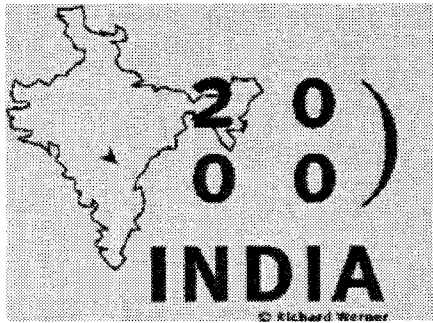


Chien, Thanassis Chryssakis, Chandler Davis, Doug Farenick, Susana Furtado, Moshe Goldberg, Charles Johnson, Peter Lancaster, Heinz Langer, Gorazd Lešnjak, Chi-Kwong Li, Ioannis Maroulas, Judith McDonald, Boris Mirman, Hiroshi Nakazato, Kazuyoshi Okubo, João da Providencia, Psarrakos Panayiotis, Salemi Abbas, Peter Šemrl, Ahmed Sourour, Ilya Spitkovsky, Bit-Shun Tam, Christiane Tretter, Michael Tsatsomeros, Dimitris Valougeorgis, Markus Wagenhofer, Pei Yuan Wu, Takanori Yamamoto, and Xingzhi Zhan.

Michael TSATSOMEROS: tsat@math.uregina.ca  
Dept. of Mathematics and Statistics, University of Regina



## Ninth International Workshop on Matrices and Statistics

### Hyderabad, India: 9–13 December 2000

The Ninth International Workshop on Matrices and Statistics, in Celebration of C. R. Rao's 80th Birthday, will be held in the historic walled city of Hyderabad, in Andhra Pradesh, India, on December 9–13, 2000. This Workshop is being organized in Hyderabad by the Indian Statistical Institute (ISI) and the Society for Development of Statistics, in collaboration with the Birla Science Centre, Osmania University and the Univ. of Hyderabad.

Hyderabad is approximately midway between Mumbai (Bombay) and Chennai (Madras) and is one of India's largest cities, with a population of about 6 million. Founded by Quli Qutub Shah in 1589 as a royal capital, Hyderabad was a large and important princely feudatory state in India; the ruler, the Nizam of Hyderabad, was considered to be the world's richest man at the time of the state's annexation to India in 1947. Postage stamps were issued from 1869 to 1949.

The city of Hyderabad became the capital of the state of Hyderabad in 1950 and the capital of Andhra Pradesh in 1956. Hyderabad has many palaces and the Char Minar, built in 1591, with four minarets (towers) and four arches through which the main streets of the city pass. Hyderabad is a major trading center and manufactures textiles, glassware, paper, flour, and railway cars, and is unique in its rich architectural glory and blend of linguistic, religious, and ethnic groups. It is an ideal place to

celebrate C. R. Rao's 80th Birthday. Fine weather is expected with a midday high of about 20° C/60° F.

The program will start with a two-day Short Course on recent advances in Matrix Theory with Special Reference to Applications in Statistics on Saturday, December 9, and Sunday, December 10, 2000. This will be followed by the presentation of research papers in the Workshop proper on Monday, December 11–Wednesday, December 13, 2000; it is expected that many of these papers will be published, after refereeing, in a Special Issue on Linear Algebra and Statistics of *Linear Algebra and its Applications*.

The International Organizing Committee for this Workshop comprises R. William Farebrother (Victoria Univ. of Manchester, Manchester, England, UK), Simo Puntanen (Univ. of Tampere, Tampere, Finland), George P. H. Styan (McGill Univ., Montréal, Québec, Canada; vice-chair), and Hans Joachim Werner (Univ. of Bonn, Bonn, Germany; chair). The Local Organizing Committee in India includes R. Bhatia (ISI–Delhi), P. Bhimasankaram (ISI–Hyderabad), G. S. R. Murthy (ISI–Hyderabad), V. Narayana (ISI–Hyderabad), M. S. Rao (Osmania Univ., Hyderabad), B. Sidharth (Birla Science Centre, Hyderabad), U. SuryaPrakesh (Osmania Univ., Hyderabad), R. J. R. Swamy (Osmania Univ., Hyderabad), P. Udayasree (Univ. of Hyderabad), and K. Viswanath (Univ. of Hyderabad).

