Preethi's ROIC analysis

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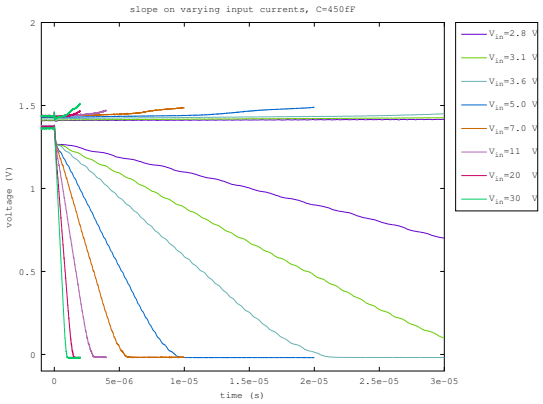
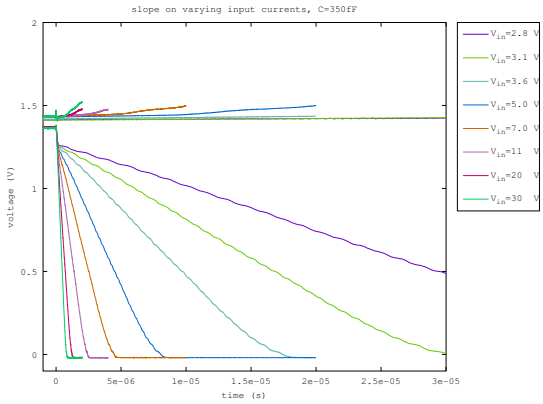
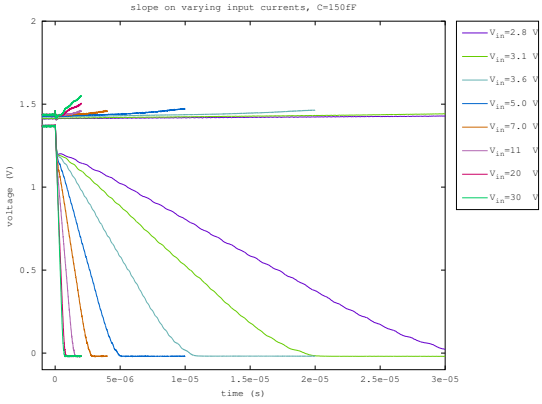
1 normal mode



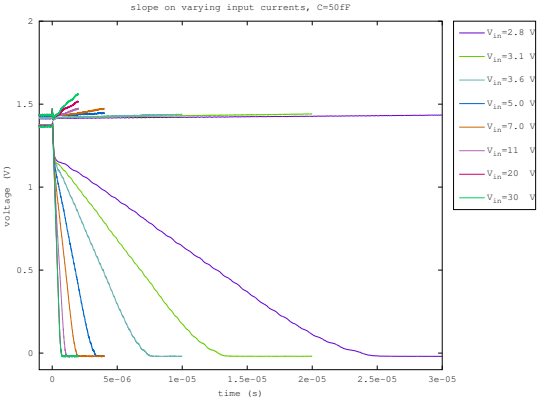
(a) $C = 450\,fF$



(b) $C = 350\,fF$

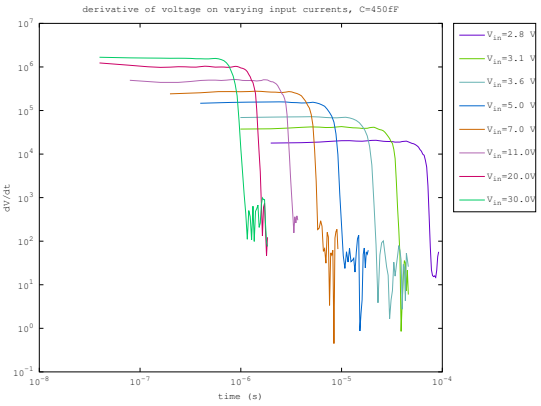


(c) $C = 150\,fF$

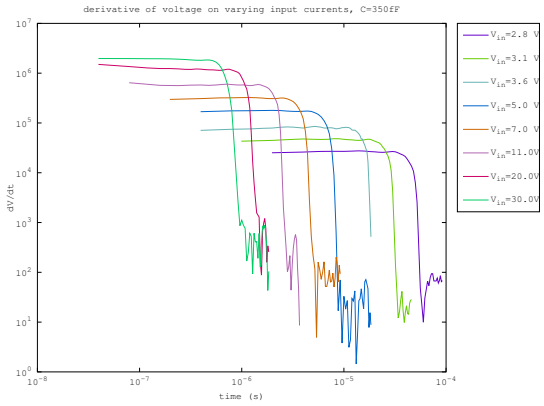


(d) $C = 50\,fF$

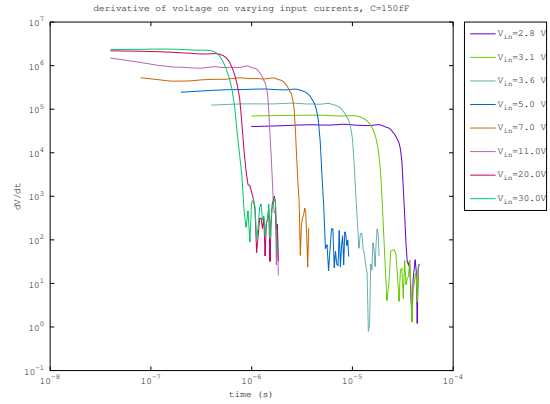
Figure 1: Expected versus measured charge up times for different input voltages. The input voltage is connected to the input through a resistor of $20\,M\Omega$



