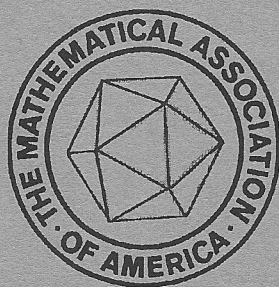


Kansas Section
of the Mathematical
Association of America
Spring Conference

March 14-15, 1997



Hosted by
Pittsburg State University
Pittsburg, Kansas

Invited Speaker:
Biswa Nath Datta
Northern Illinois University
"Numerical Linear Algebra and
Scientific Computing I and II"

About The Invited Speaker

Dr. Biswa Datta received his Ph.D. in Mathematics from the University of Ottawa (Canada) in 1972. He has been a professor of Mathematical Sciences at Northern Illinois University since 1981 and Director of the Applications Involvement Component of the Doctoral Program in Mathematical Sciences during 1993-1996.

Dr. Biswa's research interests include linear and numerical linear algebra and their applications to control and systems theory. He is the author of more than 70 interdisciplinary research papers. His textbook Numerical Linear Algebra and Applications was published by Brooks/Cole Publishing Company in 1995. A text on Numerical Methods for Linear Control Systems Design and Analysis will appear in Fall, 1997 (Academic Press).

Dr. Biswa has served on the editorial board of the *SIAM Journal of Matrix Analysis and Applications* and is presently an editor of the *Journal of Mathematical Systems, Estimation and Control*. Dr. Biswa has been active in various professional groups: SIAM, AMS, IEEE and others. He has participated in a long list of national and international conferences on linear algebra and numerical linear algebra.

**Spring Conference of
The Mathematical Association of America**
Kansas Section and
Kansas Mathematics Association of Two Year Colleges

CONFERENCE AT A GLANCE

Friday, March 14

2:00 p.m. - 5:00 p.m.	Innovations in Teaching Workshop
7:00 p.m. - 7:30 p.m.	Registration
7:30 p.m. - 8:30 p.m.	GENERAL SESSION "Numerical Linear Algebra and Scientific Computing I" Biswa Nath Datta, Northern Illinois Univ.
8:30 p.m. - 9:30 p.m.	Reception

Saturday, March 15

7:00 a.m. - 8:00 a.m.	Department Chair and MAA Departmental Representatives Breakfast
8:00 a.m. - 8:30 a.m.	Registration
8:00 a.m. - 3:30 p.m.	Book Displays
8:30 a.m. - 9:30 a.m.	SESSION I: A, B, C, D
9:30 a.m. - 10:30 a.m.	SESSION II: A, B, C, D
10:30 a.m. - 11:00 a.m.	Break
11:00 a.m. - 12 noon	GENERAL SESSION "Numerical Linear Algebra and Scientific Computing II" Biswa Nath Datta, Northern Illinois Univ.
12 noon - 1:30 p.m.	Lunch KMATYC Business Meeting
1:30 p.m. - 2:30 p.m.	SESSION III: A, B, C, D
2:30 p.m. - 3:30 p.m.	MAA Business Meeting

Innovations in Teaching Workshop Schedule Room 102, Yates Hall

2:00 - 2:50 The Teacher as Scholar panel discussion

Panel members:

Frank Brenneman, Tabor College

Elwyn Davis, Pittsburg State University

Bryan Dawson, Emporia State University

Jack Porter, University of Kansas

Bobby Winters, Pittsburg State University

3:00 - 3:50 Models of Group Work

Presenter: John Dalida, Kansas State University

4:00 - 4:50 Mathematics on the World Wide Web

Presenter: Joe Yanik, Emporia State University

Registration: There is a \$5.00 registration fee for the workshop.

If you want a parking permit mailed to you prior to the workshop, contact Cynthia Woodburn, Dept. of Mathematics, Pittsburg State University, Pittsburg, KS 66762 (316) 235-4409 (cwoodbur@pittstate.edu)

FRIDAY, March 14

Innovations in Teaching Workshop

2:00 - 5:00 p.m. 102 Yates Hall

Registration

7:00 - 7:30 p.m. Heritage Room, Student Center

Book Displays

7:00 - 9:00 p.m. Inaugural Room, Student Center

General Session

7:30 - 8:30 p.m. Governors Room, Student Center

Introductions: Gary McGrath, Chair-elect Kansas Section MAA,
Pittsburg State

Welcome: President John Darling, Pittsburg State University

“Numerical Linear Algebra and Scientific Computing I”

Biswa Nath Datta

Northern Illinois University

In the first part of the talk, I shall describe how the most obvious theoretical linear algebra approaches for matrix computations, such as, solving the linear system $Ax = b$ using Cramer's Rule, by finding the inverse of A , etc.; computing the eigenvalues of A by finding the zeros of its characteristic polynomial; solving the least-squares problem by normal equations; computing the singular value decomposition of A by finding the eigenvalues of $A^T A$; finding the QR factorization of A using the Gram-Schmidt process, etc.; can sometimes lead to disaster in a computational setting.

Reception

8:30 - 10:00 p.m. Heritage Room, Student Center

All participants, faculty, students, and guests are welcome.

SATURDAY, March 15

Department Chair and MAA Departmental Representatives Breakfast

7:00 - 8:00 a.m. Western Sizzlin, 2711 N. Broadway

Registration

8:00 - 8:30 a.m. Yates Hall

Book Displays

8:00 a.m. - 12 noon Yates Hall

SESSION I

8:30 - 9:30 a.m.

