# Kinetic Seminar

# Grad-Caflisch type decay estimates of pseudo-inverse of linearized Boltzmann operator and application to Hilbert expansion of compressible Euler scaling

## *by*

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*Abstract :*

In this talk, we will introduce some Grad-Caflisch type decay estimates of the pseudo-inverse of linearized Boltzmann collision operator, including both the hard potential and part of soft potential cutoff interaction kernels. The key idea is that the weighted $L^\infty$-norms of $(L - \nu)f$ are first dominated by the weighted $L^2$-norms of $f$, and then the $L^2$-norms are bounded by the $L^\infty$-norms of $Lf$ via the hypocoercivity of the weighted linearized Boltzmann operator $L$. The proof of the weighted hypocoercivity employs the high-low velocities estimates argument. Finally, these decay estimates are further applied to derive some new point-wise estimates for the Hilbert expansion terms of the Boltzmann equation in the compressible Euler scaling. This work is joint with Prof. Ning Jiang (WHU) and Shaojun Tang (WHUT).

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| Date : | August 18, 2022 (Thursday) |
| Time : | 4:00pm – 5:00pm (Hong Kong SAR) |
| ZOOM Meeting Link: | |
| https://cuhk.zoom.us/j/95371396573?pwd=ZFhtbEdKbFg1d01BL3ZGdFFWaWxJUT09 | |
| Meeting ID : | 953 7139 6573 |
| Passcode : | 20220818 |

*All are Welcome*