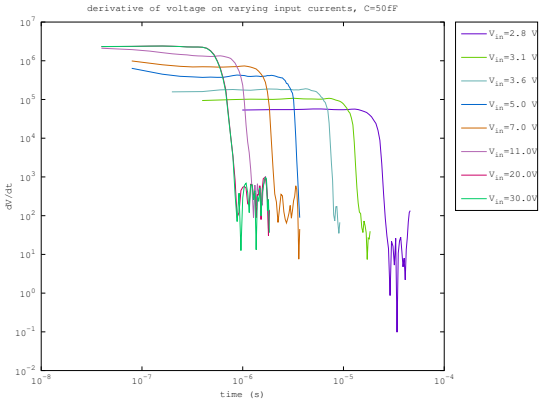
(a) $C = 450\,fF$



(b) $C = 350\,fF$

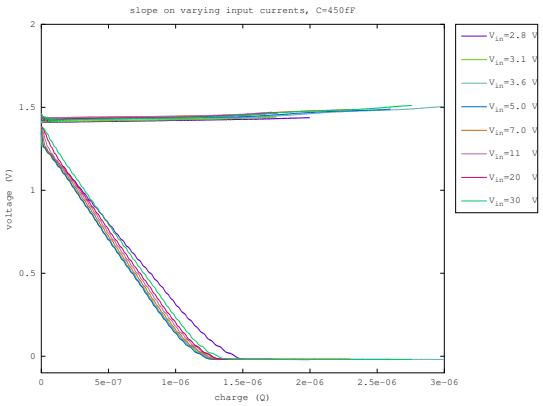


(c) $C = 150\,fF$

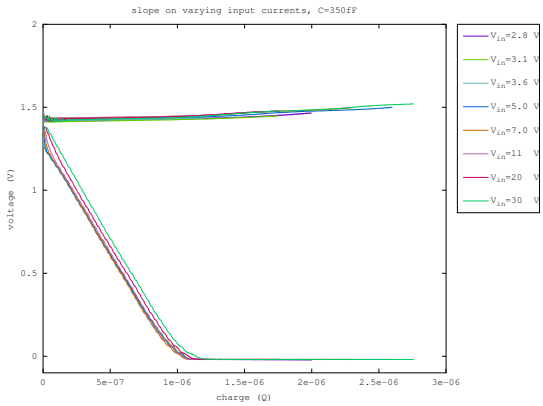


(d) $C = 50\,fF$

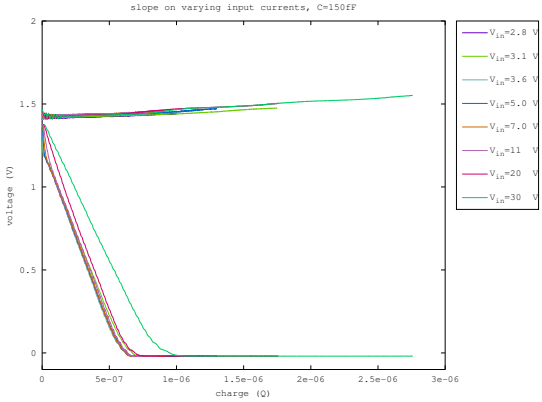
Figure 2: The plot shows dv/dt against time. The plot is in log scale, which allows for an easy read on the maximum slope and the time needed to discharge the integrator capacitance.



