Abstract
In this lecture, we will establish global-in-time well-posedness and stability results for solutions nearby the relativistic Maxwellian to the special relativistic Boltzmann equation without angular cutoff. We will start with introducing a general Newtonian Boltzmann theory. We assume the generic hard- and soft-potential conditions on the collision kernel in that were derived by Dudynski and Ekiel-Jezewska (Comm. Math. Phys. 115(4):607--629, 1985). In this physical situation, the angular function in the collision kernel is not locally integrable, and the collision operator behaves like a non-isotropic fractional diffusion operator.