

# Curriculum Vitae

Stephen Montgomery-Smith

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## Awards

**2000** Chancellor's Research Award for Outstanding Research and Creativity in the Physical and Mathematical Sciences.

## Grants

**6-1-90 to 5-31-92** N.S.F. (DMS 9001796), *Cotype of operators between Banach spaces and Rademacher processes*, \$17,940 (annual), \$37,400 (total).

**6-15-92 to 8-15-92** S.R.F. (UMC), *Behavior of Sidon Series*, \$2,825.

**6-15-92 to 5-31-95** N.S.F. (DMS 9201357), *Quasi-Banach Spaces and Their Applications*, joint with N.J. Kalton and P. Casazza, \$179,913 (total).

**6-1-94 to 8-31-94** Research Board (UMC), *Interrelationships between probability and analysis*, \$3,900.

**7-1-93 to 12-31-95** N.S.F. (DMS 9306868), *Research Group in Banach Spaces and Related Areas*, joint with N.J. Kalton, N.H. Asmar, P. Saab, and E. Saab, \$30,000 (total).

**6-15-95 to 5-31-98** N.S.F. (DMS 9424396), *Interactions between Functional Analysis, Harmonic Analysis and Probability*, \$79,974 (total).

**1-15-95 to 5-15-95** Research Council (UMC), *Best Constants for the Hardy-Littlewood Maximal Function*, joint with L. Grafakos, \$1,500.

**6-15-98 to 5-31-01** N.S.F. (DMS 9870026), *Inequalities in Probability and Harmonic Analysis*, \$79,716 (total).

**6-1-98 to 8-31-98** Research Board (UMC), *Inequalities in Probability and Harmonic Analysis*, \$14,700.

- 8–1–01 to 7–31–04 N.S.F. (DMS 0099414), *Sums of Banach-valued random variables*, \$89,999 (total).
- 6–1–01 to 8–1–01 Research Board (UMC), *Sums of Banach-valued random variables*, \$11,100.
- 6–1–04 to 8–1–04 Research Board (UMC), *A probabilistic approach to the Navier-Stokes equation*, \$6,138.
- 9–15–07 to 8–31–10 N.S.F. (CMMI 0727399), *Phenomenological-Based Constitutive Model and Simulation of Fiber Interaction for Short Fiber Composite Processing*, joint with Douglas Smith (P.I.) and David Jack, \$112,661.00 (annual).
- 1–1–08 to 12–31–08 Research Board (UMC), *Combinatorial Analysis of Macromolecular Complexity*, \$33,673, joint with Frank Schmidt (P.I.).
- 9–1–11 to 8–31–12 Research Board (UMC), *Dynamic behavior of non-helical springs*, \$13,000.

## Books Edited

1. (with N. Kalton and E. Saab), *Interaction Between Functional Analysis, Harmonic Analysis, and Probability*, Proceedings of Conference held in Columbia, Missouri on May 1994, Lecture Notes in Pure and Appl. Math., 175, Marcel Dekker, New York, 1995.

## Unrefereed Publications

1. Orlicz–Lorentz Spaces, *Proceedings of the Orlicz Memorial Conference*, (Ed. P. Kranz and I. Labuda), Oxford, Mississippi (1991).
2. (with N. Kalton), Interpolation of Banach spaces, *Handbook of the Geometry of Banach Spaces*, (Ed. W.B. Johnson and J. Lindenstrauss), Elsevier Science, 2003.

## Refereed Publications

1. (with R. Ober) Bilinear transformation of infinite dimensional state space systems and balanced realizations of nonrational transfer functions, *S.I.A.M. J. of Control* **28** (1990), 438–465.
2. The Gaussian cotype of operators from  $C(K)$ , *Israel Journal of Math.* **68** (1989), 123–128.
3. The distribution of Rademacher sums, *Proc. A.M.S.* **109** (1990), 517–522.

