Finding the optimal parameters ???

This is a model of reaction-diffusion system as can be found in the following figure (1).

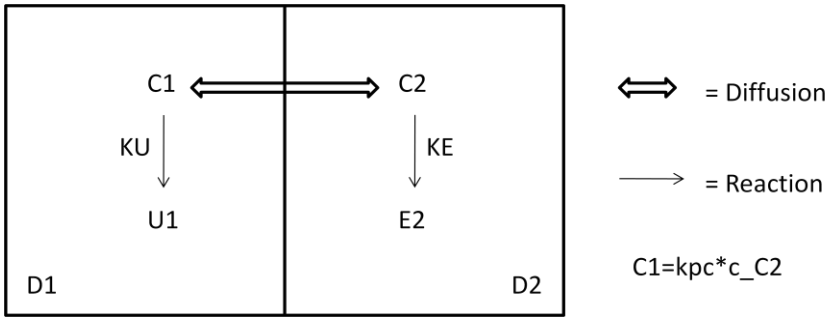

Figure (1)

In the above model, KU and KE are rate constants. D1 and D2 are diffusion coefficients in subdomain 1 and 2 respectively. kpc is a partition coefficient between C1 and C2. I have modeled this system in Comsol 3.5a and run the system for a time span of 600 sec in the interval of 200 sec i.e. (0:200:600). (You can find it in the attached file test.mph) Then I computed the solution which are given in the following figures (2,3).

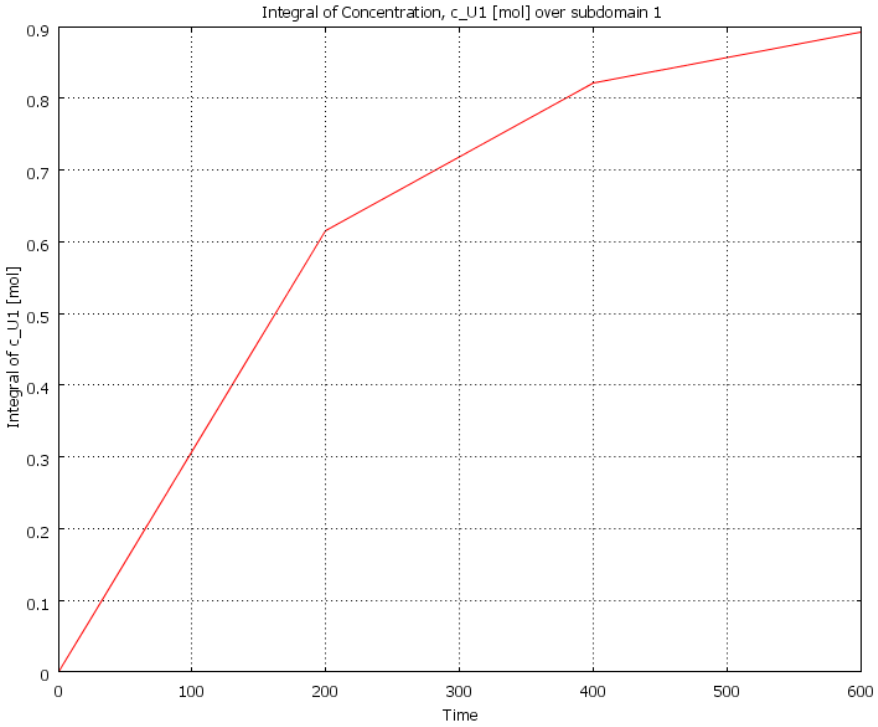

Figure (2)

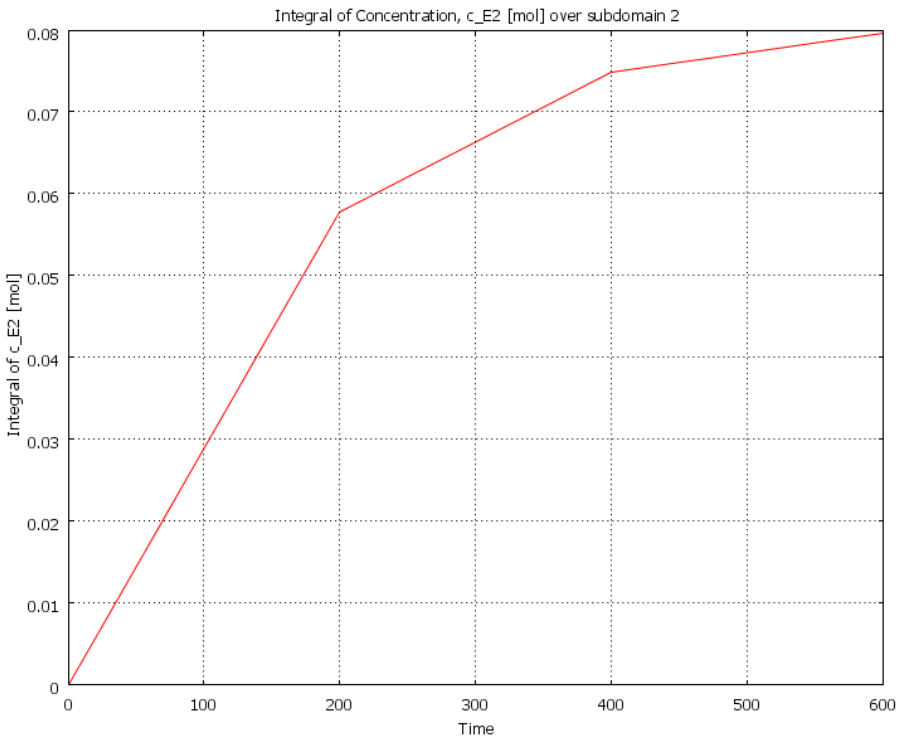

Figure (3)

Now my objective is to find the best-fitted parameters (KU, KE, kpc, D2) such that the solution is closest the data given in the following table.

Species with domains	At time t=200	At time t=400	At time t=600
U1 (Integral of Concentration, c_U1 [mol] over domain 1)	.35	.5	.6
E1 (Integral of Concentration, c_E2 [mol] over domain 2)	0.04	.06	.07