INTERNATIONAL PROGRAM COMMITTEE (Alphabetical Order)

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- Prof Ariel Rubinstein (The Hebrew University of Jerusalem, Israel and New York University, USA)
- Prof Arunave Sen (Indian Statistical Institute, New Delhi)
- Dr David Carfi (University of California Riverside, and University of Messina, Italy)
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- Prof Sergu Hart (The Hebrew University of Jerusalem, Israel)
- Prof Shmuel Zamir (The Hebrew University of Jerusalem, Isreal)
- Prof Shubhashis Gangopadhyay (Director, India Development Foundation, India / Sweden)
- Prof Steve Alpern (Department of Mathematics, Warwick Business School, University of Warwick, UK)
- Prof Suresh Deman (Director, Center for Economics & Finance, London, UK / US)
- Prof TES Raghvan (University of Illinois)
- Prof Tridib Sharma (ITAM Centro de Investigación Económica, ITAM, Mexico)
- Prof TS Arthanari (Info Sys & Operations Management, University of Auckland, New Zealand)
- Prof Yair Tuaman (Stony Brook, US / TelAvvi, Israel)

Who May Participate

- Regulators and Policymakers
- Economists and Econometricians
- Professionals in Banking, Insurance and Financial Services
- Industrial executives whose functions include Operations Management
- Academicians and Researchers in Mathematics, Statistics, Economics, Finance, Management, Operations Research and other related disciplines.

Registration Fee

- Individuals: Rs 3,000 (US$ 250 from USA / Canada / Europe and US$150 from rest of the world)
- Institutions and businesses: Rs 10,000
- Students: Rs 1200 (US$120 for overseas students)

Fee includes conference kit, conference volume, lunch and tea for two days. Payment is to be made in favor of 'Institute of Public Enterprise, Hyderabad'.

PROFILES OF CONFERENCE HOSTS

Institute of Public Enterprise
The Institute of Public Enterprise (IPE) was established in 1964. Mr SS Khera, the then Cabinet Secretary, Government of India, conceived the idea of a research institution that would undertake a systematic and sustained study of issues relevant to the formulation of policies pertaining to public enterprises.

Indian Statistical Institute
The Indian Statistical Institute (ISI), a unique institution devoted to the research, teaching and application of statistics, natural sciences and social sciences. Founded by Prof PC Mahalanobis in Kolkata in 1931, the institute gained the status of an Institution of National Importance by an act of the Indian Parliament, the Indian Statistical Institute act, in 1959. ISI is fully funded by Ministry of Statistics and Programme Implementation, Government of India.

Statistical Quality Control & Operation Research Division
This Division was established by Professor PC Mahalanobis way back in 1953 with an aim to promote applications of Statistics and Operations Research in Indian industries. The Division has played a pioneering role in the quality and productivity movement in India. It has been serving a wide variety of public and private sector organizations, both in manufacturing and service sectors, across the country through training and consultancy in the fields of Statistics and Operations Research. The Division has worked on several projects of national importance. Besides the application profile, the Division has played an active role in theoretical research through its vast publications in international journals. The Division operates through its units across the country, and Chennai and Hyderabad units are two of its major units.

AIMSCS
CR Rao Advanced Institute of Mathematics, Statistics & Computer Science (AIMSCS) envisages the coming together of the best of minds in the fields of Mathematics, Statistics and Computer Science and working in an enabling environment. It is a model in cooperation with emphasis on synergy of efforts in problem solving. The main purpose of AIMSCS is to conduct, promote and carry out research and advanced study in Mathematics, Statistics and Computer Science and to disseminate the advances made in them.

CEF London
Centre for Economics and Finance was set up in 2001 as an autonomous think tank to meet the growing challenges of knowledge and deepening crises of the global economies facing today. In fact, CEF carried out quality theoretical and empirical research using interdisciplinary approach including Game Theory and predicted many events including 2008 global crises and asserted that it would persist for a longer time than what was initially thought. To meet the challenge of the knowledge CEF uniquely adopted a strategy of the millennium as Research & Scholarship Strategy, Learning, Teaching & Curriculum Development and Diversification Strategy & Staff Development. CEF regularly organizes seminars to provide recruitment and selection training to eliminate work place discrimination via positive action.