4. The  $p^{\frac{1}{p}}$  in Pisier's factorization theorem, *Proceedings of Conference on Geometry of Spaces at Strobl*, Ed.: P.F.X. Müller and W. Schachermayer, L.M.S. 1990.
5. (with M. Talagrand) The Rademacher cotype of operators from  $l_{\infty}^N$ , *Proc. A.M.S.* **112** (1991), 187–194.
6. (with D.J.H. Garling) Complemented subspaces of spaces obtained by interpolation, *J. L.M.S. (2)* **44** (1991), 503–513.
7. (with P. Saab)  $p$ -summing operators on injective tensor products of spaces, *B. Royal Soc. Edin.* **120A**, (1992), 283–296.
8. Comparison of Orlicz–Lorentz spaces, *Stud. Math.* **103** (2), (1992), 161–189.
9. (with N. Asmar) On the distribution of Sidon series, *Arkiv Mat.* **31**, (1993), 13–26.
10. (with S.J. Dilworth) The distribution of vector-valued Rademacher series, *Annals Prob.* **21**, (1993), 2046–2052.
11. (with N. Asmar) Littlewood–Payley Theory on solenoids, *Colloq. Math.* **65**, (1993), 69–82.
12. (with N.J. Kalton) Set functions and factorization, *Arch. Math.* **61**, (1993), 183–200.
13. The distribution of non-commutative Rademacher series, *Math. Ann.* **302**, (1995), 395–416.
14. (with V.H. de la Peña and J. Szulga) Contraction and decoupling inequalities for multilinear forms and U-statistics, *Annals Prob.*, **22**, (1994), 1745–1765.
15. (with Y. Latushkin) Lyapunov Theorems for Banach Spaces, *Bul. A.M.S.* **31**, (1994), 44–49.
16. (with Y. Latushkin) Evolutionary semigroups and Lyapunov theorems in Banach spaces, *J. Func. Anal.* **127**, (1995), 173–197.
17. (with V.H. de la Peña) Bounds on the Tail Probability of U-Statistics and Quadratic Forms, *Bul. A.M.S.* **31**, (1994), 223–227.
18. Comparison of sums of independent identically distributed random vectors, *Prob. and Math. Stat.* **14**, (1993), 281–285.
19. (with V.H. de la Peña) Decoupling Inequalities for the Tail Probabilities of Multivariate U-statistics, *Annals Prob.* **23**, (1995), 806–816.
20. (with P. Hitczenko) Tangent Sequences in Orlicz and Rearrangement Invariant Spaces, *Proc. Camb. Phil. Soc.* **119**, (1996), 91–101.

21. The Hardy operator and Boyd indices, *Interaction between Probability, Harmonic Analysis and Functional Analysis*, Ed.: N. Kalton, S.J. Montgomery-Smith, E. Saab, *Lecture Notes in Pure and Appl. Math.*, 175, Marcel Dekker, New York, 1995.
22. Boyd Indices of Orlicz–Lorentz spaces, *Function Spaces, The Second Conference*, Ed.: K. Jarosz, 321–334, Marcel Dekker, 1995.
23. (with C. Chicone and Y. Latushkin) The spectrum of the kinematic dynamo operator for an ideally conducting fluid, *Commun. Math. Phys.* **173**, (1995), 379–400.
24. (with Y. Latushkin and T. Randolph) Evolutionary semigroups and dichotomy of linear skew-product flows on locally compact spaces with Banach fibers, *J. Diff. Eq.* **125**, (1996), 73–116.
25. Stability and dichotomy of positive semigroups on  $L_p$ , *Proc. A.M.S.* **8**, (1996), 2433–2437.
26. (with A.L. Koldobsky) Inequalities of correlation type for symmetric stable random vectors, *Stat. & Prob. Letters.* **28**, (1996), 91–97.
27. (with N. Asmar and B. Kelly) A note on UMD spaces and transference in vector-valued function spaces, *Proc. Edin. Math. Soc.* **39**, (1996), 485–490.
28. (with N. Asmar) Hahn’s Embedding Theorem on orders and harmonic analysis on groups with ordered duals, *Colloq. Math.* **70**, (1996), 235–252.
29. (with C. Chicone and Y. Latushkin) The Annular Hull Theorems for the Kinematic Dynamo Operator for an Ideally Conducting Fluid, *Indiana Univ. Math. J.* **45**, (1996), 361–379.
30. (with L. Grafakos) Best constants for uncentered maximal functions, *Bull. L.M.S.* **29**, (1997), 60–64.
31. (with P. Hitczenko and K. Oleszkiewicz) Moment inequalities for linear combinations of certain independent random variables, *Studia Math.* **123**, (1997), 15–42.
32. (with N. Asmar) Hardy martingales and Jensen’s Inequality, *Bull. Australian Math. Soc.* **55**, (1997), 185–195.
33. (with N. Asmar) On a weak type (1,1) inequality for a maximal conjugate function, *Studia Math.* **125**, (1997), 13–21.
34. Time decay for the bounded mean oscillation of solutions of the Schrödinger and wave equations, *Duke Math. J.* **91**, (1998), 393–408.
35. (with N. Asmar) Analytic measures and Bochner measurability, *Bull. Sc. Math.* **122**, (1998), 39–66.

