János Tóth	
Position:	Associate Professor
Institution:	Budapest University of Technology and Economics, Department of Analysis
Contact:	E.mail: jtoth@math.bme.hu
	Web: http://www.math.bme.hu/~jtoth

Detailed balance in the models of chirality (Investigating the dynamics of biological models using the *Mathematica* package ReactionKinetics)

Starting from a special model of chirality we show how the mathematical theory of formal reaction kinetics and the program package based on it can be utilized when analyzing the variations of models. The speciality of the package is that it highly utilizes the advantages of Mathematica,

- it automatically writes down and numerically solves the kinetics differential equation,
- it can also simulate the usual stochastic model,
- it calculates the graph-theoretic and linear algebraic quantities which allow to deduce statements on the qualitative behavior of the concentration of the different species.

Barabás, B.; Tóth, J.; Pályi, G.: Stochastic aspects of asymmetric autocatalysis and absolute asymmetric synthesis, *J. Math. Chem.* **48** (2) (2010), 457–489.

Sipos, T.; Tóth, J.; Érdi, P.: Stochastic simulation of complex chemical reactions by digital computer, I. The model, *React. Kinet. Catal. Lett.* **1** (1) (1974), 113–117.

Tóth, J.; Szili, L.; Zachár, A.: Stability of polynomials, *Mathematica in Education and Research* **7** (2) (1998), 5-12.