

**PUBLICATION LIST - V. S.  
Mandrekar**

- 1964 Multiplicity and representation theory of purely non-deterministic processes and its applications. Thesis, Michigan State University.
- 1965 Multiplicity and representation of purely non-deterministic stochastic processes. *Theoria veryotnostell i ee primenueula USSR*. 614-644, 1965. (Jt. G. Kallianpur).
- 1966 Semigroups of isometries and the representation and multiplicity of weakly stationary stochastic processes. *Arkiv fur Matematik* 6, Uppsala, Sweden, 319-355, 1966. (Jt. G. Kallianpur).
- 1966 Applications of multiplicity theory of N-ple Markov processes. Tech. Report 86, U of Minnesota.
- 1967 Quasi-invariance of analytic measures on compact groups. *Bull. Amer. Math. Soc.* 73, 915-920. (Jt. M. Nadkarni).
- 1967 On the linear prediction of stationary processes indexed by lattice points. Tech. Report 100, U of Minnesota, 1967 (Jt. M. Nadkarni). Presented at Seminar in Stochastic Processes held at Kent State U.
- 1967 Stationary spectral measures and their applications. Tech. Report 102. U of Minnesota. (Jt. M. Nadkarni).
- 1968 On multivariate wide-sense Markov processes. *Nagoya J. of Math.* 33, 7-20.
- 1968 On a characterization of Bohr group. MRC Tech. Report 908, 1968. (Jt. D. J. Patil).
- 1969 On the realization of stochastic processes II. *Sankhya, Series A*, 31, 477-480. (Jt. H. Mann).
- 1969 On quasi-invariant ergodic measures on the circle group. *J. of Functional Analysis* 3, 157-163. (Jt. M. G. Nadkarni).
- 1969 On the existence of optimal stochastic controls. *J. of Math. and Mechanics*, 1151-1166. (Jt. H. Becker).
- 1970 On the connection between multiplicity theory and O'Hanner's time domain analysis of weakly stationary processes. *Essays in Probability and Statistics*, Ed. R.C. Bose, U of North Carolina, Chapel Hill. (Jt. G. Kallianpur).
- 1970 Harmonic analysis on certain vector spaces. *Trans. Amer. Math. Soc.*, 213-231. (Jt. J. Kuelbs).

- 1970 Singular quasi-invariant measures on the line. *Studia Mathematica*, Warsaw, Poland 36, 1-13 (Jt. M. Nadkarni and D. J. Patil).
- 1970 The square-integrability of operator-valued functions with respect to a non-negative operator-valued measure and the Kolmogorov isomorphism theorem. *Indiana U. Math. J.* 20, 545-563. (Jt. H. Salehi).
- 1970 Subordination of infinite-dimensional stationary stochastic processes. *Ann. Inst. Henri Poincare*, Paris, France, Section B, 1, 115-130. (Jt. H. Salehi).
- 1970 Operator-valued wide-sense Markov processes and solution of infinite differential system driven by white noise. *Math. Systems Theory* 4, 340-356. (Jt. H. Salehi).
- 1971 Spectral theory of H-valued processes. *J. Multivariate Analysis* 1, 1-16. (Jt. G. Kallianpur).
- 1971 On singularity and Lebesgue-decomposition theory for operator-valued measures. *J. Multivariate Analysis* 1, 167-185. (Jt. H. Salehi).
- 1971 Wide-sense Martingale approach to linear optimal estimation. *Proc. Second Symp on Non-Linear Estimation*, San Diego, California.
- 1972 On the factorization theory of D. Lowdenslager. *Proc. Amer. Math. Soc.* 31, 185-188. (with H. Salehi).
- 1972 Harmonic analysis for F-spaces with a basis. *Trans. Amer. Math. Soc.* 169, 113-152. (Jt. J. Kuelbs).
- 1972 Wiener closure theorems for abstract Wiener space. *Proc. Amer. Math. Soc.* 32, 169-172. (Jt. J. Kuelbs).
- 1972 Equivalence-singularity dichotomies from zero-one laws. *Proc. Amer. Math. Soc.* 31, 251-254. (Jt. R. D. LePage).
- 1972 Stable probability measures on Banach spaces. *Studia Mathematica* 42, 133-143 (Jt. A. Kumar).
- 1972 A characterization of oscillatory processes and their prediction. *Proc. Amer. Math. Soc.* 32, 280-284.
- 1973 Inversion formulas for Banach spaces with a basis. *Trans. Amer. Math.* 180, 143-169. (Jt. G. Hamedani).
- 1973 Multiplicity and Martingale approach to linear estimation. *Proceedings of Fifth Annual Princeton Conference on Information Sciences.* (Jt. K. Lee).

