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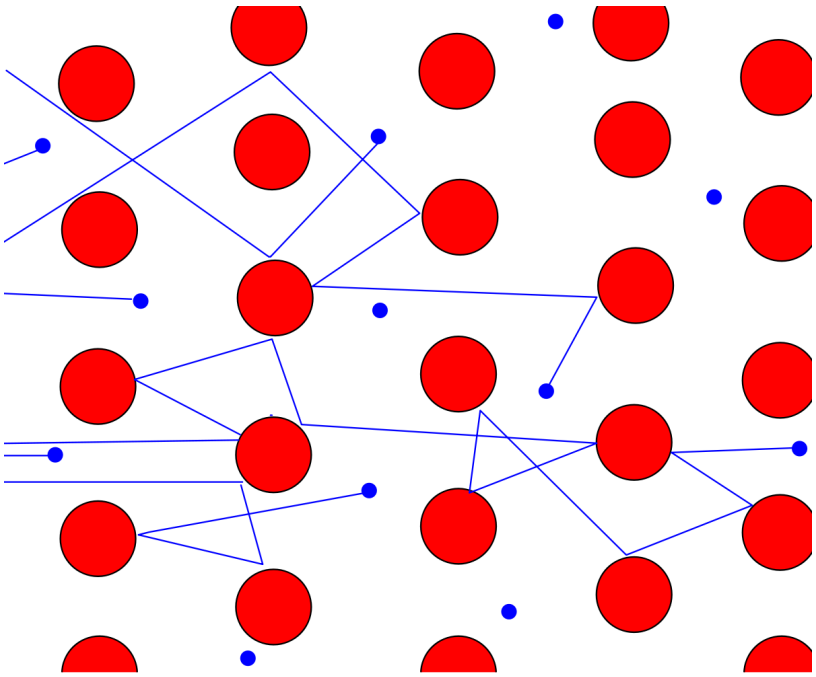

THE LORENTZ GAS – MACROSCOPIC TRANSPORT FROM MICROSCOPIC DYNAMICS

Abstract. The Lorentz Gas is microscopic model for conductivity in which a point particle representing an electron moves through an infinite array of scatterers representing the background medium. On the macroscopic scale the dynamics can instead be modelled by the linear Boltzmann transport equation, an irreversible equation where motion of particles appears to be stochastic. How can these two pictures be reconciled? Can we 'derive' the macroscopic picture from the microscopic one? I will talk about the solution to this problem as well as its quantum mechanical analogue where much less is currently known.

Jory Griffin (Queen's University)

Jory Griffin received his Ph.D. in Mathematics from the University of Bristol in 2017 under the supervision of Jens Marklof. He recently joined the Department of Mathematics and Statistics at Queen's University as a Coleman Postdoctoral Fellow. Dr. Griffin's research focuses on Mathematical Physics, specifically in the quantum propagation of wave packets in the presence of scatterers.

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2:30pm · FEBRUARY 2 · 2018