

Biomathematics and Interval Analysis: A Prosperous Marriage

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1. Interval analysis briefly reviewed: Intervals and operations over intervals; interval arithmetic as a rigorous algebraic system; various aspects on interval arithmetic; interval arithmetic and interval analysis; main purpose of interval analysis; reliable/scientific computations; basic applications of interval analysis; the IEEE standartization of interval arithmetic.
2. Biomathematics: basic dynamical models and related mathematical problems. Case studies from population dynamics and enzyme kinetics. Parameter identification and model validation.
3. Why interval analysis is an useful tool for modeling in biology:
 - i) uncertain (interval) data;
 - ii) (numerically) sensitive dynamical problems;
 - iii) need of model validation.
4. (if time allows) Brief history and references.

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