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Novel Spin Flop Transition of the $S=1/2$ Square-Kagome-Lattice Antiferromagnet TORU SAKAI, JAEA, SPring-8, HIROKI NAKANO, University of Hyogo — By means of the numerical diagonalization method, we study the $S=1/2$ Heisenberg antiferromagnet on the square-kagome lattice, similar to the kagome lattice. We examine the ground-state properties and the magnetization process of the model. It is found that a magnetization jump appears at the higher-field-side edge of the magnetization plateau at the one-third height of the saturation. A spin-flop phenomenon is clearly observed at the jump even when the system is isotropic in the spin space.

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