Session IA - Room 215, Yates Hall

Using Graphs to Analyze Sports Drafts

Presenter: C. Bryan Dawson

Emporia State University

Comments on Mathematical Modelling

Presenter: Philip G. Kirmser

Kansas State University

Session IB - Room 102, Yates Hall

Redesign of Teacher Licensure K-12

Presenter: Elwyn Davis

Pittsburg State University

Reform Calculus: Have We Reformed Enough?

Presenter: Bob Adams

University of Kansas

Session IC - Room 225, Yates Hall

On Volterra's Paradox

Presenter: Yaping Liu
Pittsburg State University

An Exploration of Roger Nelsen's "Proofs Without Words"

Presenter: Curt Melzer
Wilbur Middle School, Wichita

Session ID - Room 226, Yates Hall

Three Greek Impossibilities

Presenter: Shannon Wilkinson
Student, Pittsburg State University

Hyperbolic Tiling

Presenter: Travis Ethridge
Student, Southwestern College

Chaos and Fractals: A Different Perspective to Numerical Analysis

Presenter: Tori Helmer
Student, Southwestern College

SESSION II

9:30 - 10:30 a.m.

Session IIA - Room 215, Yates Hall

Complex Householder Transformations

Presenter: Gary McGrath

Pittsburg State University

Automorphic Forms, L-Series, and Functional Equations

Presenter: Tim Flood

Pittsburg State University

Session IIB - Room 102, Yates Hall

Technology in the Geometry Classroom

Presenter: Jo Ann Fellin

Benedictine College

Power Up with PowerPoint

Presenter: Cynthia Woodburn

Pittsburg State University

Session IIC - Room 225, Yates Hall

Hexiety: An "Interclass" Experiment

Presenters: Pat Mower and Donna E. LaLonde

Washburn University

Session IID - Room 226, Yates Hall

The Logic Of Half Truths

Presenter: Ginny Seaman

Student, Southwestern College

The Archimedean Solids Revisited

Presenter: Heather Dickman

Student, Kansas Wesleyan University

Molecule Math

Presenter: Justin Rankin

Student, Southwestern College

Newton to Chaos: An Unexpected Turn in Numerical Analysis

Presenter: Kari Hamm

Student, Pittsburg State University

Refreshment Break

10:30 - 11:00 a.m. Yates Hall

General Session

11:00 - 12 noon Room 102, Yates Hall

Information: Gary McGrath, Chair-Elect KS Section MAA, PSU

Introduction: Mary Flagg, Chair KS Section MAA, McPherson College

“Numerical Linear Algebra and Scientific Computing II”

Biswa Nath Datta, Northern Illinois University

In the second part of the talk, I shall describe the stable and efficient methods for solving these problems. Some discussions on the importance of solving numerical linear algebra problems and existing high quality mathematical software will be included too.

The talks will conclude with discussions on “Teaching Numerical Linear Algebra at Undergraduate Levels.”

Lunch

12 noon - 1:30 p.m. Student Center
Advanced Reservation is required

KMATYC Business Meeting

Chair: Therese Blyn, Garden City C.C.

SESSION III

1:30 - 2:30 p.m.

Session IIIA - Room 215, Yates Hall

Think Before You Apply L'Hopital's Rule!

Presenter: Jim Carlson

Neosho County Community College

A Babylonian and a Greek Talk about Numbers

Presenter: Peter Flusser

Kansas Wesleyan

A Generalization of Kasner's Theorem

Presenter: Ted Zerger

Kansas Wesleyan

Session IIIB - Room 102, Yates Hall

PPST - The Only Requirement to be an Elementary School Teacher. Is It Enough?

Presenter: Carol Black

Southwestern College

Session IIIC - Room 225, Yates Hall

Approximating the perimeter of an ellipse

Presenter: Andrew G. Bennett

Kansas State University

Space of Types on Metric Spaces

Presenter: Tadeusz Dobrowolski

Pittsburg State University

Session IIID - Room 226, Yates Hall

Constructing Polyhedra and Tesselation of the Plane Through Paper Folding

Presenter: Mark Lesperance

Graduate Student, Kansas State University

The Transposed QR Algorithm

Presenter: Adil Al-Rabtah

Graduate Student, Pittsburg State University

The Inverse Problem of Option Pricing

Presenter: Ilya Bushuyev

Graduate Student, Wichita State University

MAA Business Meeting

2:30 - 3:30 p.m. Room 102, Yates Hall

Officers of MAA-Kansas Section

Governor: Willard A. Parker
Kansas State University
Manhattan, Kansas 66506-2602, (913) 532-6750

Chair: Mary S. Flagg
McPherson College
McPherson, Kansas 67460, (316) 241-0731

Chair-Elect: Gary L. McGrath
Pittsburg State University
Pittsburg, Kansas 66762, (316) 235-4406

Secretary-Treasurer: Peter R. Flusser
Kansas Wesleyan University
Salina, Kansas 67401-6196, (913) 827-5541

Officers of Kansas Mathematics Association of Two Year Colleges

President: Therese Blyn
Garden City Community College
Garden City, Kansas 67846, (316) 276-7611

President-Elect: Jim Carlson
Neosho County Community College
Chanute, Kansas 66720, (316) 431-2820, Ext. 233

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Johnson County Community College
Overland Park, Kansas 66210, (913) 469-8500

Treasurer: Donna Krichiver
Johnson County Community College
Overland Park, Kansas 66210, (913) 469-8500