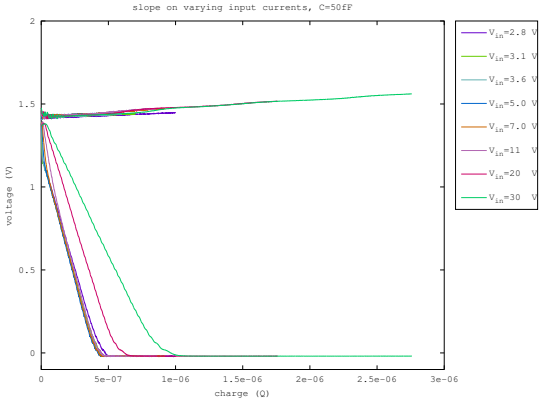
(a) $C = 450\,fF$



(b) $C = 350\,fF$

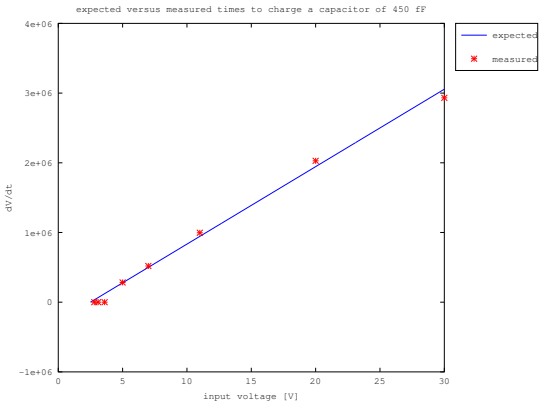


(c) $C = 150\,fF$

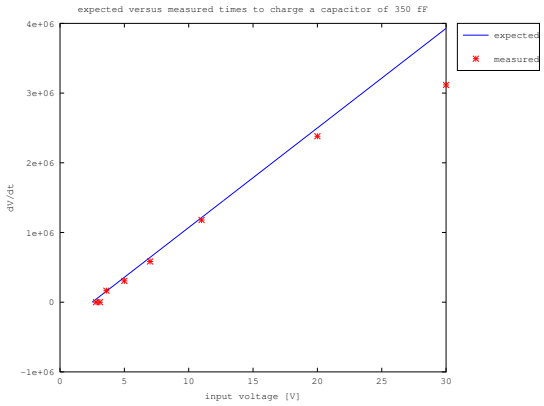


(d) $C = 50\,fF$

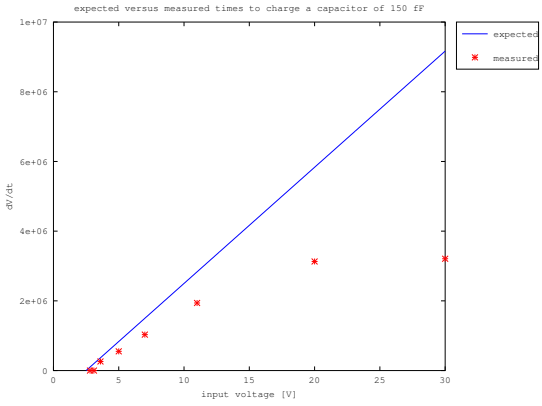
Figure 3: This plot is showing charge versus voltage



