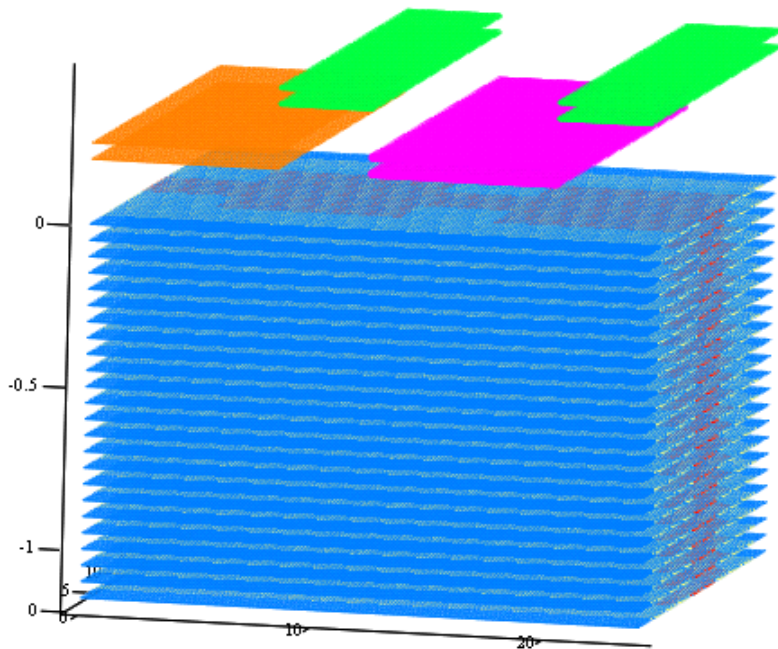
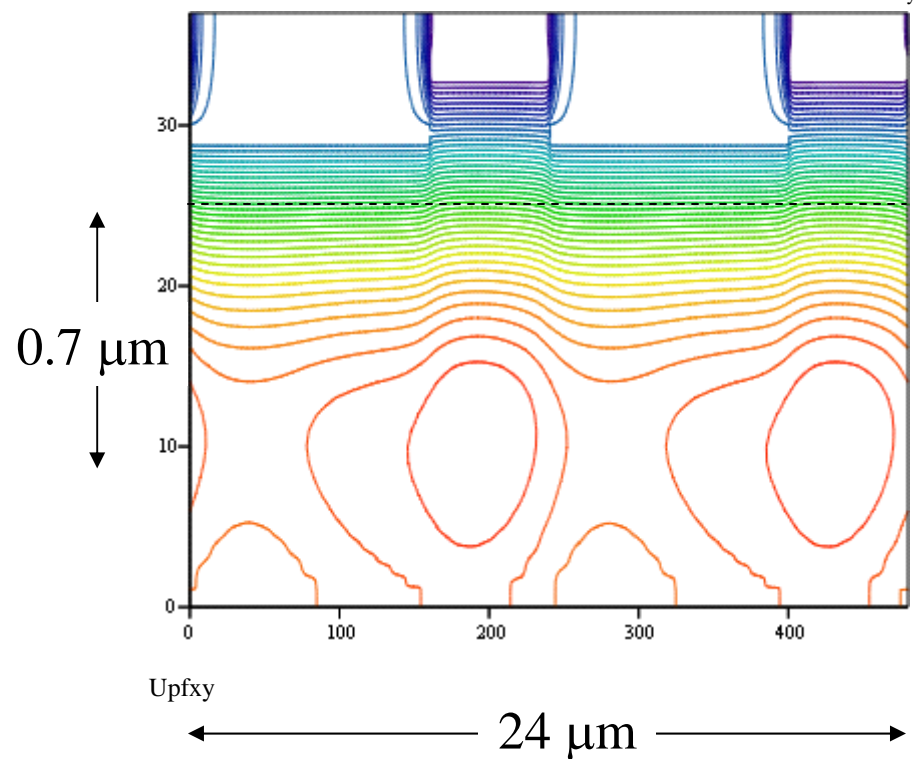


Effect of misalignment of gates and dopant

- Look at “Profiled Notch” structure:

