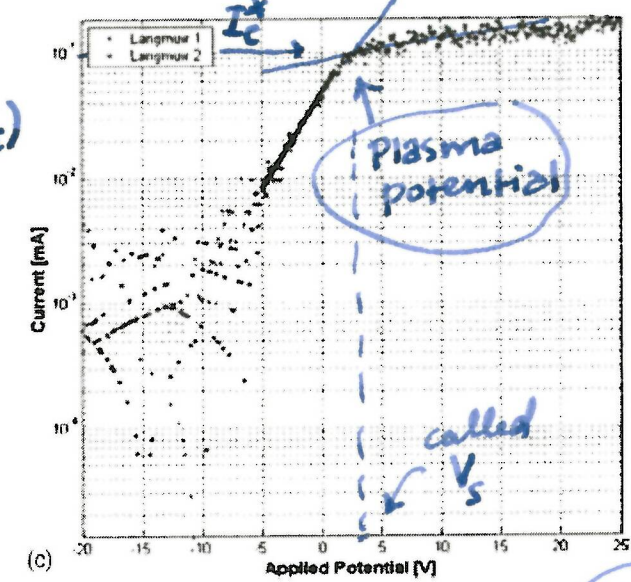
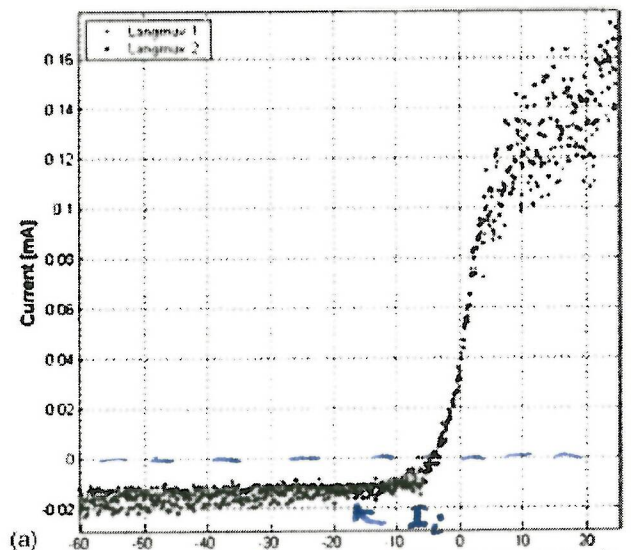


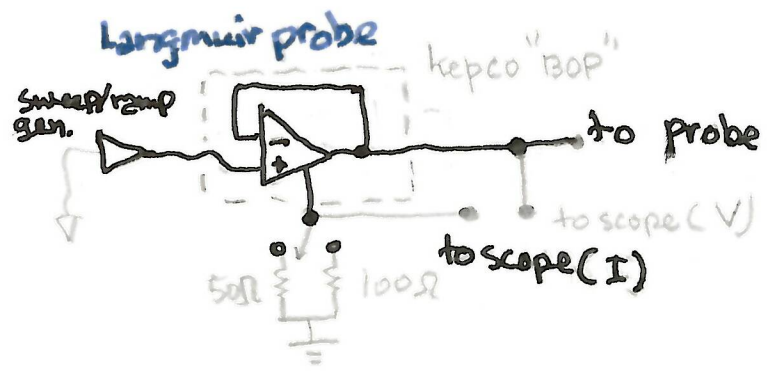
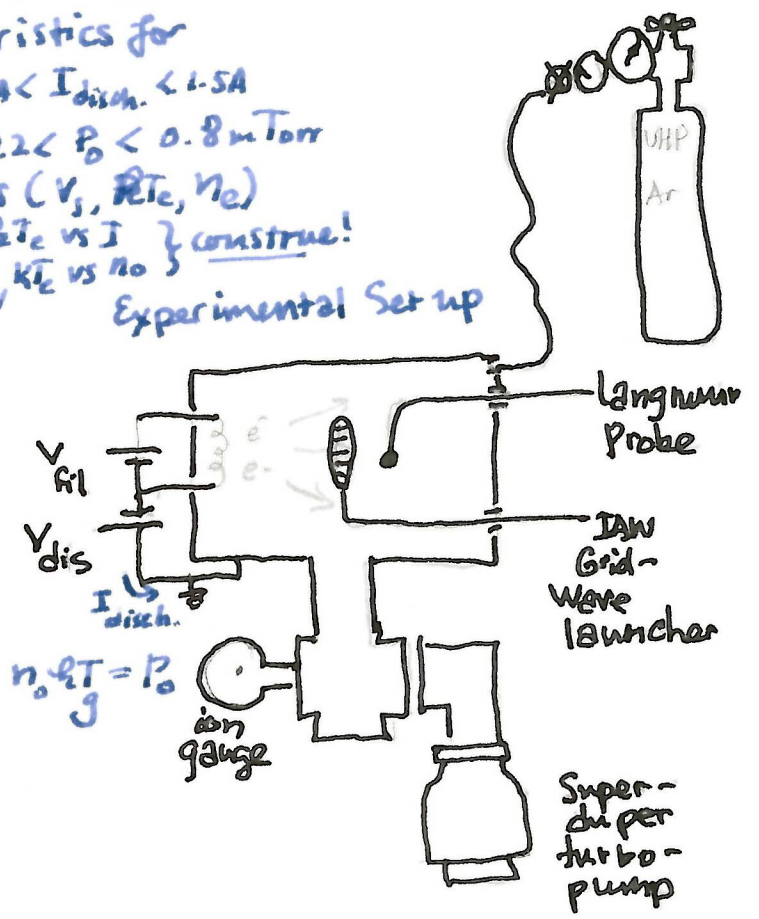
# Plasma lab Part I: Langmuir Probe measurements!

- \* Get  $I(V)$  or  $I-V$  characteristics for
  - fixed  $V_{dis}$ ,  $P_0$   $0.5A < I_{disch.} < 1.5A$
  - fixed  $I_{dis}$ ,  $V_{dis}$   $0.2 < P_0 < 0.8 mTorr$
- \* estimate plasma parameters ( $V_s$ ,  $kT_e$ ,  $n_e$ )
  - plot  $n_e$  vs.  $I$ ,  $kT_e$  vs  $I$  } construct!
  - plots  $n_e$ ,  $kT_e$  vs  $n_0$

**I vs V**



$\ln(I - I_i)$



See ref 2 & 3!

$$I \approx I_i - I_e^* e$$

$$e \frac{(V - V_s)}{kT_e} \leftarrow \text{plasma electron } T$$

$$I_e^* = \frac{1}{4} n_e v_e \cdot A_p \leftarrow \text{area of probe}$$

elect. plasma density  
electron thermal velocities