- 1973 A direct proof of Yu. A. Rozanov factorization theorem from the method of D. Lowdenslager. *J. Multivariate Analysis* 3, 137-140.
- 1973 Recursive optimal estimation of multiple Markov processes. *Proc. 4th Symposium on Non-linear estimation*, 179-183. (Jt. K. Lee).
- 1974 On the multiple Markov property of Levy-Hida for Gaussian processes. *Nagoya Math. J.*, 54, 69-78.
- 1974 Wide-sense Martingale approach to linear optimal filtering and smoothing. *SIAM J. of Applied Math.*, 293-302. (Jt. H. Kara and J. Park).
- 1974 On the space  $L_{2M}$ . *Proc. Symp. on Vector-Values Measures and its Applications*. Academic Press. (Jt. H. Salehi).
- 1974 Domains of attraction of stable laws on Hilbert space. *Studia Math.*, 149-162. (Jt. J. Kuelbs).
- 1974 The Markov property for generalized Gaussian random fields. *J. Inst. Fourier, Grenoble*, 143-167. (Jt. G. Kallianpur).
- 1974 Contributions to prediction theory and the Harmonic analysis on vector spaces. *J. Math. and Physical Sciences, Madras*, 157-160.
- 1975 On likelihood ratios of measures given by Markov chains. *Proc. Amer. Math. Soc.* 377-380.
- 1975 Sur la quasi-invariance des mesures sous les translations. *C.R.A.S., Paris* 281, 581-583. (Jt. S. D. Chatterji).
- 1976 Germ-field Markov property for multiparameter processes. *Seminare de Probabilities X, Lecture Notes #511, Springer-Verlag*. 78-85.
- 1976 On Bochner and Levy theorems in Orlicz spaces, *Proc. Symposium on Measures on groups and Vector Spaces, Symposia Math.* 21 Academic Press. 177-196.
- 1976 Central Limit Problem on  $L_p(p \geq 2)$ : Levy-Khinchine representation, *Lecture Notes #528, Springer-Verlag*.
- 1976 Quasi-invariance of measures under translations. *Math. Zeit.* 154, 19-29. (Jt. S. D. Chatterji).
- 1977 Central Limit Problem on  $L_p(p \geq 2)$ : Compactness of Infinitely divisible laws (Jt. G. Hamedani). *J. Multivariate Analysis* 7, 363-373.

- 1977 Levy-Khinchine representation and Banach space type. RM-374-MSU.
- 1978 Levy-Khinchine representation and Banach spaces of type and cotype. (Jt. G. Hamedani). Studia Math. 66. 207-214.
- 1978 On subordination of decomposable fields. Lecture Notes, #695, Springer-Verlag, 207-210.
- 1978 Characterization of Banach space through validity of Bochner Theorem. Lecture notes, #644, Springer-Verlag, 314-326.
- 1978 Singularity and absolute continuity of measures. Proc. of Conference on Functional Analysis Amsterdam, (Jt. S. D. Chatterji).
- 1978 Equivalence and singularity of Gaussian measures and applications. (with S. D. Chatterji). Probabilistic Analysis and Related Topics, Academic Press. Vol. 1, 169-197.
- 1979 The spaces  $L_{p, M}$  ( $0 < p \leq \infty$ ) (Jt. G. G. Hamedani) BIMS F, 3-8.
- 1979 On sums of independent random variables with values in  $L_p$  ( $2 \leq p < \infty$ ) (with E. Gine & J. Zinn). Probability in Banach spaces II. OBERWOLFACH Lecture Notes #709 p. 111-124.
- 1980 Central Limit Problem for symmetric case; convergence to non-Gaussian laws. (Jt. J. Zinn). Studia Math LXVII, 279-296.
- 1980  $p$ -stable measures and absolutely summing operators (Jt. W. Linde and A. Weron). Probability Theory on Vector Spaces II, Lecture Notes #828, 167-178.
- 1981 Domains of attraction of stable laws on Banach spaces: Survey: Probability in Banach spaces III, Lecture Notes #860, 285-290.
- 1981 On accompanying laws theorem in Banach spaces: (Jt. A. Araujo, E. Gine and J. Zinn). Ann Prob. 9, 202-210.
- 1981 On  $\alpha$ -stable characterization of Banach spaces (Jt. A. Weron) J. Mult. Analysis 11, 572-580.
- 1981 Markov properties for random fields: Probabilistic Analysis and Related Topics, Academic Press Vol. III (Ed A. T. Barucha-Ried) 161-193.
- 1982 Radonifying maps related to  $p$ -stable measures on Banach spaces (Jt. I. W. Linde and A. Weron). Probability and Math. Stat. 2., Wroclan, Poland