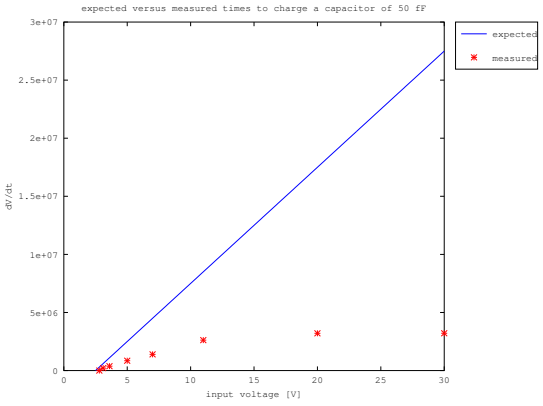
(a) $C = 450\,fF$



(b) $C = 350\,fF$



(c) $C = 150\,fF$

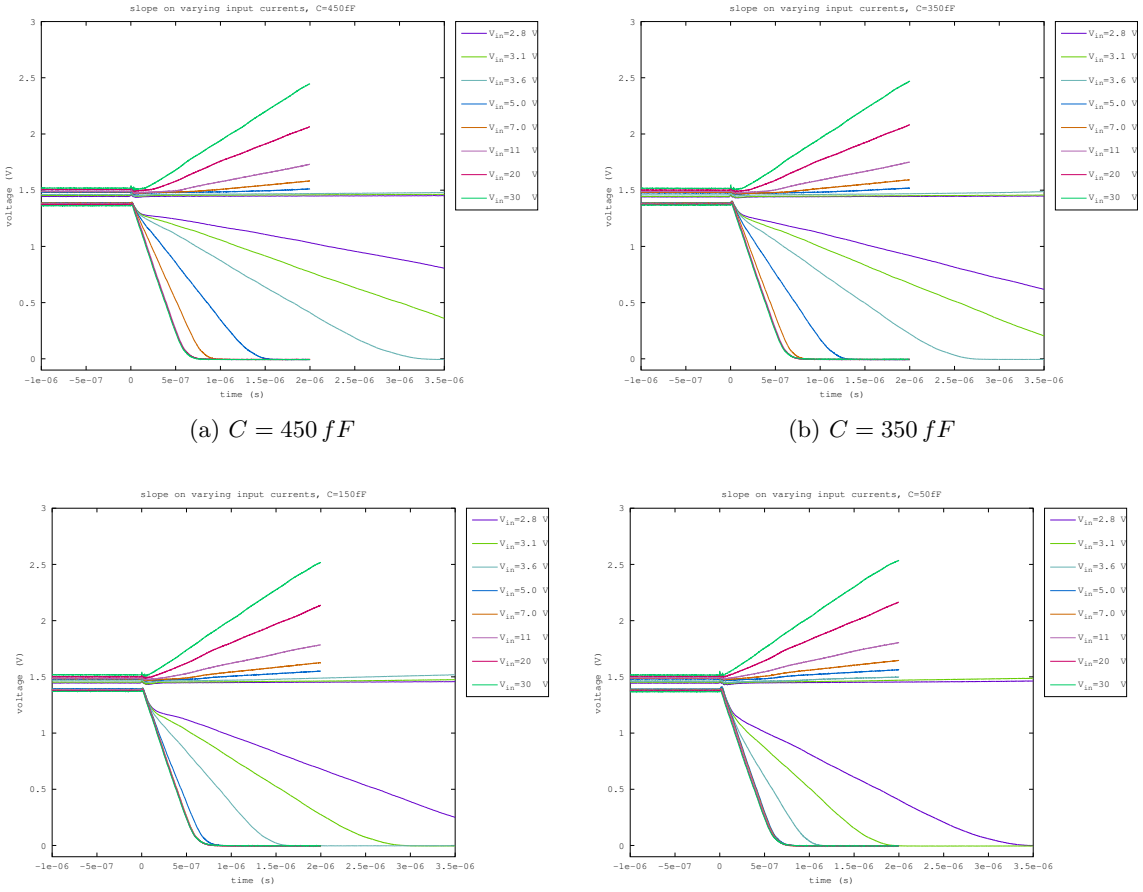


(d) $C = 50\,fF$

Figure 4: Expected versus measured charge up times for different input voltages. The input voltage is connected to the input through a resistor of $20\,M\Omega$.

2 large current focussed

In this section the $20\,M\Omega$ input resistor is replaecd with a $4\,M\Omega$ resistor.



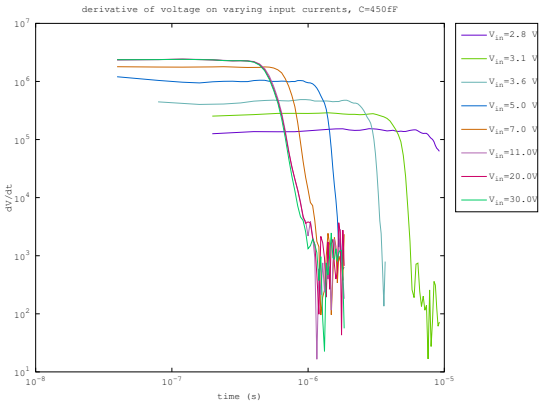
(a) $C = 450\,fF$

(b) $C = 350\,fF$

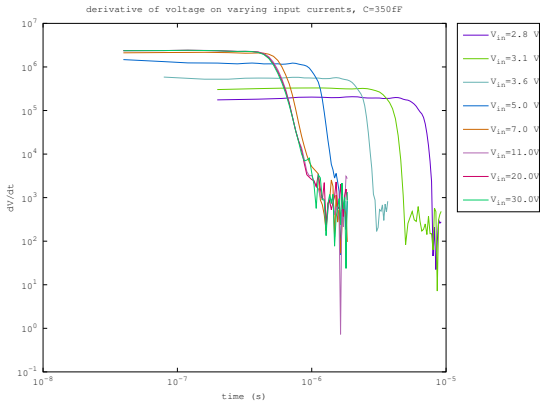
(c) $C = 150\,fF$

(d) $C = 50\,fF$

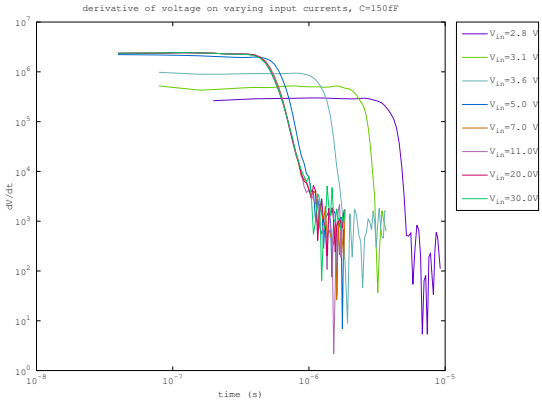
Figure 5: Expected versus measured charge up times for different input voltages. The input voltage is connected to the input through a resistor of $4\,M\Omega$



