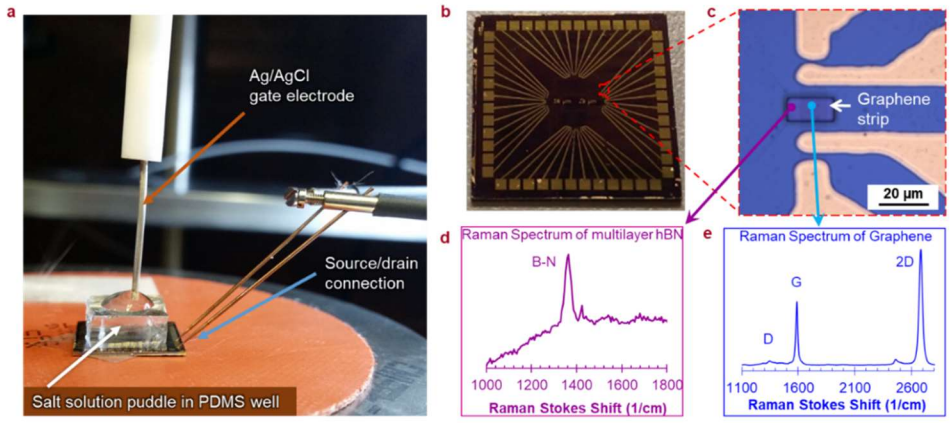

Figure 1. Device and Experimental setup.

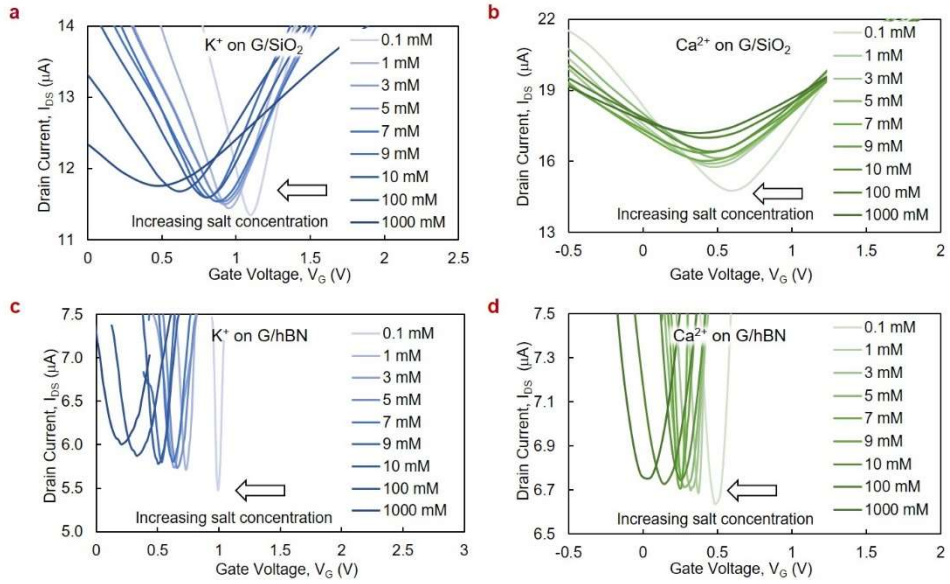

Figure 2. Transfer characteristics of the solution-gated graphene ISFETs.

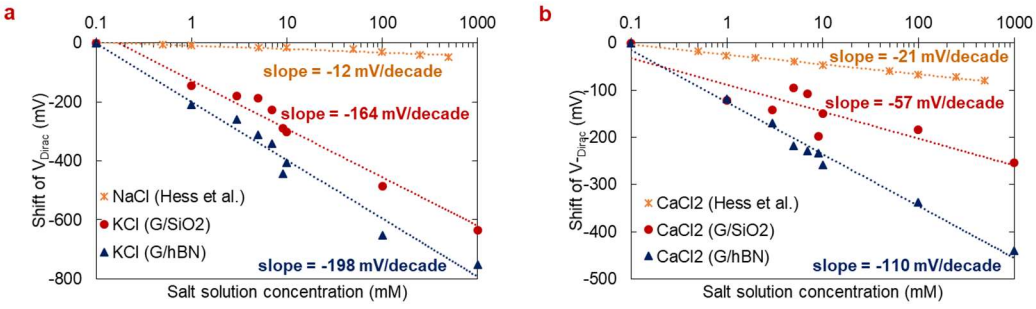

Figure 3. Ionic sensitivity of the Dirac voltage.

