

Biographical Sketch Shmuel Friedland

Professional Preparation

Israel Institute of Technology	Mathematics, B.Sc., 1967
Israel Institute of Technology	Mathematics, M.Sc., 1969
Israel Institute of Technology	Mathematics, D.Sc., 1971
Israel Institute of Technology	Postdoc in Mathematics, 1971–72
Weizmann Institute of Science	Postdoc in Mathematics, 1972–73
Stanford University	Postdoc in Mathematics, 1973–74
IAS, Princeton	Postdoc in Mathematics, 1974–75

Appointments

Regular

- 1985–, Professor, University of Illinois at Chicago
- 1982–85, Professor, Hebrew University
- 1978–82, Associate Professor, Hebrew University
- 1975–78, Senior Lecturer, Hebrew University

Visiting

- 2007–08, Visiting Professor in Berlin Mathematical School, Berlin, Germany
- 2003–04, New Directions Professor, IMA, University of Minnesota
- 9/00–12/00, Visiting Professor, Technion, Israel
- 1/94–6/94, Visiting Professor, IHES, France
- 9/91–12/91, Visiting Professor, IMA, University of Minnesota
- 9/89–3/90, Visiting Professor, Northwestern University
- 9/78–8/80, Visiting Professor, University of Wisconsin

Prizes

- The first Hans Schneider prize in Linear Algebra awarded by ILAS (International Linear Algebra Society) in 1993
- Salmon prize for solution of the set-theoretic version of Salmon conjecture posed by E.A. Allman 2010 <http://www.dms.uaf.edu/~eallman/>

Selected Publications

Related to the Proposal

- S. Friedland and G. Ottaviani, The number of singular vector tuples and uniqueness of best rank one approximation of tensors, *Foundations of Computational Mathematics* 14, 6 (2014), 1209–1242.

Selected Publications (continued)

- S. Friedland, Q. Li and D. Schonfeld, Compressive Sensing of Sparse Tensors, *IEEE Transactions on Image Processing*, 23, 10 (2014), 4438–4447.
- M.W. Girard, G. Gour and S. Friedland, On convex optimization problems in quantum information theory, *J. Phys. A: Math. Theor.* 47 (2014) 505302 (25pp).
- S. Friedland, V. Gheorghiu and G. Gour, Universal uncertainty relations, *Phys. Rev. Lett.* 111, 230401 (2013), 5 pages.
- S. Friedland, Best rank one approximation of real symmetric tensors can be chosen symmetric, *Front. Math. China*, 8 (2013), 19–40.
- S. Friedland, V. Mehrmann, R. Pajarola and S.K. Suter, On best rank one approximation of tensors, *Numerical Linear Algebra with Applications*, 20 (2013), 942–955.
- S. Friedland, On tensors of border rank l in $C^{m \times n \times l}$ *Linear Algebra and its Applications*, 438 (2013), 713–738.
- S. Friedland, S. Gaubert and L. Han, Perron-Frobenius theorem for nonnegative multilinear form, *Linear Alg. Appl.*, 438 (2013), 738–749.
- G. Gour and S. Friedland, The minimum entropy output of a quantum channel is locally additive, *Information Theory, IEEE Transactions on*, 59 (2013), 603–614.
- S. Friedland and E. Gross, A proof of the set-theoretic version of the salmon conjecture, *Journal of Algebra*, 356 (2012), 374–379.

Thesis Advisor and Postgraduate-Scholar Sponsor

- P. Freitas, 1999, G. Porta, 1999, A. Niknejad, 2005, E. Krop, 2007, M. Nkngla 2010, E. Gross, 2013, D. Braithwaite, S. Cole.
Total number of graduate students and postdoctoral scholars sponsored: 11.

Synergistic Activities

- Editorial Board: Linear Algebra and Its Applications, Electronic Journal of Linear Algebra, Special Marices.

Collaborators & Other Affiliations

Collaborators and Co-Editors

A. Aaghabali, S. Akbari, A. Behmaram, E.A. Bernal, S. Cole, P. Federbush, P. Freitas, S. Gaubert, V. Georghiu, M.W. Girard, G. Gour, E. Gross, L. Han, C.K. Li, Q. Li, L.-H. Lim, R. Loewy, S.H. Low, K. Markström, V. Mehrmann, A. Miedlar, M. Nkngla, G. Ottaviani, R. Pajarola, U.N. Peled, Y.-T. Poon, G. Porta, L. Reyzin, A. Roy, D. Schonfeld, B. Shapiro, M. Stawiska, S.K. Suter, N.-S. Sze, Z. Tajfirouz, V. Tammali, C.W. Tan.

No co-editors to report.

Graduate and Postdoctoral Advisors

Binjamin Schwarz (Thesis Advisor, deceased), S. Karlin (Postdoc Sponsor, Stanford, deceased)