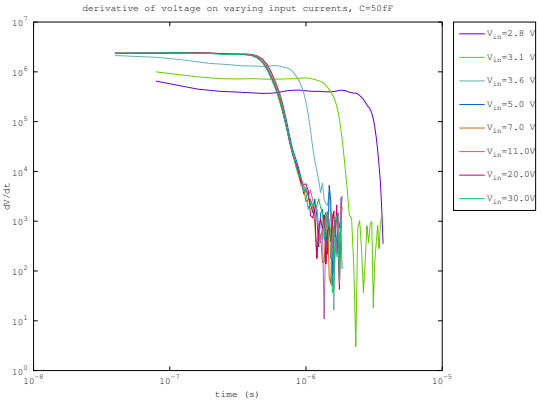
(a) $C = 450\,fF$



(b) $C = 350\,fF$

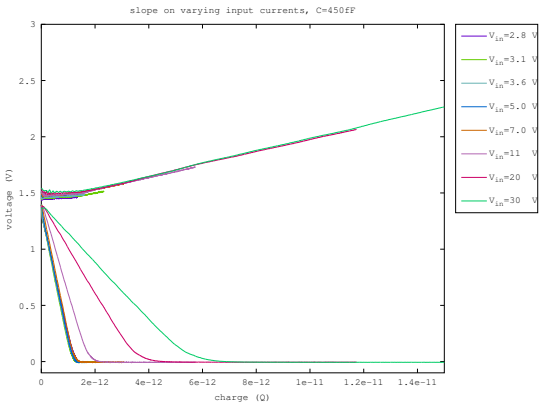


(c) $C = 150\,fF$

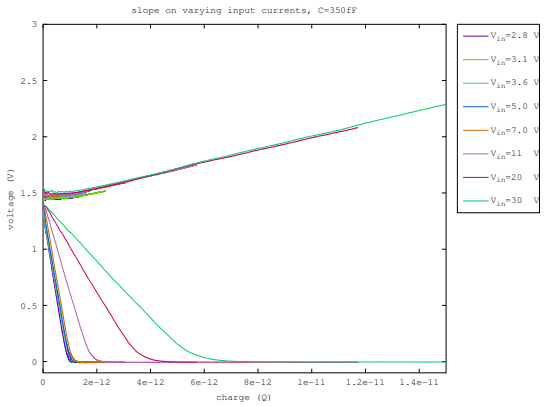


(d) $C = 50\,fF$

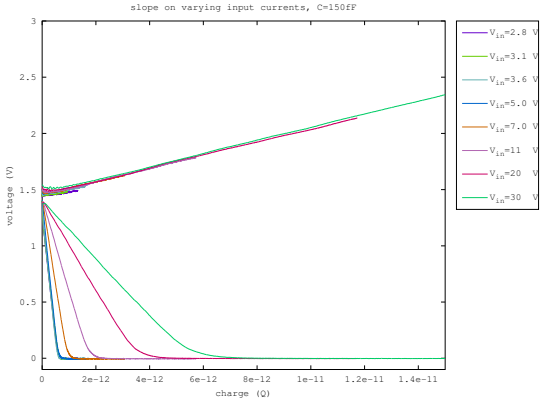
Figure 6: The plot shows dv/dt against time. The plot is in log scale, which allows for an easy read on the maximum slope and the time needed to discharge the integrator capacitance.



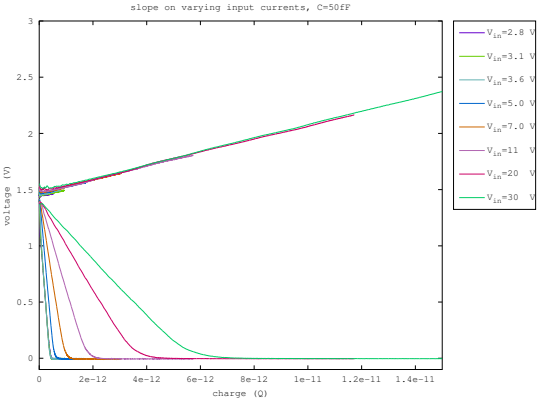
(a) $C = 450\,fF$



(b) $C = 350\,fF$

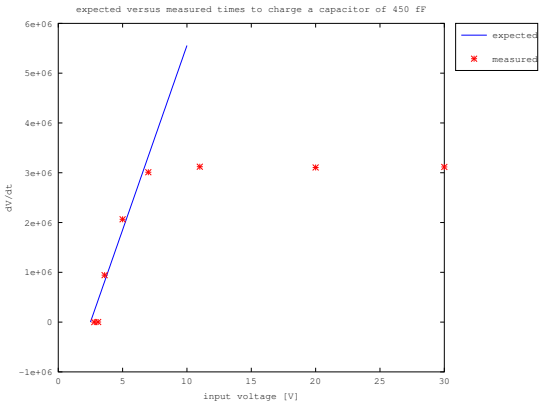


(c) $C = 150\,fF$

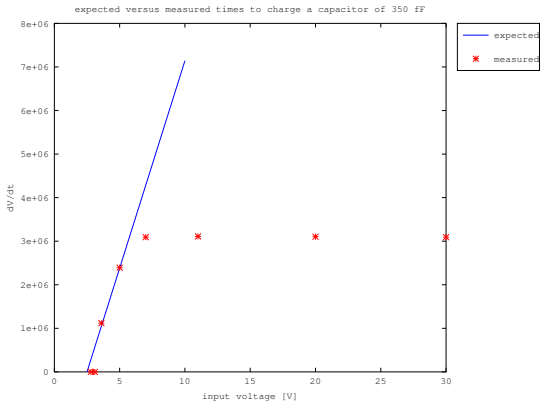


(d) $C = 50\,fF$

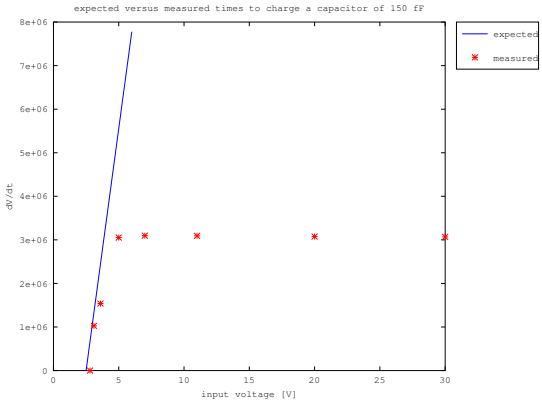
Figure 7: This plot is showing charge versus voltage