For Conference details contact: **Dr Jayasree Raveendran** (rjayasree@ipeindia.org)

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In Honor of
Prof CR Rao and **Prof Lloyd Shapley**

International Conference on
Game Theory and Management Applications

17-18 December 2012

Workshop on
Game Theory and Operations Research Applications

19 December 2012

International Conference on
Game Theory, Operations Research and Applications

21-22 December 2012

Venue: Green Park Hotel, Hyderabad

Hosted by

Institute of Public Enterprise

Indian Statistical Institute
Chennai and Hyderabad

CR Rao Advanced Institute of Mathematics, Statistics & Computer Science

Centre for Economics & Finance, London

About Prof CR Rao

Statisticians would agree that Prof CR Rao (born on 10 September 1920) is one of the most famous living statisticians in the world today. A Fellow of the Royal Society, Prof Rao is currently Professor Emeritus at Penn State University and Research Professor at the University of Buffalo, USA. Among his best-known discoveries are the Cramér – Rao bound and the Rao – Blackwell theorem, both related to the quality of estimators and Score Test used in Econometric Research. His other contributions include the Fisher – Rao Theorem, Rao distance, and Orthogonal Arrays. He has also worked on multivariate analysis, estimation theory, and differential geometry.

Prof Rao has received over 36 honorary doctoral degrees from universities in 19 countries around the world and numerous awards and medals for his contributions to statistics and science. He is a member of eight National Academies in India, the UK, the USA and Europe. In June 2002, he was awarded the United States National Medal of Science (the country's highest award for lifetime achievement in the field of scientific research). He is also the recipient of India Science Award for 2010, the highest honor conferred by the Government of India in the scientific domain, and the Guy Medal in Gold of Royal Statistical Society (2011), the highest honor for a statistician in the UK.

Prof CR Rao has a long standing association with game theory, as early as the mid 1940's. Prof John Nash, a pioneering figure gave insight into the thinking that continues to define Game theory, an applied mathematical science founded some 60 years ago that studies strategic interaction in competitive and cooperative environments. Game theory's influence and applicability have extended broadly across areas ranging from mathematics and computer science to various social and biological sciences.

A careful examination of many of the statistical theories used by economists in their work would reveal their dependence on either linear regression models with / without errors in variables, or Fisher-Rao information, or computation of maximum likelihood estimation, or consistency, or efficiency of estimators. Prof Rao made fundamental contributions in all these areas of statistics. He also contributed to probabilistic foundations of linear structural econometric model with errors in variables, an approach advanced by Frisch and mostly abandoned by the mainstream econometrics profession.

In the above background Prof Rao's contribution at the interface of Statistics and Science is equally relevant to Game Theory and today there is hardly any theoretical research published in leading Game theory journals in which his contributions to mathematical statistics is not relevant. In fact, Prof Rao was the first Indian to publish two papers in Econmetrica in 1947 and 1949, which set probabilistic foundations for linear structural economic relations, solving a problem suggested by Frisch.

About Prof Lloyd Shapley

Game Theorists will unequivocally agree that Lloyd Shapley (born 2 June 1923) is the greatest Game Theorist of our times. His initial research on zero-sum two person games set the trend for research in 1950-60. The rich and fruitful theory of cooperative games dominated Game Theoretic research in 1960-80. In this area, Shapley's unsurpassed insight into the complications of von Neumann Morgenstern's stable sets changed the direction to focus on the study of core and value. Just as the Pythagorean Theorem is central to Euclidean geometry, the Shapley value is central to cooperative Game Theory. Shapley Value has yielded the central insights of Game Theory. Its explicit formula and axioms have spawned a large volume of literature and its applications are at the crossroads of several social, biological and engineering sciences. Many would agree that his work on the Shapley value and core alone deserve an exclusive Nobel Prize in economics. Further, Shapley's joint work with Nobel laureate Robert Aumann on the so-called 'Perfect Folk' theorem is the real bridge between cooperative and non-cooperative Game Theory. In a sense, it is the answer to the so-called 'Nash Program' initiated by Nobel laureate John Nash.

Prof Shapley's contributions also stand out in the field of dynamic Game Theory. He harvested in one scoop the essence of dynamic Game Theory by proving the existence of value in stationary strategies for all discounted stochastic games. It has practically opened new directions in several disciplines as varied as Artificial Intelligence, Military science, Marketing, and many more.

Perhaps best known to a wider public is Prof Shapely's work on two-sided matching. When people compete to choose the best jobs, the employees are looking for the best candidates. The problem gets complicated by what is best. In his seminal work with David Gale, Shapley gave the correct definition of stable matching and also gave an explicit algorithm for finding such a matching. This algorithm was successfully implemented in matching US medical school graduates with hospital residency programs. A more dynamic version of the same study in the job markets – where employees and employers are in the constant search for hiring, firing, moving in and moving out according to their expectations and rankings – have led to the Nobel prize in Economics (2010).