For up-to-date information on this Workshop please visit

<http://eos.ect.uni-bonn.de/HYD2000.htm>

The Short Course will be held in the air-conditioned auditorium at the Prof. G. Rami Reddy Centre for Distance Education on the Osmania Univ. campus with a capacity of 300. This auditorium has a public address system, OHP and facilities for PowerPoint presentations. The Workshop proper and the Workshop banquet will be held in the Auditorium of the Birla Science Centre in downtown Hyderabad.

Accommodation has been arranged for delegates in reasonably good guestrooms on and around the Osmania Univ. campus. The tariff ranges from US\$15–25 per person per day. Rooms have also been reserved in hotels as follows:

	5-star	3-star	motel
Single US\$ per day	80-125	40-50	20-30
Double US\$ per day	120-160	50-60	25-35

#### Preliminary Programme of Invited Papers for the Short Course

- C. R. Rao (PennState): Statistical proofs of some matrix inequalities  
 R. B. Bapat (ISI–Delhi): Generalized inverses–I:  
 Existence of generalized inverse: Ten proofs and some remarks  
 P. Bhimasankaram (ISI–Hyderabad): Generalized inverses–II  
 G. H. Golub (Stanford): Numerical Linear Algebra–I: Numerical methods for solving least squares problems with constraints  
 T. Kailath (Stanford): Numerical Linear Algebra–II:  
 Displacement structure–Theory and applications

- S. Puntanen (Tampere): Some comments on several matrix inequalities with applications to canonical correlations-I  
 G. P. H. Styan (McGill): Some comments on several matrix inequalities with applications to canonical correlations-II  
 Y. Takane (McGill): Matrices with special reference to applications in psychometrics  
 H. J. Werner (Bonn): On some estimating and predicting techniques in the general Gauss-Markov model

The Short Course will be followed by the Workshop proper, which will include the presentation of both invited and contributed papers on matrices and statistics. There will also be a special session for papers presented by graduate students.

#### *Preliminary Programme of Invited Papers for the Workshop*

- C. R. Rao (PennState): Anti-eigen and singular values of a matrix and their applications to statistics  
 F. Akdeniz (Adana):  
 Some comments on the ridge regression and the Liu estimators  
 T. Ando (Sapporo): From determinant and trace inequalities to majorization of eigenvalues  
 J. K. Baksalary (Zielona Góra): Revisiting outer inverses in the context of nonlinear matrix equations and partitioned matrices  
 A. Ben-Israel (Rutgers): On some geometric problems in  $\mathbf{R}^n$ .  
 K. P. S. Bhaskara Rao (ISI-Bangalore): Title to be announced  
 K. Conradsen (DTU-Lyngby): The use of the Wishart distribution in edge detection in radar images  
 S. Das Gupta (ISI-Calcutta):  
 Parametric identifiability and model-preserving constraints  
 S. J. Kirkland (Regina):  
 Markov Chains whose transition matrix has large exponent  
 R. Kumar (Dayalbagh Educational Institute-Agra):  
 Characterizations of certain eigenvalue functions and their bounds  
 K. M. Prasad (Gangtok):  
 Dimension function for modules over commutative rings  
 J. N. K. Rao (Carleton): On empirical likelihood methods for linear regression models under imputation for missing responses  
 P. S. S. N. V. P. Rao: Title to be announced.  
 P. Šemrl (Ljubljana): Locally linearly dependent operators  
 D. Sengupta (ISI-Calcutta):  
 Some observations and questions on the linear model.  
 G. Trenkler (Dortmund):  
 Estimation of the cross product of two expectation vectors  
 J. Volaufová (Baton Rouge):  
 Some estimation and testing problems in multistage linear models  
 H. Yanai (Tokyo):  
 Some relationships between projectors and rank-additivity

#### *Preliminary Programme for the Special Session for Graduate Students*

- O. M. Baksalary (Poznań): Idempotency of linear combinations of idempotent and tripotent matrices  
 A. Guterman (Moscow): Minus order and its linear preservers  
 J. Mashreghi (McGill): Complex variable methods in linear algebra  
 Y. Tian: Moore-Penrose inverses of matrix products

