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題名	SPICE compact model of controlling electrons of spin qubits using FinFET
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概要	<p>Semiconductor qubits have garnered attention in the field of device physics. Owing to the limited coherence of electrons and holes, smaller and more compact qubits are desirable. This requirement is aligned with the miniaturization of conventional transistors. In this study, we consider a compact spin qubit based on the FinFET (Fin Field-Effect Transistor) by using the SPICE (Simulation Program with Integrated Circuit Emphasis) simulator. The qubits are represented by the quantum dots (QDs) between the Fin structure. In order to setup the qubit, we have to control the number of electrons through the FinFET. Here, we consider the circuit model of our system by treating the transport properties of the QD and the FinFET as single-electron phenomena. We provide the SPICE simulation results and show the single-electron current as the functions of the FinFET parameters such as the channel length and width including the operation temperature.</p>