The effect of parameter scale on identifiability analysis of chemical reaction system

양경원, 이태용*

KAIST 생명화학공학과

(tylee@kaist.ac.kr*)

In many cases, the mathematical model of chemical reaction system are overparameterized with respect to experimental observations. In the overparameterized system, parameters are poorly identifiable or non−identifiable. To handle the identifiability problems of mathematical model, parametric sensitivity function should be considered because the identifiability problem is strongly related to linear depenence of parametric sensitivity functions. If the sensitivity functions are linearly dependent, the parameters can't be uniquely determined. So it is important to detect and remove multiple dependences of sensitivity in reaction model. To detect multiple dependence, the computation of normalized sensitivity value is key work. Unfortunately the scales of parameters are usually unknown. In this work, a systematic approach for determining the scales of parameters and examinig the effect of parameter scale on identifiability analysis.