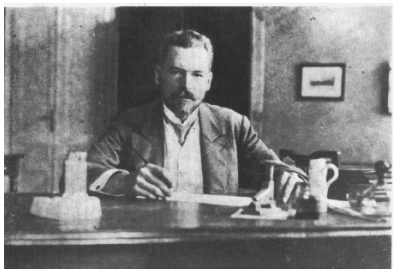

Contribution ID: **63** Type: **Contributed talk**

Interacting Persistent Random Walkers

Wednesday, 29 September 2021 13:00 (20 minutes)

In this talk I will consider persistent random walkers, also known as run and tumble particles, which are emerging as a fundamental microscopic model of active matter. I will review the properties of a single persistent walker then consider the case of two persistent random walkers that interact through an exclusion interaction. An exact expression for the stationary state of two such walkers on a periodic lattice reveals how the particles jam and generate an effective attractive potential. The full spectrum of the two-particle problem can also be computed and exhibits exceptional points, which correspond to dynamical transitions in the relaxation time.
Jamming and attraction of interacting run-and-tumble random walkers, AB Slowman, MR Evans, RA Blythe, Physical review letters 116 (21), 218101 (2016)
Exact spectral solution of two interacting run-and-tumble particles on a ring lattice, E Mallmin, RA Blythe, MR Evans, Journal of Statistical Mechanics: Theory and Experiment 2019 (1), 013204

Primary author: Prof. EVANS, Martin (University of Edinburgh)

Presenter: Prof. EVANS, Martin (University of Edinburgh)

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