

Alberto

Professor Emeritus, Department of Mathematics, University of California, Berkeley

Alberto is a Professor of Mathematics at UC Berkeley. A graduate of The Rockefeller University, NYC, he has taught at NYU and Caltech, and has been a visiting scientist at the IBM Watson Research Center in NY. He is interested in the interaction between new mathematical developments and a host of imaging problems in areas including medical imaging, geophysics, radar detection, etc. He has served as Chair of the Mathematics Department and as Director of the Center for Pure and Applied Mathematics, both at Berkeley. He has been a Miller Professor, and is presently the Editor of the journal *Inverse Problems*, a publication of the Institute of Physics in England. He is a corresponding member of the Academia Nacional de Ciencias, Cordoba, Argentina.

RESEARCH INTERESTS

Applied Mathematics, Mathematical Analysis, Analysis, Probability, Integrable Systems, Medical Imaging

EXPERIENCE

University of California, Berkeley

Professor of Mathematics, 1980-2014

Chairman, Department of Mathematics, 1989-1992

Director, Center for Pure and Applied Mathematics, 1985-1989

Associate Professor of Mathematics, 1976-1980

Assistant Professor of Mathematics, 1974-1976

New York University

Visiting Associate Professor, Courant Institute, 1979

Adjunct Professor of Mathematics, 1972-1973

Courant Instructor of Mathematics, 1970-1972

Lawrence Berkeley Laboratory

Associate Faculty, Mathematics and Computing Section, 1979

California Institute of Technology

Assistant Professor of Applied Mathematics, 1973-1974

EDUCATION

The Rockefeller University

Ph.D., Mathematics, 1969

TEACHING OVERVIEW

[Math 110] Linear Algebra.

[Math 54] Linear Algebra and Differential Equations.

[Math 191] Projects in Mathematics.

[Math 224] Mathematical Methods for the Physical Sciences.

SELECTED PUBLICATIONS

J. Bourgain, F.A. Grünbaum, L. Velázquez and J. Wilkening; *Quantum recurrence of a subspace and operator valued Schur functions*, (on line already) in Comm. Math. Phys. (2014) arXiv: 1302.7286 v1.

F.A. Grünbaum, L. Velázquez, A. Werner and R. Werner; *Recurrence for discrete time unitary evolutions*, Comm. Math. Phys. (320) 2013

F.A. Grünbaum, L. Velázquez, *The quantum walk of F. Riesz*, Foundations of computational mathematics, Budapest 2011, 93-112, London Math. Soc. Lecture Note Ser. 403, Cambridge Univ. Press, Cambridge, 2013.

M.J. Cantero, F.A. Grünbaum, L. Moral, L. Velázquez, *The CGMV method for quantum walks*, Quantum Inf. Process. **11** (2012) 1149-1192.

M.J. Cantero, F.A. Grünbaum, L. Moral, L. Velázquez, *One-dimensional quantum walks with one defect*, Rev. Math. Phys. **24** (2012) 1250002 [52 pages].

M.J. Cantero, F.A. Grünbaum, L. Moral, L. Velázquez, *Matrix valued Szegő polynomials and quantum random walks*, Comm. Pure Appl. Math. **63** (2010) 464-507.

Grünbaum, F. Alberto (2010). *A spectral weight matrix for a discrete version of Walsh's spider*. In *Topics in operator theory. Volume 1. Operators, matrices and analytic functions* Oper. Theory Adv. Appl. **202** 253-264 Birkhäuser Verlag Basel.

Grünbaum, F. Alberto (2010). *An urn model associated with Jacobi polynomials*. Commun. Appl. Math. Comput. Sci. **5** 55-63.

Grünbaum, F. Alberto (2009). *The Karlin-McGregor formula for a variant of a discrete version of Walsh's spider*. J. Phys. A **42** No.45, 454010, 10.

Grünbaum, F. Alberto (2009). *Block tridiagonal matrices and a beefed-up version of the Ehrenfest urn model*. In *Modern analysis and applications. The Mark Krein Centenary Conference. Vol. 1: Operator theory and related topics* Oper. Theory Adv. Appl. **190** 267-277 Birkhäuser Verlag Basel.

Durán, Antonio J. and Grünbaum, F. Alberto (2009). *Matrix differential equations and scalar polynomials satisfying higher order recursions*. J. Math. Anal. Appl. **354** No.1, 1-11.

Grünbaum, F. Alberto (2008). *Random walks and orthogonal polynomials: some challenges*. In *Probability, geometry and integrable systems* Math. Sci. Res. Inst. Publ. **55** 241-260 Cambridge Univ. Press Cambridge.