JACQUES BÉLAIR, Université de Montréal
Stability analysis in hematopoietic models

Time-delayed differential equations occur naturally in the representation of population models in general, and of stage-structured cell populations in particular. We present a number of variously sophisticated models for different aspects of hematopoiesis (production of blood cells) and analyse the stability of their equilibrium solutions. Characteristic equations obtained by linearisation around these equilibria will be shown to naturally contain multiple delays as well as state-dependant delays as a consequence of well-identified physiological hypotheses. The complexity of the characteristic equations and the associated stability charts, and bifurcation diagrams, will be shown not to be a monotonically increasing function of the complexity of the models.