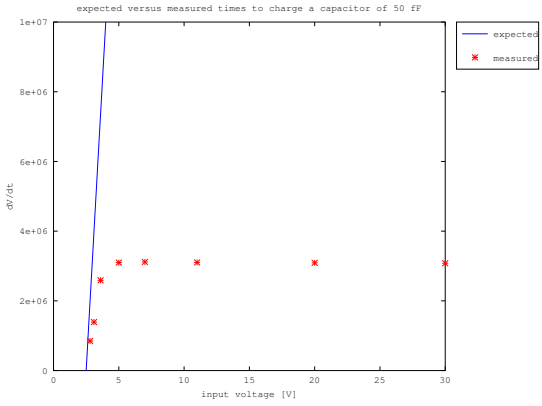
(a) $C = 450\,fF$



(b) $C = 350\,fF$



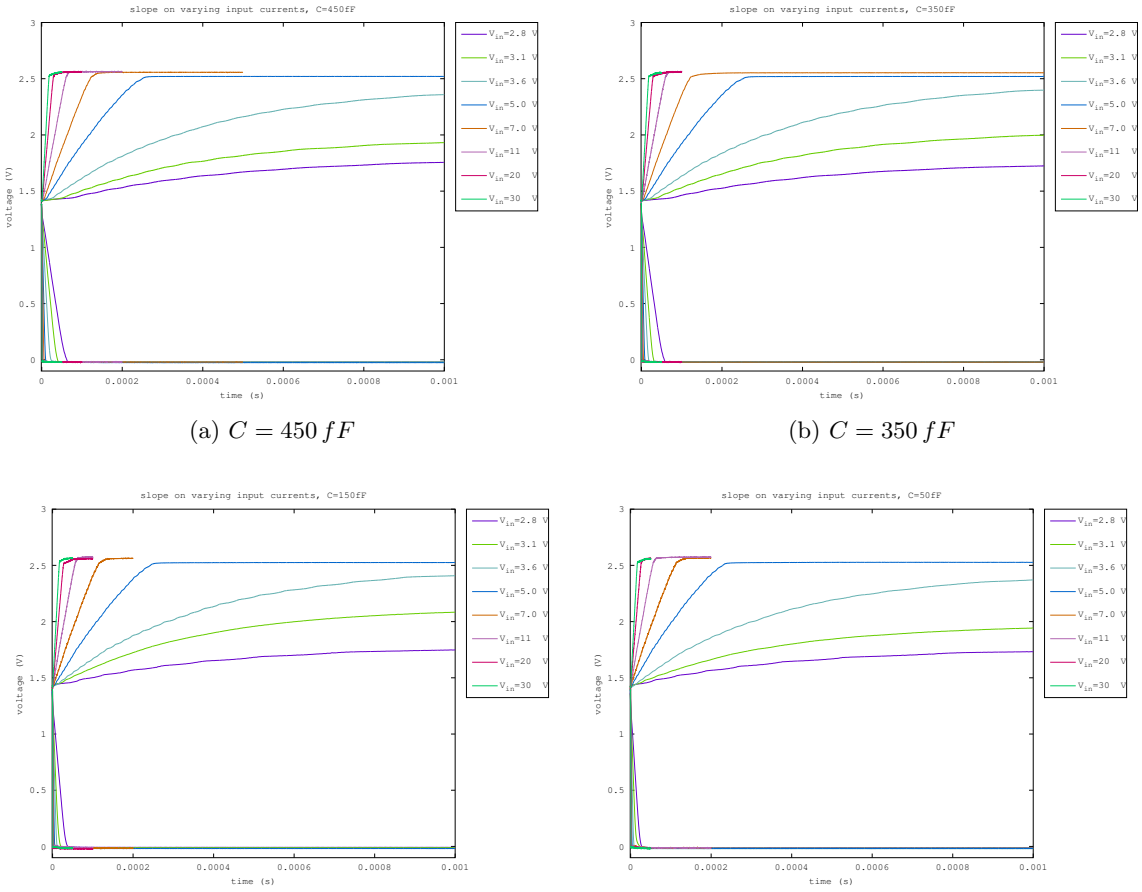
(c) $C = 150\,fF$



(d) $C = 50\,fF$

Figure 8: Expected versus measured charge up times for different input voltages. The input voltage is connected to the input through a resistor of $4\,M\Omega$.