- 1983 Non-deterministic random fields and Wold and Halmos decompositions for commuting isometries Prediction Theory and Harmonic Analysis North-Holland, 165-190. (Jt. G. Kallianpur).
- 1983 Commuting semigroups of isometries and Karhunen representation of Stationary random fields. Theory and application of Random Fields (with G. Kallianpur). Lecture notes in Control and Information Sciences 49 Springer-Verlag 126-145.
- 1983 Some remarks on various definitions of Feynman Integral, Prob. on Banach Spaces IV, OBERWOLFACH 1982, Lecture Notes #990, Springer-Verlag 170-177.
- 1983 Central Limit Problem and invariance principles on Banach Spaces. Seminaire des Probabilities XVII Lectures Notes #986, 425-496.
- 1983 Markov properties for random fields: Probabilistic Analysis and Related Topics, Academic Press Vol. III (Ed A. T. Barucha-Reid) 161-193.
- 1984 Stochastic Integral with respect to Gaussian processes. Lecture Notes in Math, 1089, 1984. Proc. OBERWOLFACH CONFERENCE ON Measure Theory 288-293.
- 1986 Censored data analysis in life testing and cosmology: Point process techniques (abstract) Stoch. Process and applications.
- 1988 On the validity of Beurling theorems in Polydiscs, Proc. Amer. Math. Society, 103, 145-148.
- 1988 On Beurling type invariant subspaces of  $L^2(T^2)$  and their equivalence, (Jt. P. Ghatage). J.Operator Theory 20 83-89.
- 1988 Dispersion Distance and Prediction (Jt. A. P. Taraporevala) Preprint.
- 1989 On complex operator-valued O-U processes, T-positivity and innovations of Okabe and Masani (Jt. A. Makagon). J. of Multivariate Analysis, 27.
- 1989 On a limit theorem and invariance principle for symmetric statistics, J. of Prob. and Math.Stat. 10 (1989) 271-276.
- 1990 On the spectral representation of stable processes: Harmonizability and regularity (Jt. A. Makagon). Probability Theory and Related Fields 85 (1990) 1-11.
- 1990 Joint weak convergence on the whole line in the truncation model. (Jt. B. Thelen) Proc. of R.C. Bose Symposium on Prob., Stat. and Design of Exp. (1990) Wiley Eastern, New Delhi 495-515.
- 1990 Factorization through Hilbert-space and the dilation of  $L(X, Y)$ -valued measures, (Jt. P. Richard). Studia Math. (107) 1993, 101-113.

- 1991 On multiple markov SoS processes, *Stable Processes and Related Topics* (Ed Cambanis et al) Birkhauser, Boston, 1991, 253-260 (Jt. B. Thelen).
- 1991 Multiplicative ARMA models for Random Fields (Jt. I. Basawa and P. Brockwell) *Interface*.
- 1991 On the spectral representation of sequences in Banach spaces (Jt. A. Makagon) *Techn. Report 238, Center for Stochastic Processes UNC*.
- 1991 Spectral theory of periodically and quasi periodically stationary SoS sequences. (Jt. H. Hurd) *Tech. Report No. 349, Center for Stochastic Processes, UNC. (Preprint)*.
- 1992 Limit theorems for symmetric statistics of exchangeable random variables (Jt. R.F. Patterson) *Stat. Prob. Letters. 17, (1993) 157-161*.
- 1992 Markov property of measure-indexed Gaussian random fields: *Stochastic processes: A festschrift in honor of G. Kallianpur (1993) (Jt. S. Zhang), 253-262*.
- 1992 Skorokhod integral and differentiation for Gaussian processes. *Statistics & Probability Festschrift in honor of R.R. Bahadur, (Jt. S. Zhang). 395-410*.
- 1992 Stable generalized moving averages (Jt. D. Surgailis, J. Rosinski and S. Cambanis). *Prob. Theory and Related Topics, 97, 543-558*.
- 1992 On stability of stochastic evolution equations (Jt. R. Khasminskii) in *E.B. Dynkin Festschrift (ed M. Freidlin) Birkhauser 1994, 185-198*.
- 1993 Ito-Ramer, Skorohod and Ogawa integrals with respect to Gaussian processes and their interrelationship (Jt. L. Gawarecki). *Chaos Expansions, Wiener-Ito Integrals and their applications Ed Perez-Abreu and Houdre. CRC Press, London 349-373*.
- 1994 Sample moments and symmetric statistics (Jt. M. Meerschaert) *Pitman-Longman (Japan- USA Seminar on Stability) (Ed H. Kuo and Kunita)*.
- 1994 Lyapounov type theorem for (deterministic) and stochastic evolution equations, *Stochastic Analysis and applications to Physics, 219-237, NATO-ASI Series (Ed L. Streit et al) Kluwer, 1994*.
- 1994 Girsanov type theorem for anticipative shifts (Jt. L. Gawarecki), *Probability on Banach Spaces 9 (Ed Hoffman-Jorgensen et al) Birkhauser, 1994, 301-316*.
- 1994 Remarks on AC-continuity and the spectral representation of stationary SoS sequences, *Ulam Quarterly 2, no. 4, 27-39, 1994 (Jt. A. Makagon)*.

