The 5th Asian Mathematical Conference

The 5th Asian Mathematical Conference (AMC) was held on June 22–26, 2009 at the Putra World Trade Center, Kuala Lumpur. It was organized by Universiti Sains Malaysia (USM), the Malaysian Mathematical Sciences Society (PERSAMA) and mathematics departments of Malaysian public universities in collaboration with the Ministry of Higher Education, Malaysia. The AMC series is a major activity of the Southeast Asian Mathematical Society (SEAMS) held every four or five years in an Asian country. The first AMC was held in Hong Kong in 1990, and subsequent conferences in Thailand (1995), Philippines (2000) and Singapore (2005). These meetings attracted great interest from the mathematical community and the conference in Kuala Lumpur was no exception. More than 600 participants from over 40 countries attended.

The objective of the 2009 conference was to provide a forum for mathematics researchers from Asia to foster links and collaborations among themselves and with mathematicians from other parts of the world through discussion of issues, exchange of ideas and presentation of research findings. More than 300 papers were presented. Fourteen research and survey articles were selected to be included in this special issue of the Bulletin. These papers cover a broad range of research areas: combinatorics, geometry, algebra, analysis, partial differential equations, operator theory, fluid mechanics, statistics, stochastic analysis and numerical analysis.

Ma [6] gives a survey on recent developments in difference sets and their applications to signal sequences. Rakhimov et al. [11] give a short review on contraction of complex Leibniz algebra. In that article, they give a brief history on contraction problems of algebras and discuss the relationship and make the comparison of different definitions. Azumaya algebra is also a popular topic of discussion. Szeto [13] obtains conditions for an Azumaya algebra with finite inner automorphism group to be a crossed product, while Xue [14] characterizes the Galois extension of an Azumaya algebra with Galois group in terms of the commutator subring of invariants space of a finite automorphism group and the skew group ring. Ottazzi [10] provides interesting new examples of nonrigid Carnot groups that include but go beyond the examples in the literature such as Heisenberg group, Engel group and in general jet spaces.

Kawabe [3] derives under weaker conditions the bounded convergence theorem for the Choquet integral with respect to the Riesz space-valued non-additive measures. Detalla et al. [2] improve the Rellich inequality (which is not sharp) by adding a “best” singular weight. The improved inequality is then used to study a weighted eigenvalue problem. Following the work of Zhu [15], Abkar [1] obtains the commutant of analytic multiplication operator on the weighted Bergman space. For numerical methods, Mehrkanoon et al. [8] introduce a new 3-point three-step method to solve a system of first order ordinary differential equations. The proposed method is shown to be more efficient than existing block methods.

The study of mathematics becomes even more interesting when it is applicable. By combining the Casson and Newtonian fluid models, Sankar [12] studies a nonlinear mathematical model for pulsatile blood flow through stenosed arteries. The presence of the Newtonian peripheral layer enables the model to produce significant new results. Applications to finance is investigated by Kruse and Müller [5]. They derive a solution for the pricing of American call options on a multidividend paying stock. In this work, the Korn-Rogers model is turned into a Black-Scholes framework to obtain a closed-form solution.

Kim and Eicher [4] construct the maximum likelihood estimator of the distribution function of exponential distribution by parameterizing the distribution of a certain random variable. Martein and Carosi [7] characterize the pseudoconvexity of a function which is the sum of a linear and a linear fractional function on the nonnegative orthant.

All articles in this issue were reviewed and given the usual rigorous scrutiny. The editors wish to thank the staff of the Bulletin of the Malaysian Mathematical Sciences Society and in particular the Editor-in-Chief without whose assistance this volume would not have been possible. We hope that this special issue will serve many readers as a useful source of information, as well as resource for further research.

References


See Keong Lee
Ahmad Izani Md. Ismail
Guest Editors