



IEEE SNCMJC

VIRTUAL TECHNICAL TALK SERIES 4/2022



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Implementation of an original reading method in silicon-on-insulator ISFET-like sensors

In the wide family of sensors, the ISFETs (Ion Sensing Field Effect Transistors) occupy a strategic place thanks to the multiple options of improvement in terms of sensitivity, power consumption, reliability, co-integration with reading circuitry, etc. In many cases, ISFETs use a back-gate and presence of charges contained in the analyte on their surface is monitored thanks to the associated shift of the threshold voltage of the transistor. This sensing configuration can be easily implemented in silicon-on-insulator (SOI) substrates with a low number of fabrication steps, by simply taking advantage of the natural inverted MOSFET obtained in such wafers. In the SOI-world, the out-of-equilibrium phenomena, such as the occurrence of a body-potential, are known and can induce parasitic effect on the working of the device. During this seminar, I'll show how we managed to turn this parasitic effect into a new charge-detection method with high improvement-potential for applications. The working-principle will be explained through experiments and simulations and a proof-of-concept of sensing will be shown for pH detection.

2 SEPTEMBER 2022

3.00 PM

Malaysia time

9.00 AM

France time

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