“On Crossroads from Process Systems to Systems Biology”

Why is research in chemical engineering turning more to biological subjects? In the last decade a profound change has taken place, whereby traditional hard core chemical engineering has been shifting to the more scientific subject of biology. Also, a paradigm shift has taken place. In chemical engineering the use of mathematical models has long been central to the development of viable processes. With the advent of systems biology, similarly the quantitative approach has become central. In this presentation, the use of (systems) modelling and its pitfalls will be discussed. Central are two examples from process systems engineering namely – heat integration and solids processing – and one example around approximate models of metabolic networks. The parallel will be drawn to developments in the two disciplines.