Guest editorial

Papers from ICMTEA 2016

This special issue of the *International Journal of Quality and Reliability Management* entitled "Reliability Theory and its Applications" is primarily devoted to papers from the 2nd International Conference on Mathematical Techniques in Engineering Applications (ICMTEA 2016), which was successfully held at the Graphic Era University, Dehradun, India on April 29-30, 2016.

The conference had 11 invited speakers from the expert of advances in mathematics and engineering areas. The invited speakers gave an in-depth understanding of their field of expertise. There were discussions on stimulations in simple dynamical systems, the mathematical perspective of control theory. The discussions also included the role of regression-based approach in software reliability engineering, cascading failure models and system reliability, risk-informed modeling and decisions for complex engineering systems. There were interesting talks on ecology to energy through mathematical models: sustainable biodiesel production, soft computing approaches in technical diagnostics. The speakers also discussed the optimal joint harvest of a prawn fishery and a poultry of birds in a linked bioeconomic system, designing near-optimal irregular experimental plans satisfying multi-optimality criteria, etc. There was a talk about a major breakthrough in the dynamics of the logistic map.

The conference received around 260 papers out of which, 130 papers were accepted. Out of these, 111 papers were presented in the conference. There were nine parallel sessions headed by two or three expert reviewers who chaired each session. The sessions were categorized in the following areas:

- East Asia session in reliability and maintenance.
- Bioengineering materials, biomechanics and bio tribology.
- Applied statistics and inventory problems.
- Applications of mathematical techniques in engineering.
- Miscellaneous mathematics applications.
- Fluid dynamics applications in engineering.
- Optimization and reliability in engineering design.
- Differential equations and their applications.
- Soft computing techniques in engineering.

There were very interesting talks and presentations such as ecology to energy through mathematical models, cascading failure models and system reliability, designing near-optimal irregular experimental plans satisfying multi-optimality criteria, risk-informed modeling and decisions for complex engineering systems, soft computing approaches in technical diagnostics, on the role of regression-based approach in software reliability engineering, fractal analysis method of time series data, mathematical perspective of control theory, stimulations in simple dynamical systems, etc.

Selected articles were later reviewed for possible extension and inclusion in the special issues. Nine papers were accepted for publication in this special issue of the *International Journal of Quality and Reliability Management*.

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We would like to express our thanks to the authors for submitting their work and to the reviewers for their efficient work in evaluating the submissions. We are truly gratified by their excellent timely responses.

Further, we would like to thank Professor Ton van der Wiele and Professor Christian Madu, Editors of the *International Journal of Quality and Reliability Management* for accepting this special issue and giving his full support from the very beginning.

Mangey Ram
Graphic Era University, Dehradun, India