AMENDMENT

For Favour of Posting

The Institute of Mathematical Sciences 數學科學研究所
Department of Mathematics 數學系
The Chinese University of Hong Kong 香港中文大學

Phone: (852) 3943 8038 • Email: ims@ims.cuhk.edu.hk
Unit 601, 6/F, Academic Building No. 1, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong
Phone: (852) 3943 7988 • Fax: (852) 2603 5154 • Email: dept@math.cuhk.edu.hk
Rm. 220, 2/F, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

IMS-MATH Joint Short Course

Talk 1

Nonexistence of Type II blowups for an energy critical nonlinear heat equation in large dimensions

Abstract: We consider the energy critical semilinear heat equation

$$u_t = \Delta u + u^{\frac{n+2}{n-2}}$$

We prove that finite time blow-up must be of Type I, i.e.

$$\|u\|_{L^\infty} \le C(T-t)^{-\frac{n-2}{4}}$$

The proof is built on several key ingredients: first we perform tangent flow analysis and study bubbling formation in this process; next we give a second order bubbling analysis in the multiplicity one case, where we use a reverse inner-outer gluing mechanism; finally, in the higher multiplicity case (bubbling tower/cluster), we develop Schoen's Harnack inequality and obtain next order estimates in Pohozaev identities for critical parabolic flows. (Joint work with Kelei Wang)

By

Professor Juncheng WEI

Department of Mathematics, University of British Columbia

Date	**:**	**May 8, 2023 (Monday)**
Time	**:**	**10:30am – 11:30am**
Venue	**:**	**Room 501a, Academic Building No. 1, CUHK**

All are Welcome