

非線形力学特別講義/mini-course

The Riemann-Hilbert method

by Alexander Its and Elizabeth Its

(Indiana University Purdue University Indianaoplis)

Professor Alexander Its and Professor Elizabeth Its will give a mini-course of 7 lectures as an activity of the Mathematics and Physics Unit "Multiscale Analysis, Modelling and Simulation" Top Global University Project, Waseda University

ABSTRACT: This part of the course will be an introduction to the Riemann Hilbert method and its applications. After a short survey of the general theory of Riemann Hilbert factorization problems, the basic ideas of the Riemann Hilbert method will be explained by considering the Nonlinear Schrodinger and the Painleve II equations as case studies. The course will continue with the most recent applications of the Riemann Hilbert approach to asymptotic problems arising in the theory of matrix models, combinatorics and integrable statistical mechanics. The final part of the course will be devoted to the unified transform method introduced by Fokas for solving initial boundary value problems for linear PDEs.

Time:

Monday 20 Nov 10:00- 11:30, 13:00-14:30, 15:00-16:30

Tuesday 21 Nov 10:00-11:30, 13:00-14:30, 15:00-16:30

Wednesday 22 Nov 10:00-11:30

Place:

Waseda University, Nishi-Waseda Campus, Bldg 55, Meeting Room 1 (55号館 第一会議室)

Students may register to obtain credit for this course (MATX72ZL Advanced Study of Nonlinear Mechanics).



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Mathematics and Physics Unit "Multiscale Analysis, Modeling and Simulation", Top Global University Project, Waseda University