國立交通大學應用數學系
學術演講公告

主講人：Prof. Qin Sheng (Department of Mathematics and Center for Astrophysics, Space Physics and Engineering Research (CASPER), Baylor University, Texas, USA)

講　題：Six Corelated Ways of Moving Mesh Adaptations for Nonlinear Kawarada Problems

時　間：107 年 12 月 26 日(星期三) 下午 15:30 –16:20

地　點：(光復校區) 科學一館 223 室

Abstract

It was during the last Banff International Research Station (BIRS) Workshop on Adaptive Numerical Methods for Partial Differential Equations with Applications, the topics of different adaptive finite difference procedures were seriously revisited, reevaluated and reinvested.　Among various kinds of singular partial differential equation problems, Kawarada problems are particularly attractive to the participants due to their important theoretical and application features.

In a traditional moving mesh approach, mesh adaptations are often configurated based on an equidistribution principle.　In such a case, a new mesh is acquired via a monitor function that is equidistributed in some sense.　Typical choices of such monitor functions involve the solution or one of its many derivatives.　The strategy has been proven to be effective and easy-to-realize in multi-physical applications.　However, identifications of optical core monitoring components are proven to be extremely difficult. To this end, in this talk, we consider six different designs of monitoring functions targeting at a highly vibrate nonlinear partial differential equation problem that exhibits both quenching-type and degeneracy singularities.　While the first a few monitoring designs to be discussed are within the so-called direct regime, the rest belong to a newer category of the indirect type, which requires the priori-knowledge of certain important solution features or characteristics.　Computational experiments will be presented to illustrate our research and conclusions.　Continuing collaborations in the field with Taiwan colleagues and students will also be pursued.

敬請公告　歡迎參加

應用數學系　啟