ABOUT THE CONFERENCE

Thinking of Game Theory as similar to probability and statistics makes the relationship to other sciences more explicit. First, like probability theory, a well developed Game Theory is the foundation stone in any subject that deals with interaction. Second, in practical applications that involve strategic interaction, there is no way to avoid using Game Theory. However, following the practice of statistics, it may be necessary to have several different Game Theory models, with the user choosing the appropriate model for the application, particularly when the reasoning is required to be done under uncertainty.

An International Conference and Workshop with contributions of scholars from all over the world from various fields would make a valuable contribution to Game Theory teaching and its applications to various fields of economic science. This is particularly so with applications to environment, development, industry, management, finance and accounting, where it has not fully realized its potential.

In the second conference our focus areas include (but are not restricted to) Algorithmic Game Theory, Evolutionary Games, and applications of Game Theory and Mathematical Programming to Supply Chain Management, Networks (social as well as communication) and Computational Neuroscience. These areas have interesting open theoretical problems as well as a lot of practical applications. Eminent researchers working in these areas have been invited as participants as well as speakers. They include mathematicians, statisticians, computer scientists and economists from premier institutions within India as well as from USA, the Netherlands and other countries.

Such conferences and workshops will also pay a tribute to all the Nobel Laureates and leading Game Theorists who have been invited to grace the occasion.

Plenary Session: Contributions of Prof Shapley and Prof CR Rao
Keynote Speakers (Alphabetical Order)

- Dr David Carfi (University of California Riverside, and University of Messina, Italy)
- Prof Eyal Winter (Director, Centre for the Study of Rationality, Hebrew University of Jerusalem, Israel)
- Prof GSR Reddy (Director, Indian Statistical Institute, Hyderabad)
- Prof Janos Flesch (University of Maastricht, Netherlands)
- Prof Leonard Rudniaski (Director, International Institute of Management, Paris)
- Prof Leon A Petrosjan (Director, St. Petersburgh Gradute School of Management, Russia)
- Prof Myrna Wooders (Department of Economics, Vanderbilt University, US)
- Prof Pradeep Dubey (Leading Professor, SUNY, Stony Brook, US)
- Prof Rann Smorodinsky (William Davidson Faculty of Industrial Engineering and Management Technion – Israel)
- Prof RK Mishra, Chair (Director & Member Secretary, Institute of Public Enterprise)
- Prof S Deman (Hon Director, Centre for Economics & Finance, London)
- Prof Shubhashis Gangopadhaya (Director, India Foundation, New Delhi)
- Prof Shmuel Zamir (Head, Department of Statistics, The Hebrew University of Jerusalem, Israel)
- Prof Steve Alpern (Department of Mathematics, Warwick Business School, University of Warwick, UK)
- Prof T Parthasarthy (Indian Statistical Institute, Chennai, India)
- Prof TES Raghavan (University of Illinois, US)
- Prof Vito Fragnelli (University of Eastern Piedmont, Italy)
- Prof Y Narahari (Director of Computer Science & Automation, Indian Institute of Science Bangalore)

BROAD THEMES

Participants will have an opportunity to attend presentations on a wide range of Game Theoretic models, both theory and applications of Operational Research, economics, finance, management, accounting applications.

The topics include, but are not limited to the following:

