ON A MATHEMATICAL MODEL AND ITS APPLICATIONS TO STRUCTURED CELL POPULATIONS WITH QUIESCENCE

*To the memory of the professor Ovide Arino.
He was a philanthropist and a great mathematician.*

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Abstract. The first part of this work is devoted to a mathematical model related to the transport operator with general boundary conditions describing cell divisions without Quiescence. We prove that this model is governed by a C_0-semigroup and we precise its growth inequality. In the second part we model the quiescence phase and we set the new Proliferation-Quiescence model. We prove that this model is governed by a C_0-semigroup. The last part deals with some applications in structured cell populations.