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Study of a chemotactic problem involving two species

Flávio Dickstein *

We discuss here an evolution model for two organisms in $\mathbb{R}^2$, under the action of chemotaxis and diffusion. The first mechanism tends to aggregate cells, the second one having an opposite effect. Blowup of a model solution is interpreted as the prevalence of chemotaxis, while global in time existence of solutions indicates that diffusion prevails. Our main result is to provide sharp conditions to distinguish blowup from global solutions in the radially symmetric case. This extends the known results for the case of one species.

*Departamento de Matemática Aplicada, Instituto de Matemática - UFRJ email: fdickstein@ufrj.br