- 1995 Mathematical Work of Norbert Wiener, Invited paper to Notices, Amer. Math. Soc., 42, 664-669, 1995.
- 1995 Ultimate boundedness and invariant measures of stochastic evolution equations (Jt. R. Liu), Stochastic and Stochastic Reports, 56, (1996) 75-101.
- 1995 Consistent order estimator in periodic autoregressive models (Jt. H. Zhang) (Preprint).
- 1995 Stochastic semilinear evolution equations, Lyapunov function, stability and ultimate boundedness (Jt. R. Liu), Journal Math. Anal. and Applications, 212, (1997) 537-553.
- 1996 On weak solutions of stochastic PDE's (Jt. A. Bhatt), (Preprint).
- 1997 Existence of weak solutions of stochastic differential equations and martingale solutions of stochastic semilinear equations (Jt. L. Gawarecki and P. Richard), Random Operators and SE, 7 (1999).
- 1997 Almost everywhere convergence and SLLN under rearrangements (Jt. S. Chobanyan), Stoch. Proc. and Rel. Topics: In memory of C. Cambanis. (Ed. Kallianpur et al), Burkhauser, (1998) 25-34.
- 1997 On the mixing structure of stationary increment self-similar SoS processes (Jt. D. Surgailis, J. Rosinski and S. Cambanis), preprint.
- 1997 Overview of Norbert Wiener Centenary Congress (Jt. P. Masani). Proc. of NWCC, Symposia in Applied Math, 52, xv-xliv (1997), Amer. Math. Soc.
- 1997 Stochastic Semilinear Evolution Equations, Lyapunov function, stability, etc. *J. Math. Analysis and appl.* 212, 537-553, (1997) (Jt. Liu).
- 1997 Weak solutions to SDE's in Hilbert space IFIP Proc. (Jt. L. Gawarecki and P. Richard) (1998).
- 1998 Kolmogorov SLLN under rearrangements for "Orthogonal" Random Variables in a B-space (Jt. S. Chobanyan), J. Theoretical Prob., 13 (2000).
- 1998 Weak solutions to SDE's with application to semi-linear SDE's, Prague Stochastics 98 (Jt. L. Gawarecki and P. Richard) (1998) 173-178.
- 1998 On Stabilization of Large (ecological) Systems, Statistics in the 21st Century (ed. C.R. Rao and G. Székely), Birkhauser (2000).
- 1998 Bayes Formula for Gaussian noise processes and applications to filtering problem (Jt. P. Mandal), SIAM J. of Control and Optimization, 39 (2000) 852-871.

