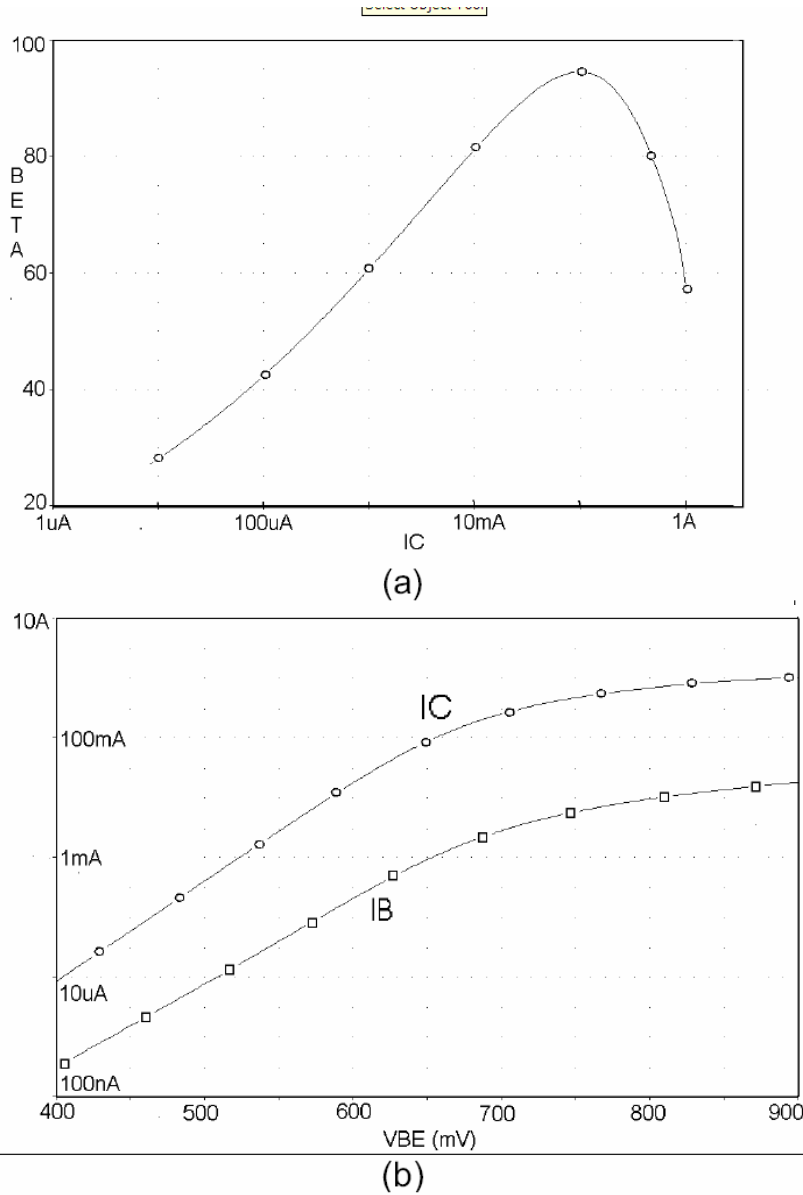


# Yarıiletken Elemanların ve Düzenlerin Modellenmesi

## Ödev2

(Veriliş tarihi: 24.10.07, süre 2 hafta)

Şekil-1'deki deęişimlerden ve buna ilişkin verilerin yer aldığı Tablo-1'den yararlanarak bir bipolar npn tranzistora ilişkin  $\beta_F$ ,  $I_{SE}$ ,  $n_{EL}$ ,  $I_{KF}$ ,  $I_{SO}$  parametrelerini belirleyiniz.



Şekil-1 a)  $\beta_F$ - $I_C$ , b)  $I_C$ - $V_{BE}$  ve  $I_B$ - $V_{BE}$  deęişimleri

Tablo 1. Şekil-1'deki eğrilere ilişkin değerler

VBE	IC (A)	IB(A)	VBE	IC (A)	IB(A)
4.000E-01	8.371E-06	3.083E-07	6.580E-01	1.053E-01	1.115E-03
4.200E-01	1.814E-05	5.785E-07	6.590E-01	1.080E-01	1.143E-03
4.400E-01	3.929E-05	1.090E-06	6.600E-01	1.107E-01	1.172E-03
4.600E-01	8.510E-05	2.065E-06	6.700E-01	1.402E-01	1.492E-03
4.800E-01	1.842E-04	3.933E-06	6.800E-01	1.734E-01	1.865E-03
5.000E-01	3.986E-04	7.531E-06	6.900E-01	2.099E-01	2.291E-03
5.200E-01	8.609E-04	1.450E-05	7.000E-01	2.487E-01	2.762E-03
5.400E-01	1.855E-03	2.804E-05	7.100E-01	2.898E-01	3.285E-03
5.600E-01	3.969E-03	5.439E-05	7.200E-01	3.318E-01	3.842E-03
5.800E-01	8.394E-03	1.054E-04	7.300E-01	3.751E-01	4.442E-03
6.000E-01	1.736E-02	2.023E-04	7.400E-01	4.188E-01	5.073E-03
6.110E-01	2.548E-02	2.872E-04	7.500E-01	4.626E-01	5.734E-03
6.300E-01	4.757E-02	5.141E-04	7.600E-01	5.064E-01	6.421E-03
6.400E-01	6.446E-02	6.874E-04	7.700E-01	5.499E-01	7.132E-03
6.500E-01	8.541E-02	9.046E-04	7.800E-01	5.930E-01	7.863E-03
6.510E-01	8.774E-02	9.290E-04	7.900E-01	6.356E-01	8.613E-03
6.520E-01	9.014E-02	9.542E-04	8.000E-01	6.775E-01	9.380E-03
6.530E-01	9.261E-02	9.801E-04	8.100E-01	7.186E-01	1.016E-02
6.540E-01	9.503E-02	1.006E-03	8.200E-01	7.587E-01	1.096E-02
6.550E-01	9.751E-02	1.032E-03	8.400E-01	8.346E-01	1.260E-02
6.560E-01	1.001E-01	1.059E-03	8.600E-01	9.033E-01	1.431E-02
6.570E-01	1.027E-01	1.087E-03	8.800E-01	9.621E-01	1.604E-02
			9.000E-01	1.015E+00	1.784E-02