#### *Preliminary Programme for Contributed Papers*

- G. M. Antony & K. Visweswara Rao:  
 Factors responsible for variations in human development index in Indian states: results of factor analysis  
 Th. Benesch & V. Goyal: Electronic commerce in India  
 P. Druilhet: Optimality criteria in experimental designs matrices  
 V. S. Gudi & B. N. Nagnur: A note on the second-order efficiency of the BAN-estimators in the multinomial family  
 C. P. S. Gungund: Unbiased estimation in a certain class of independent increment processes  
 V. V. Haragopal & S. N. N. Pandit:  
 Dependent count streams as Markov chains (an exploratory study)  
 M. Ishak: Statistical techniques to analyse hospitalization pattern of the Australian indigenous population  
 D. N. Kashid & S. R. Kulkarni: A more general criterion for subset selection in multiple linear regression  
 G. Lešnjak: On the algebraic version of Cochran's theorem  
 A. R. Meenakshi: On products of range-symmetric fuzzy matrices  
 A. R. Meenakshi & S. Krishnamoorthy:  $k_{EP}$  generalized inverses  
 S. K. Mukhopadhyay: Probabilistic forecasting of monsoon daily rainfall by Markov chain model  
 A. L. N. Murthy: Complementarity problems and positive definite  
 H. Naseri: Some examples of linear prediction with infinite variance in electricity distributions  
 S. N. N. Pandit: Some new matrix operations with applications to clustering, modelling and cryptography  
 J.-S. Park, D. D. Cox & T. Y. Kim: Fast cross validation of best linear unbiased predictors by downdating Cholesky decomposition  
 D. Petz: From the Cramér-Rao inequality to the analogue of Fisher information in quantum probability  
 Th. D. Popescu: New method for change detection with application in structural systems  
 I. Rama Bhadra Sarma & B. Rami Reddy:  
 Inversion of a matrix by bordering  
 G. R. Maruthi Sankar: A multiple selection index model for selection of genotypes for dryland conditions  
 B. Schaffrin: Establishing equivalent systems for universal kriging  
 J. Seberry: Short amicable sets of matrices with application to orthogonal designs  
 V. K. Sharma, A. V. Dattatreya Rao & A. Vasideva Rao: Software for reliability computation in life-testing models  
 Y. Takane: On the Lagrange-(Wedderburn-)Guttman theorem  
 N. J. Thome: Generalized inverses and a block-rank-equation  
 N. Trandafilov: On the simultaneous eigenvalue-like decomposition of several matrices with application to multivariate analysis  
 C. Varghese & A. R. Rao: Robustness of change-over designs  
 R. P. Venkataraman: Matrix ensembles with different characteristic eigenvalue densities

To submit a contributed paper for presentation at the Workshop, please use  $\LaTeX$  and the style file available from the Web site. The abstract should not exceed 25 lines. Send the title and abstract, plus the names, e-mail addresses and affiliations of all authors by e-mail to Hans Joachim Werner at

werner@united.econ.uni-bonn.de

and a copy by classical p-mail or FAX to both Hans Joachim Werner, Institut für Ökonometrie & Operations Research, Adenauerallee 24-42, Rheinische Friedrich-Wilhelms-Universität Bonn, D-53113 Bonn, Germany; FAX (49-228) 73-9189, and to P. Bhimasankaram, ISI, Street No. 8, Habsiguda, Hyderabad-500 007, India; FAX (91-40) 717-3602.

The registration fees will be as follows:

*Short Course:* US\$36/C\$54/Euro 39.6 (Rs. 300/- Indian res.),

*Workshop:* US\$72/C\$108/Euro 79,2 (Rs. 600/- Indian res.).

There will be no registration fees for students for the Short Course. For students and retired persons the registration fee for the Workshop will be US\$30/C\$45/Euro 33 (Rs. 250/- Indian residents). There will be no registration fees for accompanying persons. The registration fees cover all conference materials and handouts, lunches, and tea and coffee.

Participants not resident in India may pay the registration fees in advance (a) by personal check in either US or Canadian dollars drawn on a US or Canadian bank and made payable to George P. H. Styan, and sent to George P. H. Styan, PO Box 270, Franklin, VT 05457-0270, USA, or (b) through Bank Transfer in Euro: Account number 146005939 with Sparkasse Bonn (BLZ 38050000), Friedensplatz 1-3, D-53111 Bonn, Germany. The Receiver of the Payment should be marked as Hans Joachim Werner and the Subject of the Payment should be marked as NIWMS-2000. All bank fees are at the sender's expense. Please send also a copy of the receipt of your bank payment by airmail to Hans Joachim Werner, Institute for Econometrics and Operations Research, Econometrics Unit, Univ. of Bonn, Adenauerallee 24-42, D-53113 Bonn, Germany. We regret that we are not able to accept payment by credit card. Indian residents should pay the registration fees through Crossed Demand Draft on any nationalized bank, payable at Hyderabad, in favour of R. J. R. Swamy/NIWMS-2000.

