the channel affects the thickness of the surrounding gate channel and thus the threshold voltage. put

> *The structure of gate field effect nanotransistors (GAAFET) using carbon nanotubes represents a new class of semiconductor material that consists of a single sheet of carbon atoms assembled to form a tubular structure. A GAAFET is a field-effect transistor (FET) that uses a CNT semiconductor as a channel material between two metal electrodes, which act as source and drain contacts.*

Conclusion :

As the fin width in a nanotransistor (GAAFET) approaches 5nm, changes in the nanotransistor channel width due

to the gate field effect around can cause undesirable changes and loss of mobility.

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