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Mathematical Modelling with Fully Anisotropic Diffusion

Anisotropic diffusion describes random walk with different diffusion rates in different directions. I will present a form of anisotropic diffusion which is called "fully" anisotropic. The fully anisotropic diffusion model does not obey a maximum principle and can even lead to singularity formation in infinite time.

I will derive this model from biological principles, analyse some of its behavior and show how it can be used to model glioma spread and wolf movement.