



SIAM Applied Linear Algebra

Iain Duff

STFC Rutherford Appleton Laboratory and CERFACS

Twelfth SIAM Conference on Applied Linear Algebra. Atlanta,
Georgia, USA.
26-30 October 2015

Entrée

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A **reminisce** about the **start of the SIAG and the Conference series.**

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Audience participation

Scottish accent

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Start with [google search](#) on [linear algebra](#)

First item (at least on my google) is an article starting:

Linear algebra describes things in two dimensions

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Numerical linear algebra is the study of algorithms for performing linear algebra computations, most notably matrix operations, on computers. It is often a fundamental part of engineering and computational science problems, such as image and signal processing, telecommunication, computational finance, materials science simulations, structural biology, data mining,

A [google search](#) on [applied](#) linear algebra has a bizarre jumble at the top of the page but does have this conference as fourth in the list.

So on to the **origins** of the SIAG on Linear Algebra and conference series on Applied Linear Algebra.

Applied or not

Applied or not

SIAG-LA

<http://siags.siam.org/siagla/meetings/siamla.html>

SIAG-LA

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[Sixth SIAM Conference on Linear Algebra](#)

Snowbird, Utah, October 29-November 1, 1997.

Organized by SIAG/LA.

Fifth SIAM Conference on Linear Algebra

Snowbird, Utah, June 15-19, 1994.

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Fourth SIAM Conference on Linear Algebra

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Madison, WI, May 23-26, 1988.

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1982

The gang of three

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Key person

Key person



Justification for Linear Algebra

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Results of an Informal Survey on the Use of Linear Algebra in Industry and Government

Stephen L. Campbell, Carl D. Meyer, Jr., and Nicholas J. Rose
Linear Algebra and its Applications **38**, 289-294. 1981

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Contributors to survey were:

- ▶ Paul Boggs, US Army
- ▶ Allen V Butterworth, GM
- ▶ Jane Cullum, IBM
- ▶ Albert M Erisman, Boeing
- ▶ Louis A Hageman, Westinghouse
- ▶ Linda Kaufman and James McKenna, Bell Labs
- ▶ Donald W Marquadt, du Pont
- ▶ Major Carl Edward Oliver, AFOSR
- ▶ James C T Pool, DOE
- ▶ Herbert E Rauch, Lockheed
- ▶ W J Schaffers, du Pont
- ▶ Melvin R Scott, Sandia
- ▶ Leon H Seitelman, Pratt & Whitney
- ▶ Paul Swarztrauber, NCAR
- ▶ Robert C Ward, Oak Ridge
- ▶ Albert C Williams, Mobil Oil

Another key person

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Another key person

Wikipedia entry

Sir Walter Raleigh was an English landed gentleman, writer, poet, soldier, politician, courtier, spy, and explorer. He was cousin to Sir Richard Grenville and younger half-brother of Sir Humphrey Gilbert

- ▶ Born: East Budleigh
- ▶ Died: October 29, 1618, London
- ▶ Spouse: Elizabeth Raleigh (m. 15911618)
- ▶ Children: Carew Raleigh, Damerei Raleigh, Walter Raleigh
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Not to be confused with ...



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John William Strutt

Not to be confused with ...



John William Strutt
Lord (3rd Baron) Rayleigh

Not to be confused with ...

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SIAG-LA

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Third SIAM Conference on Linear Algebra

Madison, WI, May 23-26, 1988.
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Second SIAM Conference on Linear Algebra

Rayleigh, North Carolina, April 29-May 2, 1985.
Organized by SIAG/LA.

Pro



SOCIETY for INDUSTRIAL and APPLIED MATHEMATICS

1405 ARCHITECTS BUILDING • 117 SOUTH 17TH STREET • PHILADELPHIA, PA 19103 • (215) 564-2929

PROPOSAL FOR A CONFERENCE ON APPLIED LINEAR ALGEBRA

This is a proposal by the Society for Industrial and Applied Mathematics to conduct a conference on applied linear algebra.

The conference is scheduled to take place in Raleigh, North Carolina on April 26-29, 1982.

Purposes of the conference are to examine the newer developments of linear algebra in respect to their applications and to delineate some of the needs of the future as perceived by scientists who contribute to and make use of linear algebra in their research.

The conference is to bring together mathematical scientists from industry and government with those of the academic community who are concerned with problems relating to the applied aspects of linear algebra in addition to those who are involved with the more theoretical facets of the subject.

The conference will focus on five major applied areas:

- o Numerical analysis and computational methods.
- o Combinatorics, graph theory, and discrete methods.
- o Statistical methods.
- o Operations research and optimization.
- o Engineering, control theory, and systems theory.

