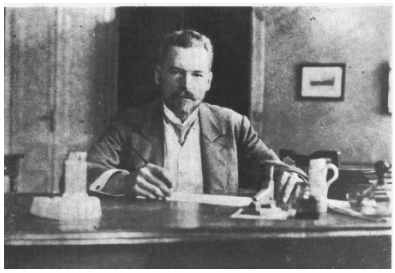

Contribution ID: **35** Type: **Flash talk**

First passage under restart for discrete space and time

Tuesday, 28 September 2021 17:50 (5 minutes)

First passage under restart has recently emerged as a conceptual framework to study various stochastic processes under a restart mechanism. Restart has been shown to expedite the completion of many first passage processes which otherwise would take a longer time to finish. However, most of the studies so far focused on continuous time and space, while discrete processes received less attention. In this talk, I will bridge this gap by presenting a renewal approach for studying discrete space and time first passage processes under discrete time resetting. Using this general set-up, I compute the moments and the probability mass function of the restarted first passage time and derive a sufficient criterion for geometric restart to be beneficial. I will demonstrate the usefulness of this method by applying it to one-dimensional lattice random walks in confined geometry.

References

[1] Bonomo, O.L. and Pal, A., 2021. First passage under restart for discrete space and time: Application to one-dimensional confined lattice random walks. Physical Review E, 103(5), p.052129.
[2] Bonomo, O.L. and Pal, A., 2021. The P\'{o} lya and Sisyphus lattice random walks with resetting–a first passage under restart approach. arXiv preprint arXiv:2106.14036.

Primary author: LAUBER, Ofek (Tel Aviv University)

Co-author: Dr PAL, Arnab (IIT, Kanpur, India)

Presenter: LAUBER, Ofek (Tel Aviv University)

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