

**An age structured cell population model for transitions between
proliferating and quiescent subpopulations**

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Abstract:

We present Delay Equations describing age-structured cell population dynamics where the cell population is divided into proliferative and quiescent cells. We derived a characteristic equation for an interior equilibrium and analyzed the model in the framework of [1,2]. We will show how to use the characteristic equation to determine stability boundaries for the interior equilibrium in a two-parameter plane. The two-parameter plane analysis facilitates our understanding into biological process which is responsible for destabilization of the system. Future works related to analysis of global dynamics for Delay Equations will be discussed. (Joint work with Odo Diekmann, Philipp Getto and Mats Gyllenberg)

References:

- [1] O Diekmann, SA van Gils, SMV Lunel, HO Walther (1995) Delay equations: functional, complex, and nonlinear analysis. Vol 110 of Applied Mathematical Sciences. Springer-Verlag.
- [2] O Diekmann, Ph Getto, M Gyllenberg (2007) Stability and bifurcation analysis of Volterra functional equations in the light of suns and stars. SIAM J Math Anal 39: 1023-1069.