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- (71) **Applicant:** **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, New York 10504 (US).
- (71) **Applicant (for MG only):** **IBM (CHINA) CO., LIMITED** [CN/CN]; 7F, Bldg 10, Zhangjiang Innovation Park, 399 Keyuan Road, Zhangjiang High-Tech Campus, Pudong New Area, Shanghai 201203 (CN).
- (72) **Inventors:** **ANDO, Takashi**; 1101 Kitchawan Rd, PO Box 218, Yorktown Heights, New York 10598 (US). **LEE, ChoongHyun**; 257 Fuller Road, Albany, New York 12203 (US). **ZHANG, Jingyun**; 257 Fuller Road, Albany, New York 12203 (US). **REZNICEK, Alexander**; 257 Fuller Road, Albany, New York 12203 (US).
- (74) **Agent:** **KING & WOOD MALLESONS**; 20th Floor, East Tower, World Financial Centre, No. 1 Dongsanhuan Zhonglu, Chaoyang District, Beijing 100020 (CN).
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(54) **Title:** VERTICAL TRANSPORT CMOS TRANSISTORS WITH ASYMMETRIC THRESHOLD VOLTAGE

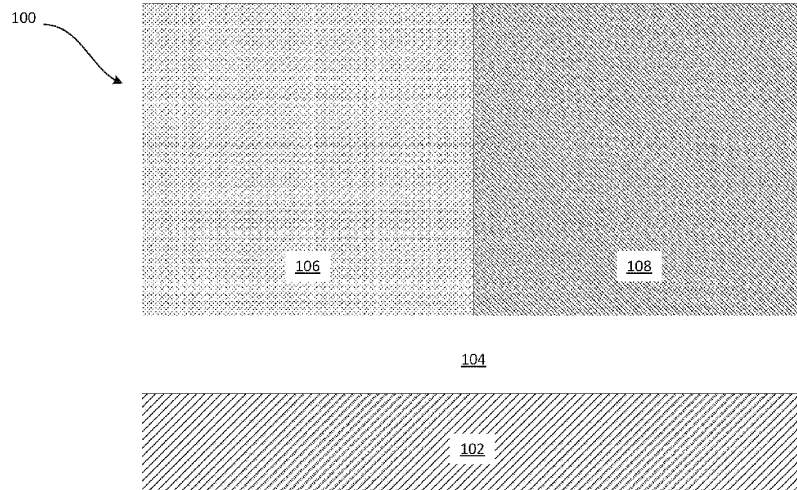


FIG. 1

(57) **Abstract:** A semiconductor structure for triggering asymmetric threshold voltage along a channel of a vertical transport field effect transistor (VTFET) is provided. The semiconductor structure includes a first set of fins including a SiGe layer and a first material layer formed on the SiGe layer, a second set of fins including the SiGe layer and a second material layer formed on the SiGe layer, a first high- κ metal gate disposed over the first set of fins, and a second high- κ metal gate disposed over the second set of fins. An asymmetric threshold voltage is present along the channel of the VTFET in a region defined at a bottom of the first and second set of fins, and a Ge content of the second material layer is higher than a Ge content of the SiGe layer.

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