



偏微分方程专题短期课程

课程名称: **Asymptotic Methods and Applications**

主 讲 人: Edriss S. Titi 讲席教授 (University of Cambridge)

时 间: 2026 年 10 月 5 日——2026 年 10 月 8 日

每天上午: 9:00——11:00

授课地点: 西楼交叉中心 111 报告厅

课程简介:

In this mini-course we will first introduce and give examples of the concepts of asymptotic sequence and asymptotic expansion. Then we will introduce elementary tools to find the asymptotic approximation of solutions to algebraic and transcendental equations. Later we will develop the Liouville-Green's method for finding asymptotic approximation for solutions of second order linear ODEs with nonconstant coefficients. Furthermore, we will introduce the Laplace's method for developing the asymptotic approximation of definite integrals that depend on a parameter, as well as the Watson's Lemma; and the asymptotic behavior of oscillatory integrals.

课程安排:

序号	课程内容
1	Introduction of the course and asymptotic expansions
2	More properties about asymptotic expansions and asymptotic of integrals
3	Asymptotic approximation of solutions to algebraic and transcendent equations
4	Asymptotic approximation of solutions to differential equations and Liouville -Green method



授课教师简介:

Edriss S. Titi. Holds the Nonlinear Mathematical Sciences Professorial Chair at the University of Cambridge, UK. He is a Fellow of the American Mathematical Society, the Society of Industrial and Applied Mathematics, the John Simon Guggenheim Memorial Foundation, USA, and the Institute of Physics, UK. He is recipient of many international awards including the Humboldt Research Award and the Einstein Visiting Fellow, Germany. Titi's research in applied and computational mathematics lies at the interface between rigorous applied analysis and physical applications. Specifically, in studying the Euler, Navier-Stokes, and other related geophysical and turbulence models.

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“非线性科学数学基础及数据计算”广东省普通高校重点实验室

2026 年 9 月 30 日