36. (with N. Asmar) A transference theorem for ergodic  $H^1$ , *Quarterly J. of Math.* **48**, (1997), 417–430.
37. (with N. Asmar and A. Kelly) Vector-valued weakly analytic measures, *Hokkaido Math. J.*, **27**, (1998), 457–473.
38. (with E. Semenov) Random rearrangements and operators, *25 Years of Voronezh Winter Mathematical School, Proceedings in honor of 80th birthday of S. Krein, A.M.S.*
39. Concrete representation of martingales, *Electronic J. Probab.* **3**, (1998), paper 15.
40. Global regularity of the Navier-Stokes equation on thin three dimensional domains with periodic boundary conditions, *Electronic J. of Differential Equations* **1999**, (1999), no. 11, 1–19.
41. (with L. Grafakos and O. Motrunich) A sharp estimate for the Hardy-Littlewood maximal function, *Studia Math.* **134**, (1999), 57–67.
42. (with P. Hitczenko) A note on sums of independent random variables, *Advances in Stochastic Inequalities, Ed.: T. Hill and C. Houdré, Contemporary Mathematics 234, A.M.S., Providence R.I., 1999.*
43. (with N. Asmar and S. Saeki) Transference in spaces of measures, *J. Functional Analysis* **165**, (1999), 1–23.
44. (with E. Semenov) Title in Russian — translation: Averaging of Fourier-Haar coefficients, *Math. Sbornik.* **190**, (1999), 49–64.
45. (with A. Baernstein) Some conjectures about integral means of  $\partial f$  and  $\bar{\partial} f$ , *Complex Analysis and Differential Equations, edited by C. Kiselman, Acta Universitatis Upsaliensis C., Volume 64 (1999), 92–109.*
46. (with S. Clark, Y. Latushkin and T. Randolph) Stability radius and internal versus external stability in Banach spaces: an evolution semigroup approach, *S.I.A.M. J. of Control Optim.* **38**, (2000), 1757–1793.
47. (with E. Semenov) Embeddings of rearrangement invariant spaces that are not strictly singular, *Positivity* **4**, (2000), 397–402.
48. (with A. Pruss) A comparison inequality for sums of independent random variables, *J.M.A.A.* **254**, (2001), 35–42.
49. (with P. Hitczenko) Measuring the magnitude of sums of independent random variables, *Annals Probability* **29**, (2001), 447–466.
50. Finite time blow up for a Navier-Stokes like equation, *Proc. A.M.S.*, **129**, (2001), 3017–3023.

