**MOSFET Lab – CV profiling**

**(** <http://nanohub.org/tools/mos>cap )

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**Problem Background**

C-V measurements are commonly performed to extract mobility in MOSFET channels. Low-field mobility is estimated using the following relation,

$$μ=\frac{I\_{DS}}{V\_{DS}}\frac{L}{W}\frac{1}{Q\_{i}}$$

**tox=100 nm**

Drain

Source

**NA=1015 /cm3**

**tSi=5 µm**

 Shown above is a test MOSFET that has been fabricated. The device is 1µm long and 1µm wide. On applying 10 mV across the channel 1µA is measured at a gate bias of 3V beyond threshold (Vt). Estimate the mobility of the MOSFET using a C-V curve extracted from MOSCAP. (Define Vt as the point where capacitance changes the fastest in inversion mode).