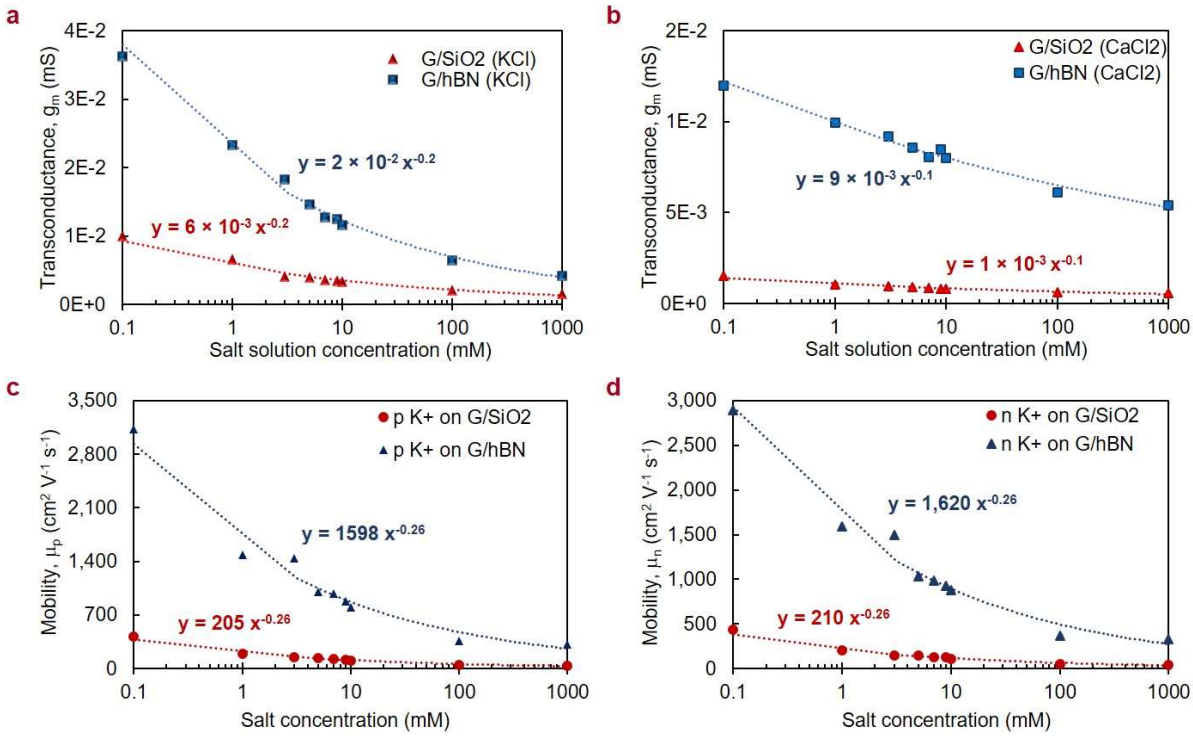

Figure 4. Ionic sensitivity of transconductance and charge carrier mobility.

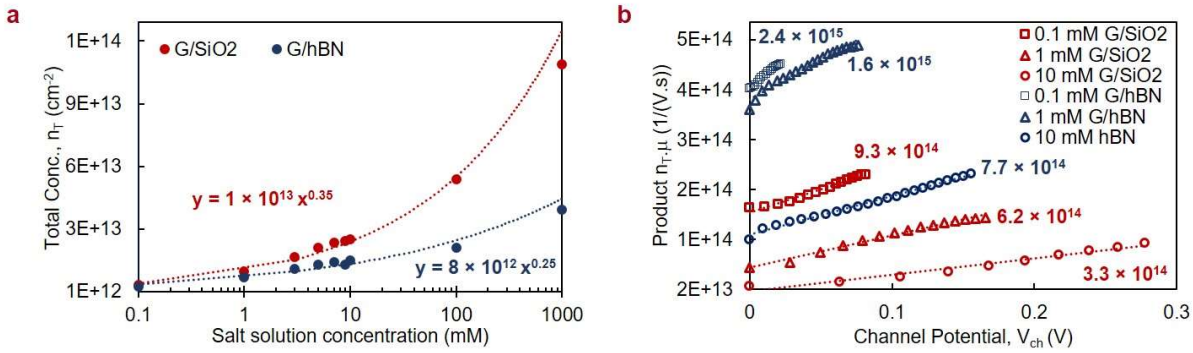

Figure 5. (a) Plot of total carrier concentration n_T versus KCl concentration at $V_G = 0$ V for one of the SiO_2 (red circle) and hBN (blue circle) device fit to a power law model (dotted lines). (b) Plot of $n_T.\mu$ versus V_{ch} for an hBN and SiO_2 device when gated through 0.1, 1 or 10 mM KCl solution. The numbers indicates slope of the line fit to the data.