- **Advances in Game Theory**: Cooperative, Non-cooperative, Dynamic Games, Foundational issues in Game Theory, Epistemic logics, Inductive Game Theory.
- **Game Theory and Globalization, Money, Finance, Investment and Insurance**: Global Crises, Currency war & Ideal Money, Trading strategies, Asset Pricing, Mergers and Acquisitions, Investment decisions under uncertainty, market structure, signaling theory, Bankruptcy, Risk Management strategies with derivatives, etc.
- **Game Theory and Economics Applications**: Development: Land Acquisition, Rural Development-Landlords &Tenants, Fragmented markets & Credit management, micro-financing, Environment & Development, etc.
- **Game Theory, Information and Risk**: Uncertainty and information, Cheap talk models, imperfect information: sharing of risk, paying to reduce risk, manipulating risk, asymmetric information, risky and safe choices in zero sum games, implicit contracts and risk aversion, Shapley value.
- **Mathematical Models and Risk**: Probability aspects of risk, Markov processes, Weighted risk, risk premium, risk management strategies, Operations & supply chain management, etc.
- **Game Theory and Negotiations**: Currency war & Ideal Money, Trade negotiations, Job negotiations, negotiating pay rise, debt negotiations, negotiations and group decisions.
- **Marketing and Accounting Applications**: Pricing and advertisement decisions, Shelf space allocations, Differential games in marketing, Edgeworth promotional cycles in the Loyal / switcher game, strategic implications of long run effects of promotions on channel decisions, Distribution of services and role of agent, unified accounting, environment & compliance.
- **Game Theory and Unification of Behavioral Sciences**: Search Games and applications to animal behavior, Corruption, Limitations of the decision maker and departure from rationality, biases and heuristics, cognitive limitations, Prospect theory and framing effects, Mental accounting, Preference reversals, Experience Weighted Attraction (EWA), Weighted fictitious Play (WFP).
- **Game Theory and Applications in Operations Research**: Algorithmic Game Theory, Evolutionary Games, and applications of Game Theory and Mathematical Programming to Supply Chain Management, Networks (Social as well as Communication Networks) and to areas such as Computational Neuroscience, Mixed v Behavioral strategies, Optimization problems and Decision Support Systems, first order conditions, Lagrange method, Uncertainty and chance, Algorithms for finding the nucleolus of structured cooperative games. These areas have interesting open theoretical problems as well as a lot of practical applications.

INVITING PAPERS

Research papers are invited from faculty and researchers in Game Theory, economists, statisticians, mathematicians, financial modelers and others who use or work in Game Theory, on the topics listed here.

SUBMISSION DEADLINE

Extended abstracts of not less than 500 words along with complete paper must be submitted electronically by **10 November 2012**. Acceptance will be conveyed by 15 November 2012. The Program Committee will have absolute discretion to decide which conference your paper is appropriate for presentation.

Accepted papers will appear in the Conference Volume and will be given at the time of Registration. Selected papers will be considered for publishing in a special series of Advances in Game Theory & Applications.

INTERNATIONAL COORDINATORS / SUBMISSIONS

Theory & Methodology (Mathematics): Prof Mamoru Kaneko, Institute of Policy and Planning Sciences, University of Tsukuba, Ibaraki, 305-8573, Japan, kaneko@sk.tsukuba.ac.jp

Game Theory & Mathematics: Prof Pradeep Dubey (Leading Professor Game Theory, SUNY, Stony Brook, USA, pradeepk dubey@yahoo.com)

Game Theory, Mathematics and OR Applications: Prof T Parthasarthy, Indian Statistical Institute Chennai at Pacha14@yahoo.com

Finance, Insurance Management & Others: Prof Praveen Kumar (El Paso Corporation - JP Morgan Chase Bank Professor, Chair, Department of Finance, Executive Director, Global Energy Management Institute, CT Bauer College of Business, University of Houston, 334 Melcher Hall, Houston, TX 77204-6021, (713)-743-4770; Fax: (713)-743-4789, pkumar@uh.edu)

General: Prof Shubhashis Gangoppadhaya (Director, India Development Foundation, Malmsten Guest Professor, University of Gothenburg, India / Sweden, shubgang@gmail.com

Applications: Development, Land Acquisition, Real Estate, Global Financial Crisis, Mergers & Acquisitions: Prof S Deman, Hon Director, Centre for Economics & Finance, London SE9 2ZP, 0044 2088594657, 00447525857351, s_deman2000@yahoo.co.uk

Copies of all abstracts and papers must be marked to Dr Jayasree Raveendran at gtconference@ipeindia.org and also to Prof Suresh Deman at s_deman2000@yahoo.co.uk

ORGANIZING COMMITTEE (Alphabetical Order)

- Prof Allam Appa Rao (Director of CRRao AIMSCS)
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- Prof G Ravindran (Indian Statistical Institute, Chennai)
- Prof GSR Murthy (Indian Statistical Institute Hyderabad)
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- Prof S Deman (Hon Director, Centre for Economics & Finance, London, her members)
- Prof Subhashis Gangopadhyay (Director, India Development Foundation)
- Prof Snigdha Banerjee (Dept of Statistics, Devi Ahilkya University, Indore)
- Prof T Parthasarthy (Centre for Mathematics, Indian Statistical Institute, Chennai)
- Prof TS Arthanari (University of Auckland, New Zealand)
- Prof VB Uppadhaya (Indian Institute of Technology, New Delhi)
- Prof Y Narahari, Chair (Department of Computer Science & Automation, Indian Institute of Science, Bangalore)