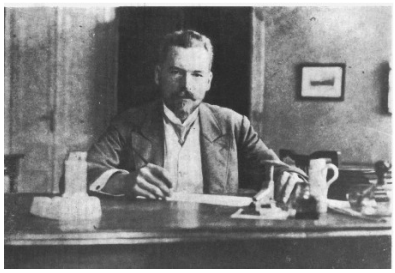

Contribution ID: **8** Type: **Regular talk**

Anomalous diffusion originated by two Markovian hopping-trap mechanisms

Wednesday, 21 September 2022 12:20 (25 minutes)

We show through intensive simulations that the paradigmatic features of anomalous diffusion are indeed the features of a (continuous-time) random walk driven by two different Markovian hopping-trap mechanisms. If $p \in (0, 1/2)$ and $1 - p$ are the probabilities of occurrence of each Markovian mechanism, then the anomalousness parameter $\beta \in (0, 1)$ results to be $\beta \boxtimes 1 - 1/\{1 + \log[(1 - p)/p]\}$. Ensemble and single-particle observables of this model have been studied and they match the main characteristics of anomalous diffusion as they are typically measured in living systems. In particular, the celebrated transition of the walker's distribution from exponential to stretched-exponential and finally to Gaussian distribution is displayed by including also the Brownian yet non-Gaussian interval.

The talk is based on: Vitali S., Paradisi P. and Pagnini G., J. Phys. A: Math. Theor. 55 (2022) 224012

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