51. (with N. Asmar) Decomposition of analytic measures on groups, *Studia Math*, **146**, (2001), 261–284.
52. (with M. Pokorný) A counterexample to the smoothness of the solution to an equation arising in fluid mechanics, *Commentationes Mathematicae Universitatis Carolinae*, **43**, **1**, (2002), 61–75.
53. Rearrangement Invariant Norms of Symmetric Sequence Norms of Independent Sequences of Random Variables, *Israel Journal of Mathematics*, **131**, (2002), 51–60.
54. (with N. Kalton, K. Oleszkiewicz and Y. Tomilov) Power-bounded operators and related norm estimates, *Journal of London Math. Soc.* **70**, (2004), 463–478
55. Conditions implying regularity of the three dimensional Navier-Stokes equation, *Applications of Mathematics* **50**, (2005), 451–464.
56. (with Xiaofang Jin, Jessica Rose Newton and George P. Smith) A generalized kinetic model for amine modification of proteins with application to phage display. *BioTechniques* 46:175-182 (March 2009) doi 10.2144/000113074.
57. (with S. Geiss and E. Saksman) On singular integral and martingale transforms, *Transactions of the American Math Society*, **362**, (2010), 553-575.
58. (with David Jack and Douglas E. Smith) A Systematic Approach to Obtaining Numerical Solutions of Jeffery’s Type Equations using Spherical Harmonics. *Composites Part A, Volume 41, Issue 7, July 2010, Pages 827-835.*
59. (with Frank Schmidt) Statistical Methods for Estimating Complexity from Competition Experiments between Two Populations. *Journal of Theoretical Biology, Volume 264, Issue 3, 7 June 2010, Pages 1043-1046.*
60. (with Z.C. Feng, J.K. Chen and Yuwen Zhang) Temperature and Heat Flux Estimation from Sampled Transient Sensor Measurements. *International Journal of Thermal Sciences*, 49 (2010) 2385-2390.
61. (with Wei He, David Jack and Douglas Smith) Exact tensor closures for the three dimensional Jeffery’s Equation, *Journal of Fluid Mechanics*, Vol. 680, pp. 321-335, 2011.
62. (with David Jack and Douglas E. Smith) The Fast Exact Closure for Jeffery’s Equation with Diffusion, *J. of Non-Newtonian Fluid Mechanics*, Volume 166, Issues 7-8, April 2011, Pages 343-353.
63. (with Babatunde O. Agboola, David A. Jack and Douglas E. Smith) Investigation of the effectiveness and efficiency of the exact closure: comparison with industrial closures and spherical harmonic solutions. *Proceedings of the ASME 2010 International Mechanical Engineering Congress & Exposition IMECE 2010 November 12-18, Vancouver, British Columbia, Canada.*

64. (with David A. Jack and Douglas E. Smith) Fast solutions for the fiber orientation of concentrated suspensions of short-fiber composites using the exact closure method. *Proceedings of the ASME 2010 International Mechanical Engineering Congress & Exposition IMECE 2010 November 12-18, Vancouver, British Columbia, Canada.*
65. (with Dongdong Zhang, Douglas E. Smith and David A. Jack) Numerical evaluation of single fiber motion for short fiber composites materials processing. *Proceedings of the ASME 2010 International Mechanical Engineering Congress & Exposition IMECE 2010 November 12-18, Vancouver, British Columbia, Canada.*
66. Perturbations of the coupled Jeffery-Stokes equations. *Journal of Fluid Mechanics, volume 681, pp. 622-638, 2011.*
67. (with Dongdong Zhang, Douglas E. Smith and David Jack) Numerical evaluation of single fiber motion for short-fiber-reinforced composite materials processing. *Journal of Manufacturing Science and Engineering, volume 133, 2011.*
68. (with Dongdong Zhang, Douglas E. Smith and David Jack) Rheological study on multiple fiber suspensions for fiber reinforced composite materials processing. *Proceedings of the ASME 2011 International Mechanical Engineering Congress & Exposition IMECE 2011 November 11-17, 2011, Denver, Colorado, USA.*
69. (with Y. Gan and Z. Chen) Improved material point method for simulating the zona failure response in piezo-assisted intracytoplasmic sperm injection, *CMES: Computer Modeling in Engineering & Sciences, volume 73, 45-76, 2011.*
70. (with B.O. Agboola and D.A. Jack) Effectiveness of Recent Fiber-interaction Diffusion Models for Orientation and the Part Stiffness Predictions in Injection Molded Short-fiber Reinforced Composites, *Composites Part A, volume 43, 1959-1970, 2012*
71. (with Weijun Huang) A numerical method to model dynamic behavior of thin inextensible elastic rods in three dimensions, *Journal of Computational and Nonlinear Dynamics, volume 9, 2014.*