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Regular solutions of the Boltzmann equation in $1D$ in space

I will discuss the problem of regularity of weak solutions of the nonlinear Boltzmann equation with one-dimensional (plane-wave) symmetry. By imposing certain truncations on possible configurations of collisions of particles we are able to prove that the initial-value problem has global weak solutions in L^∞ provided that the initial data are essentially bounded and satisfy a mild additional condition meaning that the velocity averages obtained by free streaming remain bounded for all times. The obtained regularity is enough to guarantee uniqueness and propagation of bounds for derivatives.