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中国科学院数学与系统科学研究院
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Academy of Mathematics and Systems Science, CAS
Colloquia & Seminars

Speaker:	刘家琪,中国科学院大学
Inviter:	苏庆堂
Title:	Long time behavior of the Sine-Gordon equation
Language:	Chinese&English
Time & Venue:	2023.04.25 16:00-17:00 南楼913
Abstract:	

We use the nonlinear steepest descent for Riemann-Hilbert problems to compute the long-time asymptotics of the solutions to the sine-Gordon equation whose initial condition belongs to some weighted Sobolev spaces. Combining the long-time asymptotics with a refined approximation argument, we analyze the asymptotic stability of multi-soliton solutions to the sine-Gordon equation in weighted energy spaces. It is known that the obstruction to the asymptotic stability of kink solutions to the sine-Gordon equation in the energy space is the existence of small breathers which is also closely related to the emergence of wobbling kinks. Our stability analysis gives a criterion for the weight which is sharp up to the endpoint so that the asymptotic stability holds.

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