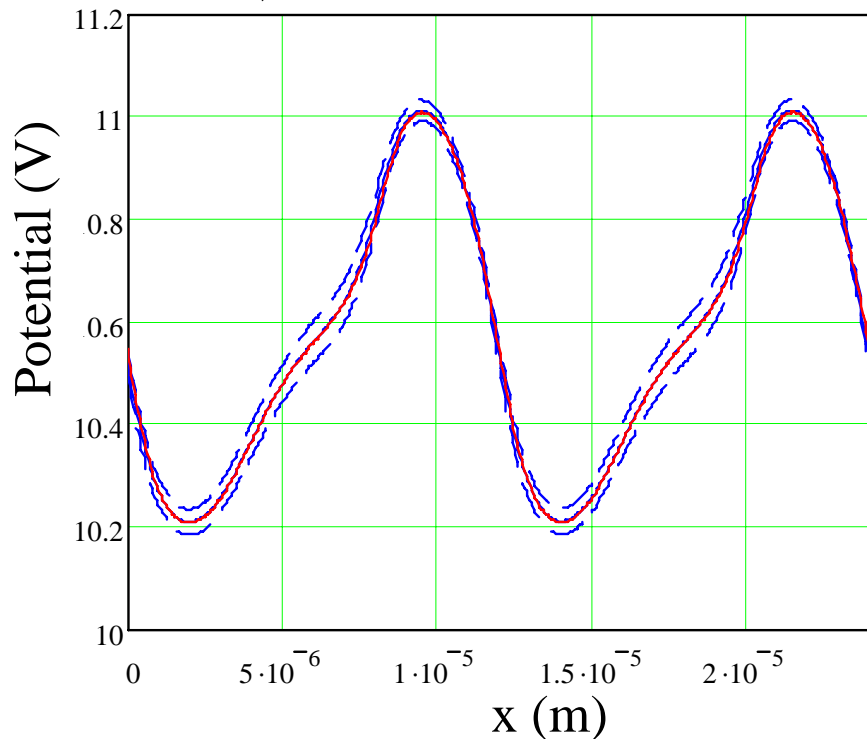


- Determine potentials assuming $V_1 = 1 \text{ V}$, $V_2 = 1 \text{ V}$, $V_P = -2.3 \text{ V}$.
- Section normal to gates/pedestal:

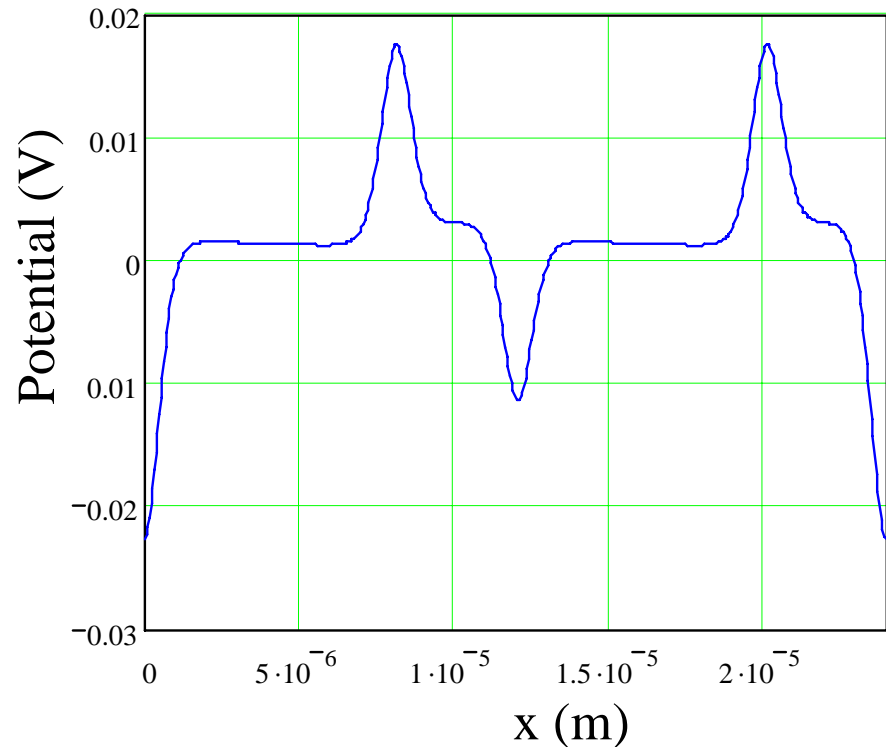


Effect of misalignment of gates and dopant

- Look at potentials along buried channel with correct alignment (blue curve) and with dopant misaligned by 200 nm (red curve):

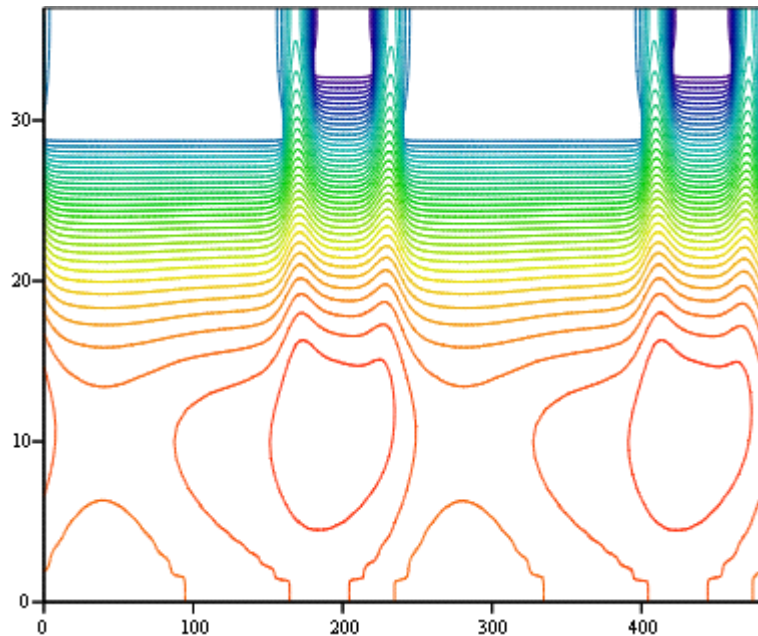


- Plot difference of potentials in correct and misaligned cases:



