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标题: Vacuum nanoelectronics: Back to the future?-Gate insulated nanoscale vacuum channel transistor
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摘要: A gate-insulated vacuum channel transistor was fabricated using standard silicon semiconductor processing. Advantages of the vacuum tube and transistor are combined here by nanofabrication. A photoresist ashing technique enabled the nanogap separation of the emitter and the collector, thus allowing operation at less than 10 V. A cut-off frequency f(T) of 0.46 THz has been obtained. The nanoscale vacuum tubes can provide high frequency/power output while satisfying the metrics of lightness, cost, lifetime, and stability at harsh conditions, and the operation voltage can be decreased comparable to the modern semiconductor devices. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4717751]
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