

Beyond Brownian motion: from data to models

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After a brief historical introduction to Brownian motion I will address recent experimental and simulations results on diffusive transport in complex systems, ranging from dynamics in single molecules, motion of molecules and tracers in living biological cells, to ants and birds. Data-science

methods help us in identifying different physical processes encoded in experimental records and to extract physical parameters. I will provide an overview over different approaches and their performance in the context of diffusive motion.