國立中山大學應用數學系
學術演講

講　者：Professor Peter D. Miller
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講　題：Universal Wave Patterns

時　間：2017/05/04（星期四）14:10 ~ 15:00

地　點：理學院四樓理 SC 4009-1 室

茶　會：15:00 於理 SC 4010 室 (系辦公室)

Abstract

A feature of solutions of a (generally nonlinear) field theory can be called "universal" if it is independent of side conditions like initial data. I will explain this phenomenon in some detail and then illustrate it in the context of the sine-Gordon equation, a fundamental relativistic nonlinear wave equation. In particular I will describe some results (joint work with R. Buckingham) concerning a universal wave pattern that appears for all initial data that crosses the separatrix in the phase portrait of the simple pendulum. The pattern is fantastically complex and beautiful to look at but not hard to describe in terms of elementary solutions of the sine-Gordon equation and the collection of rational solutions of the famous inhomogeneous Painlev\'e-II equation.

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