All correspondence regarding lodging in Hyderabad for this Workshop should be directed to R. J. R. Swamy, Dept. of Statistics, Osmania University, Hyderabad-500 007, India swamy\_rjr@yahoo.co.uk, FAX (91-40) 717-3602 or P. Bhimasankaram, ISI, Street No.8, Habsiguda, Hyderabad-500 007, India; pbhim@rediffmail.com, FAX (91-40) 717-3602. All correspondence concerning the scientific part of this Workshop should be directed to Hans Joachim Werner or to G. P. H. Styan.

## International Linear Algebra Conference

**Haifa, Israel: 25-29 June 2001**

This conference will be held under the auspices of the Institute of Advanced Studies in Mathematics at the Technion and the International Linear Algebra Society (ILAS). This is the 9th conference organized by ILAS since 1989. It is also the 12th conference in a sequence of matrix theory meetings organized by the Technion since 1984.

*Provisional list of speakers:* D. Alpay, R. Bapat, A. Bruckstein, J. Bunch, A. Bunse-Gerstner, N. Cohen, H. Dym, K.-H. Foerster, P. Fuhrmann, I. Gohberg, C. R. Johnson, G. Kalai, S. Kirkland (OT/JT Speaker), W. Luxemburg, R. Merris, R. Meshulam, R. Nabben, I. Olkin, V. Olshevsky, S. Pierce, F. Puerta, J. Queiro, A. Ran, L. Rodman, P. Šemrl, B. Shader, J. Shao, Tin-Yau Tam, N. Trefethen (ILAS-LAA Speaker), F. Uhlig, W. Watkins, and H. J. Werner.

*Organizing committee:* Moshe Goldberg (co-chair), Daniel Hershkowitz (co-chair), Raphael Loewy (co-chair), Abraham Berman, Richard A. Brualdi, David London, Ludwig Elsner, Leonid Lerer, Uriel G. Rothblum and Abraham Zaks.

On Thursday, June 28, 2001, the conference banquet will be held. Estimated cost of the banquet is about US\$45.00. On Wednesday, June 27, 2001, there will be a half-day excursion. Estimated cost of the excursion is about \$30.00.

The deadline for registration is February 28, 2001. Please make every effort to mail/email your form in time to ensure that it reaches us before that date. The conference will commence on the morning of Monday, June 25, 2000, so participants should reach Haifa by Sunday evening. Lectures will be held from Monday through Friday. There will be a US\$50 registration fee. Suggestions for minisymposia are welcome; the deadline for such suggestions is December 31, 2000. If you are interested in presenting a talk, please let us have a title and short abstract no later than February 28, 2001.

Hotel rooms will be available for the conference at the hotels listed below at the following rates:

- *Marom Hotel:*  
Double (2 persons sharing): US\$72.00, Single: \$55.00
- *Shulamit Hotel:*  
Double (2 persons sharing): \$94.00, Single: \$68.00
- *Nof Hotel:*  
Double (2 persons sharing): \$116.00, Single: \$92.00

Prices include breakfast and service charges. These rates also apply to periods directly before and after the conference. In order to benefit from the special conference rates, please contact us no later than February 28, 2001. However, as the number of rooms available in each hotel is limited, we suggest that you reserve your accommodation as soon as possible if you wish to ensure that you have a room at the hotel of your choice.

The weather in Haifa in June is sunny and warm, with temperatures at about 28° C/80° F. Humidity is moderate and there is very little chance of rain. Light clothing and informal dress are recommended.

*Further information:* Please visit our Web site:

<http://www.math.technion.ac.il/institute/linear.htm>

or contact Sylvia Schur, Dept. of Mathematics, Technion-Israel Institute of Technology, 32000 Haifa, Israel; tel. (972-4) 829-4278, FAX (972-4) 832-4654, [iasm@techunix.technion.ac.il](mailto:iasm@techunix.technion.ac.il)