# A new stochastic interpretation of Keller-Segel equations without cut-off

Milica Tomasevic*[1]

[1]Inria Sophia Antipolis - Méditerranée – Institut National de Recherche en Informatique et en Automatique – France

**Résumé**

The Keller Segel (KS) model for chemotaxis is a system of parabolic or elliptic PDEs describing the time evolution of the density of a cell population and of the concentration of a chemical attractant.
Motivated by the study of the fully parabolic model using probabilistic methods, we give rise to a non linear SDE of McKean-Vlasov type with a highly non standard and singular interaction which includes the KS case.
In this talk, after a brief introduction about the biological phenomena and the KS equations, I will analyze our probabilistic model in the case d=1. This will include the results on the level of the limit equation and as well on the level of the interacting particle system. Finally, some numerically based insights on the two-dimensional case will be given.
This is a joint work with D. Talay and J.-F. Jabir.

*Intervenant