Topics for SIAM ALA 1982

- ▶ Numerical analysis and computational methods
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and in case you were wondering

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and in case you were wondering

In addition, **to update the applied researchers in attendance** on promising new developments in linear algebra, there will also be **specific focus** on:

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and in case you were wondering

In addition, **to update the applied researchers in attendance** on promising new developments in linear algebra, there will also be **specific focus** on:

- ▶ **Core linear algebra**

Topics for SIAM ALA 2015

No themes for 2015 but guided by invited talks and **titles of invited minisymposia**

Topics for SIAM ALA 2015

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- ▶ Complex Networks
- ▶ Finding and Exploiting Structure in Data
- ▶ Linear Algebra for PDE-constrained Optimization
- ▶ Matrix Equations and Matrix Geometric Means
- ▶ Numerical Methods for Markov Chains and Stochastic Models
- ▶ Preconditioning and Iterative Methods for Complex Linear Systems

Conference committee for SIAM ALA 1982

Conference committee for SIAM ALA 1982

- ▶ Gene H. Golub
- ▶ Carl D Meyer Jr. (chairman)
- ▶ Robert J Plemmons
- ▶ Hans Schneider

Advisory group for SIAM ALA 1982

- ▶ R A Brualdi
- ▶ R W Cottle
- ▶ C Davis
- ▶ M Fiedler
- ▶ M D Marcus
- ▶ D J Rose
- ▶ J Stoer
- ▶ R C Thompson
- ▶ R S Varga
- ▶ R C Ward

MEETING: SIAM Special Conference on Applied Linear Algebra

DATES AND LOCATION: Monday-Thursday, April 26-29, 1982, Mission Valley Inn, Raleigh, NC

PROGRAM COMMITTEE: Gene Golub, Carl D. Meyer (Chairman), Robert J. Plemmons, and Hans Schneider

PRINCIPAL SPEAKERS: R.C. Thompson C.R. Rao
G.H. Golub A.F. Veinott, Jr.
R.E. Tarjan T. Kailath
R.S. Varga

SELECTED SPEAKERS; J.R. Gilbert D.M. Gay
E.H. Bareiss W.B. Gragg
D. Carlson J.R. Lundgren
E. Marques de Sa C.R. Johnson
P. Deift D.P. O'Leary
E. Deutsch J-S. Pang
H. Schneider U.G. Rothblum
R.E. Funderlic G.C. Verghese

SOCIAL EVENTS; Buffet Supper - Tuesday, April 27

CONTRIBUTED PAPERS: 119 contributed; 17 posters

REGISTRATION: 345 (regular members 192; students 12; comps. 23;
(non-member regular 88; students 14; comps. 16)

FINANCIAL SUMMARY: INCOME-REGISTRATION

Advance:	Member	\$55.	(150)	\$ 8,250.	
	Non-Member	65.	(73)	4,745.	
	Non-Member	80.	(2)	160.	
	Students	15.	(11)	165.	\$13,320.00

Budget for SIAM ALA 1982

Year	Budget	Income from registrations	
		Estimated	Actual
1982	28,587	6,125	17,315

Perspective on budget

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2015	218,211	115,050	TBA

Perspective on budget

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1982 Adjusted	71,467	15,312	43,287

Registration fee for 1982 conference

SIAM members \$55

Highest rate \$80

Registration fee for 1982 conference

SIAM members \$55

Highest rate \$80

At 2015 adjusted rates:

Registration fee for 1982 conference

SIAM members \$55

Highest rate \$80

At 2015 adjusted rates:

\$140 and \$200

Conference **exceeded all expectations** and the SIAG on Linear Algebra was formally established as the **first** SIAM SIAG on **July 19th 1982**.

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Carl Meyer says he was an officer and that the first chair was John Lewis.



Final Program

Second SIAM Conference on Applied Linear Algebra

**April 29–May 2, 1985
Mission Valley Inn
Raleigh, North Carolina**

- Core Linear Algebra
- Industrial Applications
- Computer Demonstrations
- Numerical Methods
- Parallelism
- Matrix Methods in Partial Differential Equations
- Perturbation Theory of Operators
- Matrix Polynomials
- Applications of Linear Algebra in Discrete Mathematics, Statistics, Population Biology, Engineering, and Control and Systems Theory

1982

1982



1982



1982



1982



THANK YOU FOR YOUR ATTENTION

Back to the coffee and whisk(e)y ?

and Happy Halloween when it comes

