

Global solutions of massive Maxwell-Klein-Gordon equations with large Maxwell field

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In this talk, I will discuss the global asymptotic dynamics for solutions of massive Maxwell-Klein-Gordon equations with a class of unrestricted large data, which have arbitrary size of Maxwell field. The main difficulties are arising from the largeness of the Maxwell field and the different decay properties for linear Maxwell field and linear massive Klein-Gordon equation, which will cause a loss of decay for solutions of the coupled system at the causal infinity within a forward light cone. The first issue can be addressed by using the modified vector field method developed by Klainerman-Wang-Yang while the loss of decay is overcome by uncovering a hidden null structure.