

Realization of a low carbon society through game changing technologies

Development of 2D material CMOS & device integration technology

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Summary :

In this research, we will overcome the miniaturization limit faced by conventional Si semiconductors by introducing two-dimensional materials and we finally realize "green by digital" that will continue an efficient social structure into the future through digitalization. The technical issue is the low performance of P-type FETs. In this research, we fabricate a high-performance P-type FET and demonstrate 2D-CMOS operation by both PN. By moving forward one generation ahead with the introduction of 2D materials, we can achieve a 30% CO₂ reduction in all digital infrastructures.

http://webpark1753.sakura.ne.jp/nagashio_lab_E/

Demonstration of 2D CMOS integration