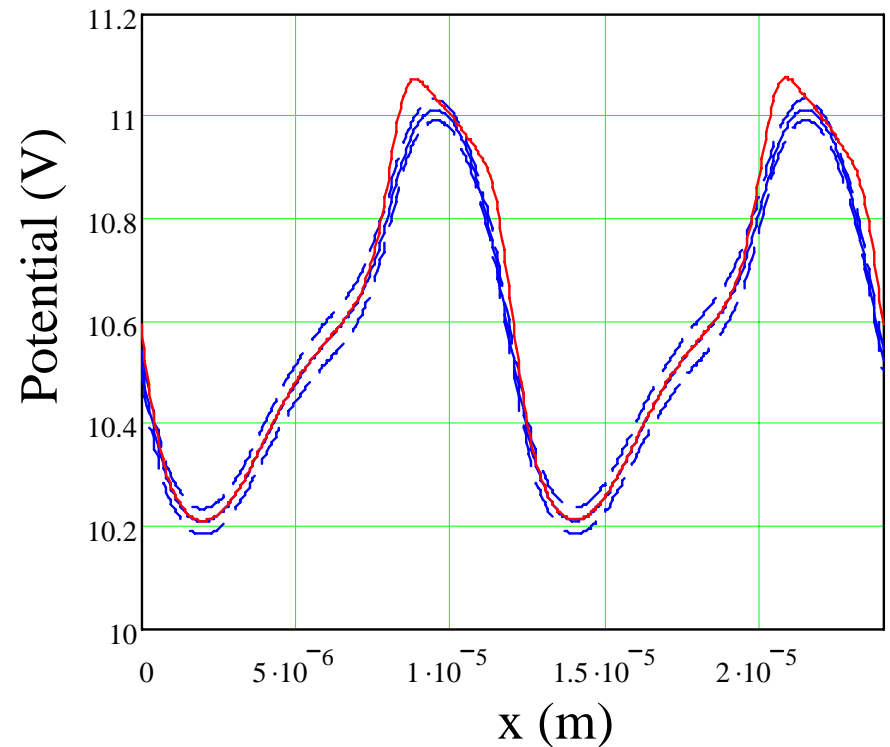
Effect of gap between gates and pedestal

- Introduce horizontal displacement of $1\ \mu\text{m}$ between pedestal and gates, potential:



Upfxy2

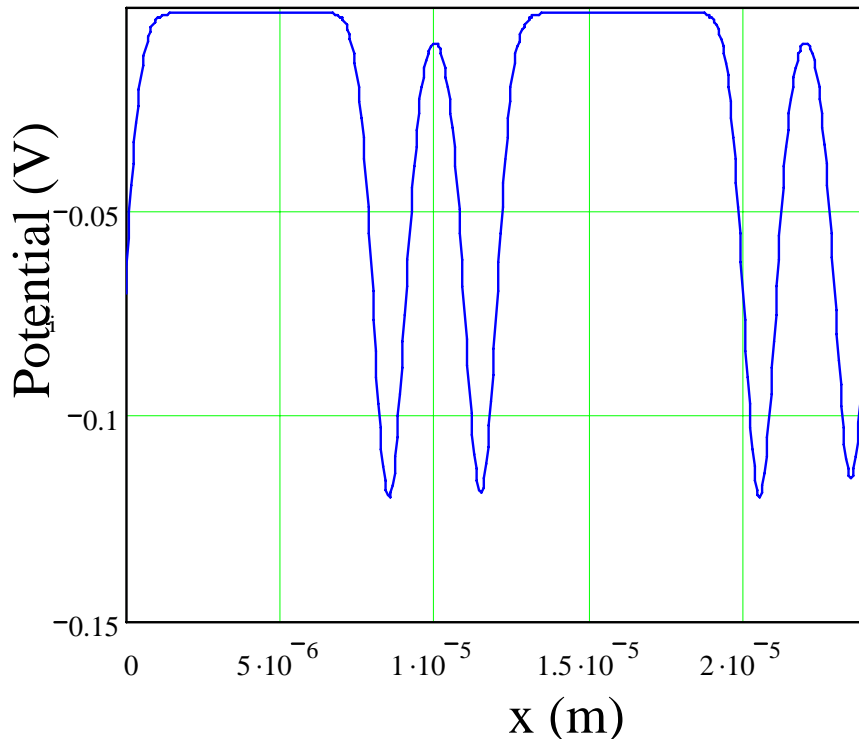
- Look at potentials along buried channel with no gap (blue curve) and with gap (red curve):



Effect of gap between gates and pedestal

Conclusions

- Plot difference of potentials in cases with and without gap:



- Displacement of 200 nm of dopant with respect to gates in Profiled Notch structure looks to have only small effect on potential in buried channel. (Some checks still to be done.)
- Introducing 1 mm gap between gates and pedestal (at height of 200 nm) causes potential changes of about 110 mV in buried channel. Further work needed to see if these endanger charge transfer.