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# Nonlocal kinetic models for cell migration

**Abstract**

In this talk we present nonlocal kinetic models for cell migration. We will deal with a transport equation with a nonlocal turning operator which implements a velocity-jump process, that is the typical microscopic stochastic dynamics that describes cell motion. Moreover, we have nonlocality because we suppose that cells sense the environment by extending their protrusions up to a maximum sensing radius. Furthermore, the model can be enriched with physical limits of migration, that is when cells cannot move because of overcrowding or other kinds of physical obstacles. In order to obtain physical results, the sensing radius determining the nonlocality depends on time, position and direction of sensing. A linear stability analysis in the one dimensional case will be performed. We analyse how the actual possible sensing of the environment influences the dynamics by recovering the appropriate macroscopic limits and by integrating numerically the kinetic transport equation.

## References

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