1145-45-660 **Ke Chen** and **Qin Li*** (qinli@math.wisc.edu), 480 Lincoln Dr., Madison, WI 52706, and **Steve Wright**. *Low rankness in forward and inverse kinetic theory.*

Multi-scale kinetic equations can be compressed: in certain regimes, the Boltzmann equation is close to the Euler, and the radiative transfer equation is close to the diffusion equation. While passing to the limits, a lot of detailed information is lost. In linear algebra language it is equivalent to low-rankness. I will discuss such transition and how it affects the computation: mainly, it greatly advances the forward solvers, but the inverse problem is significantly harder. (Received September 12, 2018)