3 vbo focussed



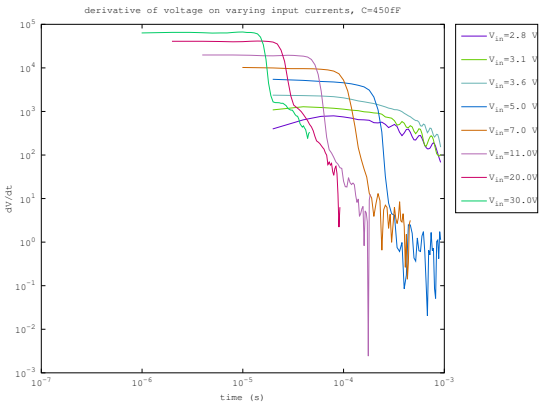
(a) $C = 450\,fF$

(b) $C = 350\,fF$

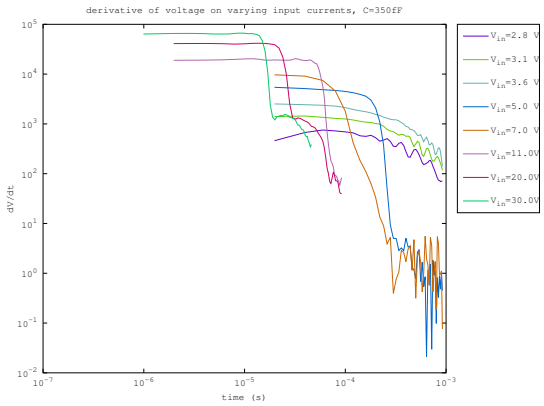
(c) $C = 150\,fF$

(d) $C = 50\,fF$

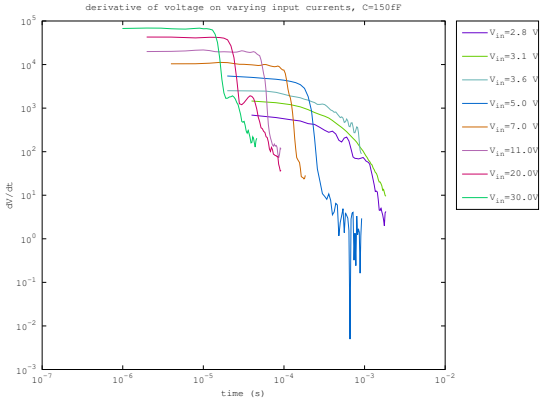
Figure 9: Expected versus measured charge up times for different input voltages. The input voltage is connected to the input through a resistor of $20\,M\Omega$



