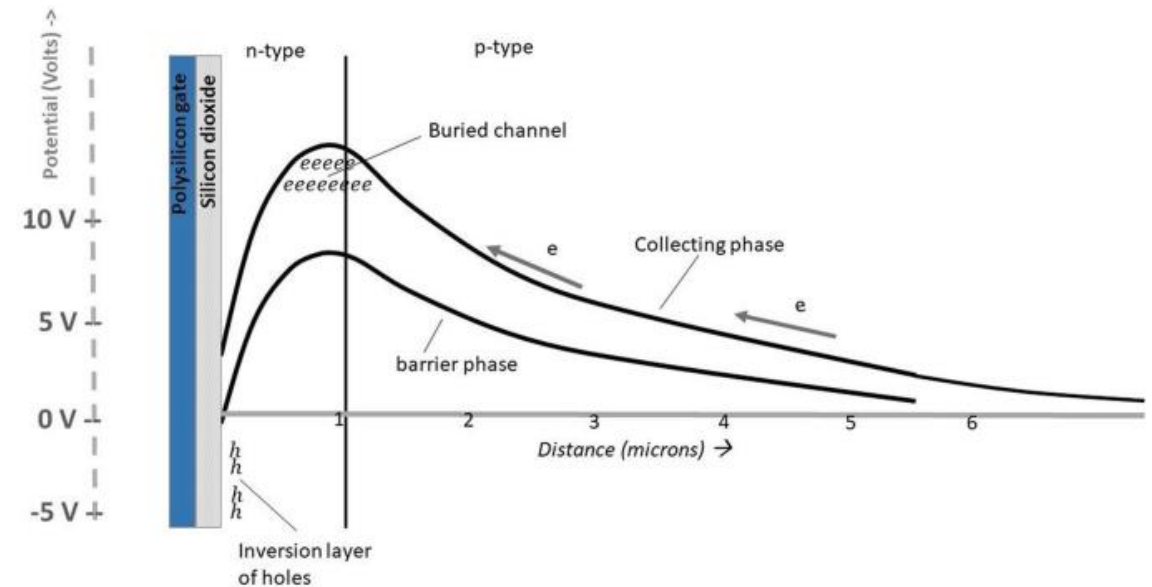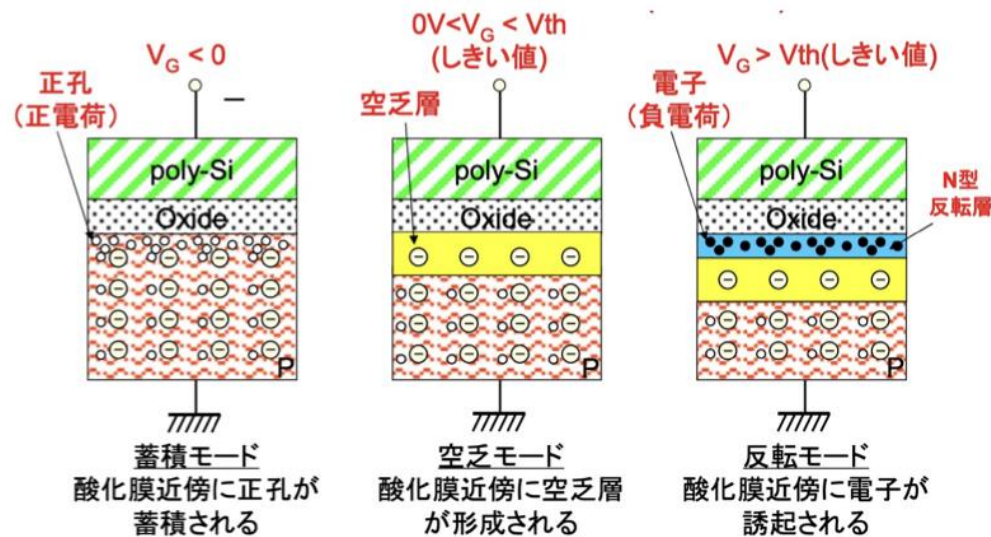# McLean Sec8 ex2&8

Misato Fujii

2 Explain what is meant by "inverted" operation and why is it advantageous?

Inverted operation
　・holes are attracted up to the Si-SiO2 interface at electrodes
　　→increase free-carriers at interface
　　→suppress thermal hopping
　　→reduce dark current
　・the neutralization of the interface states eliminate residual images associated with saturation and problems of charge capture

8 What is meant by "overscanning" a CCD? How could you use this technique to quantify the charge transfer efficiency (CTE) of a CCD?

• produce a resulting image which is several pixels larger, along both axes, than the real CCD
• measure the signals occurring in the imaginary pixels following the last row and column of the real CCD (deferred charge)

$$CTE(e^-) = 1 - \frac{Q_d}{NQ_0}$$

• Q_d: net deferred charge in the overscan
• Q_0: charge on the real pixel
• N: the number of pixels transferred