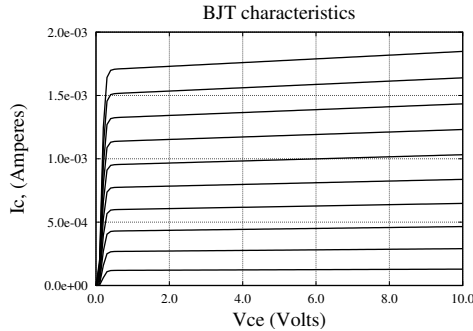


**Indian Institute of Technology, Delhi**  
**ELL304 Analog Circuits**  
**Laboratory Exercise 2, 30 July 2015**

The  $i_C$  vs  $v_{CE}$  characteristics of a BC107 transistor have to be obtained experimentally. The figure shows the expected characteristics.



1. Simulate the device in ngspice and obtain similar characteristics.
2. Devise an experiment to obtain these characteristics in the laboratory. A typical setup can look like the circuit diagram in the figure below. Vary the resistors  $R_C$  and  $R_B$  and measure the voltages across the resistors to obtain the currents. Possible values of  $R_B$  are 1M, 470k, 330k, 220k; possible values of  $R_C$  are 1k, 2.2k, 4.7k, 10k, 20k. You can also vary the 12 V power supply voltage to lower values to obtain more points in your graphs. You can also choose to use two different power supply voltages - one to control  $i_B$ , the other to control  $i_C$ .