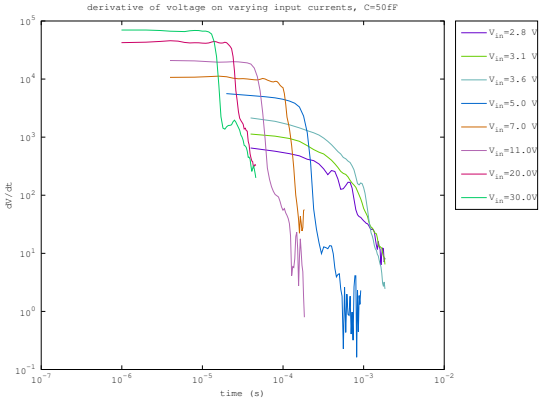
(a) $C = 450\,fF$



(b) $C = 350\,fF$

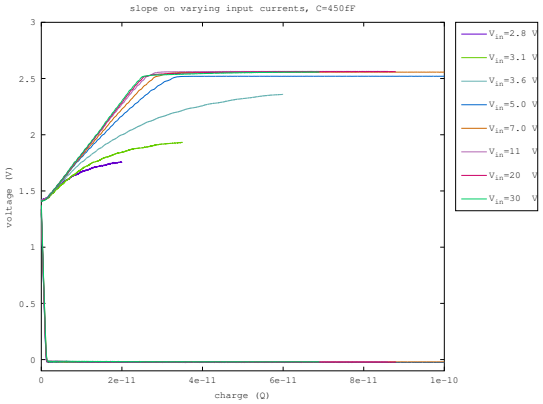


(c) $C = 150\,fF$

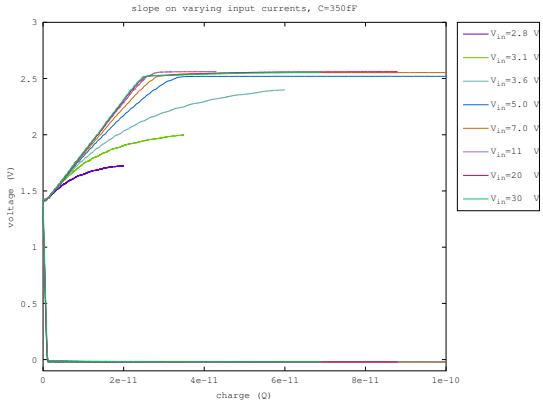


(d) $C = 50\,fF$

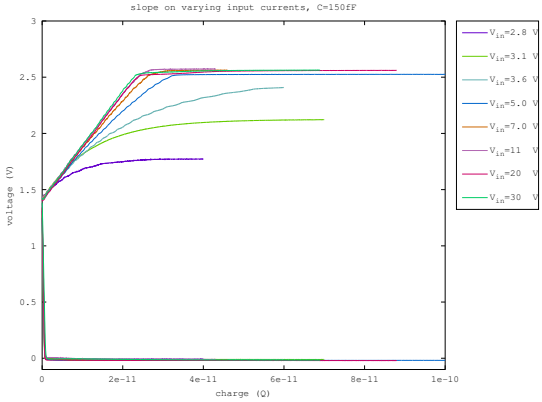
Figure 10: The plot shows dv/dt against time of the vbo.



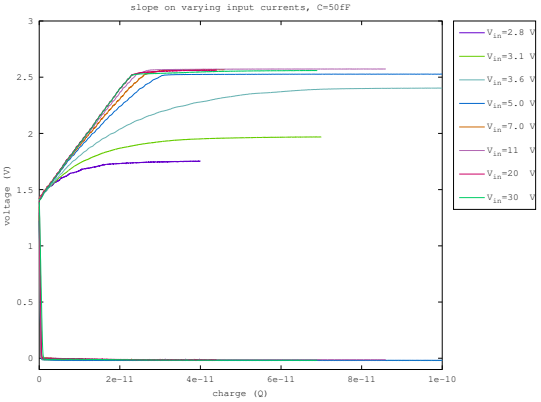
(a) $C = 450\,fF$



(b) $C = 350\,fF$

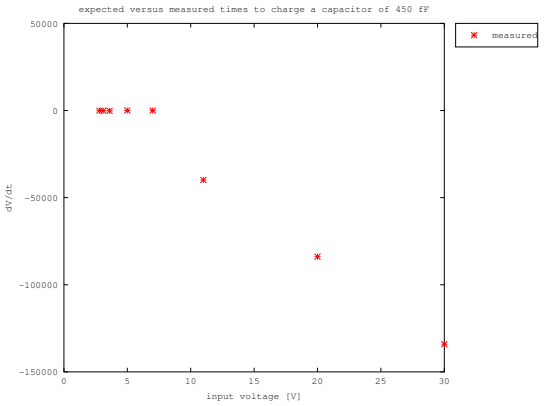


(c) $C = 150\,fF$

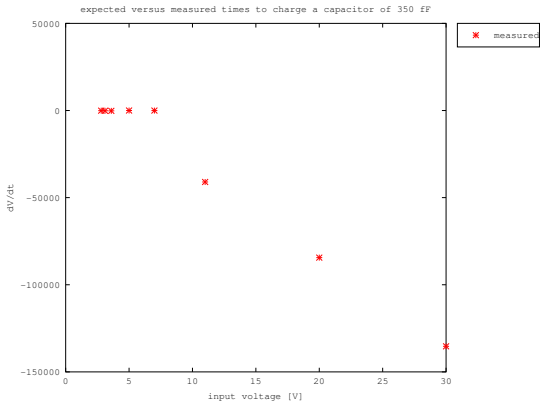


(d) $C = 50\,fF$

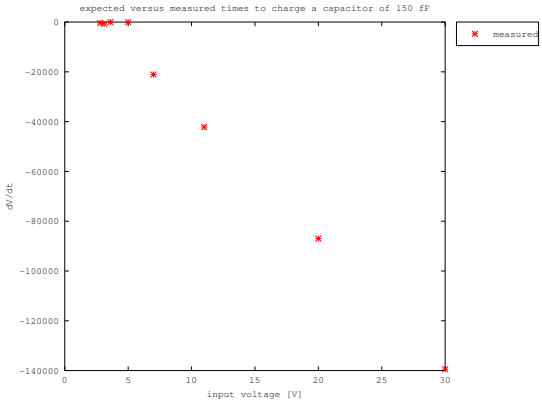
Figure 11: This plot is showing charge versus voltage



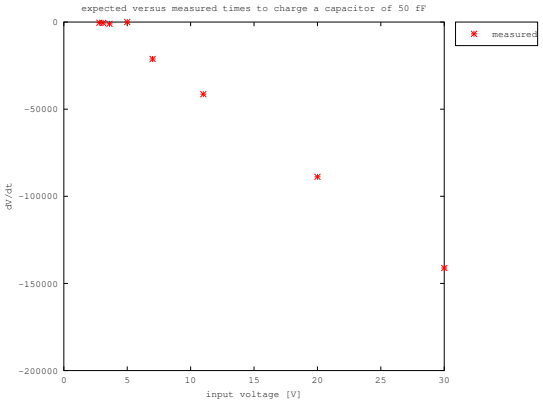
(a) $C = 450\,fF$



(b) $C = 350\,fF$



(c) $C = 150\,fF$



(d) $C = 50\,fF$

Figure 12: charge times of vbo for different input voltages. The input voltage is connected to the input through a resistor of $20\,M\Omega$.