

Two routes to superdiffusivity

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I will survey recent results on superdiffusive scaling limits (with logarithmic corrections) for random motions with long memory. In self-repelling random motions (also called Brownian polymer models) and in some random walks in random environments the superdiffusivity is built up in one- and two- dimensions by picking up velocity autocorrelation from the past trajectory. In the Boltzmann-Grad limit of the periodic Lorentz gas the superdiffusive behaviour (in any dimension) is due to the fat tail of the free flight distribution. (Based on joint work with Benedek Valk, respectively, Jens Marklof)