# 國立交通大學應用數學系
# 學術演講公告

主講人：Prof. Claude-Michel Brauner

(School of Mathematical Sciences Xiamen University, China & Institute de Mathématiques de Bordeaux Université de Bordeaux, France)

講　題：Self-consistent equation for the flame in some combustion models

時　間：103 年 10 月 28 日(星期二) 下午 2:00 –3:00

地　點：(光復校區) 科學一館 223 室

茶　會：當天下午 1:30 (科學一館 205 室)


Abstract

Flames constitute a complex physical system involving fluid dynamics and multistep chemical kinetics. Writing simpler descriptions has been an important issue since the middle of the 20th century. In 2D combustion modeling, a very challenging question is the derivation of a single scalar equation for the corrugated flame front, which may capture most of the dynamics and, as a consequence, yields a reduction of the effective dimensionality of the system. A paradigm is the Kuramoto-Sivashinsky equation:

$$u_t + \nu u_{yyyy} + u_{yy} + \frac{1}{2}(u_y)^2 = 0, \tag{0.1}$$

which models cellular instabilities, pattern formation, turbulence phenomena and transition to chaos.

We will discuss: (i) the classical NEF model for premixed flames in gaseous combustion; (ii) a recent model in gas-solid combustion which exhibits fingering pattern formation. Collaboration: L. Hu, C.J. Xu (Xiamen), J. Shen (Xiamen & Purdue), G.I. Sivashinsky (Tel-Aviv).


敬請公告　歡迎參加


啟