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FIRST IN
CHANGE

Analysis and PDE Seminar

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TITLE: Relativistic BGK model for multi-component particle system

Date : Sept 15th, 2022 (Thursday)

Time : 10am-11am (Hong Kong time)

11am-12noon (Korea time)



Link to ZOOM : <https://unist-kr.zoom.us/j/3170659442>

Meeting ID : 317 065 9442

Password : APDE21

Abstract. The fundamental equation governing the statistical distribution of relativistic rarefied particle systems is the relativistic Boltzmann equation. As in the case of the classical Boltzmann equation, BGK-type relaxation models are introduced for numerical simulation at a cheaper cost. Unlike the classical case, however, there are two different interpretations of the macroscopic variables - Eckart and Landau frames, and at least three different types of BGK models are suggested: Marle type, Anderson-Witting model, and Ruggeri-Pennisi model. However, no extension of these models to multi-component particle systems has been in the literature. In this talk, we propose a multi-component extension of the Marle model. We show that the equilibrium coefficient of our model is well defined, and the Newtonian limit leads to a well-known classical mixture BGK model. This is a joint work with Byung-Hoon Hwang and Myung-Su Lee.

All are welcome

This is a joint activity organized by Department of Mathematics, The Chinese University of Hong Kong, Hong Kong; Department of Mathematics, Institute of Mathematical Research, Research Division of Mathematical and Statistical Science, The University of Hong Kong, Hong Kong; and Department of Mathematical Sciences, Ulsan National Institute of Science and Technology, Korea. More details can be found in https://hkumath.hku.hk/~imr/event/CUHK_HKU_UNIST_Analysis_and_PDE/index.php.

