

# Multiple peak aggregation for the Keller-Segel system

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The goal of this talk is to describe, using matched asymptotics, the asymptotic behavior near blow-up points of a class of nonradially symmetric solutions of the Keller-Segel system. In the case of radially symmetric solutions, the asymptotic behavior of the solutions near blow-up points was obtained by Herrero and Velazquez in 1996. The solutions constructed there produce the aggregation of Dirac mass with the mass  $8\pi$ . I will describe the formal asymptotic expansions of nonradially symmetric solutions having two peaks. The solutions contain an amount of the local mass asymptotically close to  $8\pi$  at each peak and yield formation of Dirac masses with the mass  $16\pi$  at the blow-up time.

This is a joint work with Professor J.J.L. Velazquez and Professor Y. Sugiyama.