

NYU
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纽约大学NYU-ECNU
Institute of Mathematical Sciences
at NYU Shanghai

ANALYSIS/PDE SEMINAR SERIES

TOPIC: Degree Counting and Shadow System for $SU(3)$ Toda System, One Bubble

SPEAKER: Chang-Shou Lin, National Taiwan University

TIME: 1:45pm - 2:45pm, 21 October 2014

VENUE: Room 357, Geography Building, 3663 Zhongshan Road North, Shanghai
(中山北路校区, 地理楼 357 室)

ABSTRACT OF THE TALK

Here we initiate the program for computing the Leray-Schauder topological degree for the $SU(3)$ Toda system. This program still contains a lot of challenging problems for analysts. The first step of our approach is to answer whether concentration phenomena hold or not. In this paper, we prove the concentration phenomena hold while ρ_1 crosses 4π , and $\rho_2 \notin 4\pi\mathbb{Z}$. However, for $\rho_1 \geq 8\pi$, the question whether concentration holds or not still remains open up to now. The second step is to study the corresponding shadow system and its degree counting formula. The last step is to construct bubbling solution of the $SU(3)$ Toda system via a non-degenerate solution of the shadow system. Using this construction, we succeed to calculate the degree for $\rho_1 \in (0, 4\pi) \cup (4\pi, 8\pi)$ and $\rho_2 \notin 4\pi\mathbb{Z}$.

BIOGRAPHY

Chang-Shou Lin is Academician of Academia Sinica in Taiwan, Professor of Mathematics and Director of Math Center at National Taiwan University. He holds a Ph.D. from New York University and an MS from National Taiwan University. He worked at New York University, Institute for Advanced Study at Princeton and University of California at San Diego, and returned to Taiwan in 1987. Professor Lin's research interests are nonlinear partial differential equations and differential geometry. His doctoral dissertation in 1983 which studied the isometric embedding problem in differential geometry was the first significant breakthrough in this field. He thereby became the first person receiving the Kurt O. Friedrichs Prize at New York University.