

Seminar 2023

Math

Plasma Solitary Waves and Related Problems

권봉식 교수

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Abstract: Various plasma phenomena are mathematically studied using a fundamental fluid model for plasmas, called the Euler-Poisson system. Among them, plasma solitary waves are of our interest in this talk. First we discuss existence, stability, and the time-asymptotic behavior of the solitary wave. To study nonlinear stability, a question of existence of smooth global solution naturally arises, which is completely open, to the best of our knowledge. For evidence of a negative answer, we introduce the finite-time blow-up results for the Euler-Poisson system, and discuss the related open questions.



연세대학교 수학기산학부

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