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Title: Optimal control problems associated with PDE models of chemotaxis: a numerical approach.

Abstract: Mathematical models of chemotaxis attempt to reproduce biological processes in which the spatial motion of a living organism is modified by the presence of a chemical substance (see [1] for a review). The mathematical approach to this type of biological process offers advantages from an ethical perspective. It would be very helpful to use this approach to attempt to control the behavior of the variables involved to achieve desired effects. The problem is not easy because the models are not very regular, which makes their analysis difficult. In this work, we analyze the problem of establishing an optimal functional framework to rigorously deduce optimality conditions for optimal control problems, and we attempt to design suitable numerical schemes to approximate these problems. The results presented in this talk are mainly based on [2, 3, 4].

References

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