Feasibility Study of Photovoltaic Systems in Gobi Desert, Mongolia

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In Gobi Desert, Mongolia, the Photovoltaic Systems Group set up two types of photovoltaic modules and the checking devices (e.g. I-V Curve Tracer, etc.) as well as the meteorological monitoring devices to study the characteristics of the photovoltaic system operation in the severe natural environment, in corporation with National University of Mongolia. Purpose of this study is to verify the output simulation technique for the vary-large-scale photovoltaic system (VLS-PV) to confirm the efficiency of using the large scaled concentrated photovoltaic system to be in this area, and also to clarify the specification requirement for the system design. The latest monitoring results are presented.

Photovoltaic System Operation Monitoring System at Sainshand, Mongolia.
Irradiation, temperature, wind, ground albedo, and I-V characteristics of two types of PV modules are measured every ten minutes.

Development of a Ferroelectric Gate Memory FET with a Long Data Retention

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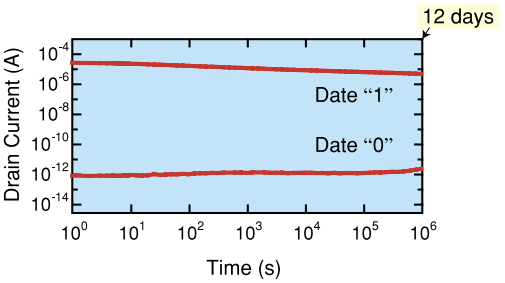
A ferroelectric gate field effect transistor (FET) has been developed. A hafnium composite oxide has been used as a buffer layer between the silicon and ferroelectric $SrBi_2Ta_2O_9$. Since this FET itself has functions of data storage and non-destructive read out, application to a next-generation memory was expected for a long time. However, the data retention properties reported so far were poor. The FET developed in AIST has superior data retention characteristics even after experiencing 12 days from the data entry. This success is a large breakthrough that opens up the way for the practical application to one transistor type ferroelectric random access non-volatile memory (1T-FeRAM).



Data retention characteristics of a ferroelectric gate memory FET