- 1999 An approach to martingale problem for diffusion stochastic equations in Hilbert space (Jt. A.V. Skorokhod), *Stochastic Processes*, 4 (20) (1998) 54-59.
- 1999 Bayes formula for optimal filter with n-ple Markov errors (Jt. P. Mandal), *Act Appl. Math.*, 63 (2000) 245-252.
- 1999 Stochastic differential equations in Hilbert space with discontinuous drift (Jt. L. Gawarecki), *Stochastic Processes, physics and geometry: new interplays II CMS conference proc.* 29, Amer. Math. Soc. 199-205.
- 1999 Stochastic differential equations with discontinuous drift in Hilbert space with applications to infinite particle systems (Jt. L. Gawarecki), *J. Mathematical Sciences*, 105 (2001) 2550-2554.
- 2000 Estimation of hidden frequencies for 2-D stationary processes, (Jt. H. Zhang), *J. Time Series Analysis*, 22 (2001) 613-629.
- 2000 On Zakai Equation for filtering with Gaussian noise, (Jt. L. Gawarecki), *Stochastics in finite/infinite dimensions* (Ed. T. Hida at al) Trends Math Birkhauser (2001) 145-151.
- 2000 Proper moving average representations and outer functions in two variables, *Georgian Math. J.* (2001) 275-281.
- 2001 Numerical Solutions of stochastic heat equations perturbed by white noise, (Jt. R. Liu) *Theory of Stochastic Processes*, 7 (2001). .
- 2002 Statistics for engineers: experiential learning approach (Jt. R.L. Tummala and K. Morris) paper for Amer. Soc. Eng. Ed. Meeting (2002).
- 2003 An algorithm for the estimation of minimal cut and path sets from field failure data (Jt. A. Dharmadhikari). *Stat & Prob. Letters*, 58 (2002)
- 2004 Prokhorov blocks and strong law of large numbers under rearrangements (Jt. Chobanyan and Levental), *J. Theor. Prob.* (2004) 647-672.
- 2004 Non-linear filtering with Gaussian martingale noise: Kalman filter with fBM noise *Festschrift for Herman Rubin* (Jt. L. Gawarecki), *IMS Lecture Notes Monograph*, 45 (2004).
- 2004 Remark on “Instrumentation” problem of A.V. Balkrishnan (Jt. L. Gawarecki) *J. Indian Stat. Assoc.*, 41 (2004).
- 2004 Existence and uniqueness of pathwise solutions for stochastic integral equations driven by Levy noise on separable Banach spaces (Jt. B. Ruediger) *Stochastics*, 2006.



- 2004 Le'vy noises and Stochastic integral on Banach spaces (jt. B. Ruediger) Stochastic PDE's and applications – VII (Ed. G. DaPralō and L. Tubaro (2005) 193-213.
- 2005 Generalized OU processes in separable Banach spaces (Jt. B. Ruediger) Seminar on Stochastic Processes, Random Fields and Appl. V (Ed. R. Dalang et al) Progress in Prob. 59, Birkhauser, Based (2008) 261-274.
- 2005 On computing approximation of correlation using Bernstein Copula with probabilistic tools (Jt. F. Abegaz and U. Naik-Nimbalkar) Tech. Report, Univeristy of Pune INDIA.
- 2006 Existence of mild solutions for SDE's and semilinear equations with non-Gaussian Le'vy-Processes (Jt. S. Albeverio and B. Ruediger) Stochastic Processes and Appl. 119, (2009) 835-863.
- 2006 Linear SDE's in the dual of multi-Hilbertian space (Jt. L. Gawarecki and B. Rajeev) Theory of Stochastic Proc.14 (2008) 28-34.
- 2006 End-to-end available bandwidth as random autocorrelated QoS relevant time series (Jt. A.Chobanyan, M. Mutka, and Xi) Computer Networks 52 (2008), 1220-1237.
- 2006 Some applications of transference lemma to compact vector summation (Jt. A. Chobanyan, S. Chobanyan, and M. Mutka) Bull. Georgian Acad.of Science 174 (2) (2006).
- 2007 Relation between Stochastic integrals and geometry of Banach spaces, Stochastic Analysis and Appl. 27 (Jt. B. Ruediger) (2009) 1-11.
- 2007 Monotonicity inequality for linear stochastic partial differential equation Inf. Dim. Anal. and Quantum Prob.12 (Jt. L. Gawarecki and B. Rajeev) (2009) 28-34.
- 2007 Identification of a Markovian system with observations corrupted by fBM, (Jt. U. Naik- Nimbalkar) Stat. Prob. Letters 79 (2009) 965-968.
- 2008 Fixed domain asymptotic properties of tapered MLE (Jt. J. Du and H. Zhang) Annals of Statistics 37 (2009) 3330-3361.
- 2008 Prologue to the Book: Positive-definite functions: From Shoenberg to space-time challenges (Ed. J. Matea and E. Porcu) (2008)
- 2008 Equivalence of convergence of almost all signs and almost all rearrangements of functional series (Jt. S. Chobanyan and S. Levental) Bull. Georg. Nat. Acad. Sci. 3 (2) (2009) 23-29.

- 2008 Generalized loss of memory property and a multivariate extension, *Economic Quality Control* 24 (Jt. D. Hanagal) (2009) 43-54.
- 2009 On existence of weak variation solutions to SDE's, *Comm. On Stoch. Analysis*, 4 (2010), 1-20 (Jt. L. Gawarecki).
- 2010 Barbashin-Krasovskii theorem for stochastic differential equations, *Proc. Amer. Math. Soc.*, 138 (2010) 4123-4128 (jt. Ignatyev)
- 2010 Recurrence properties of term structure models, *Inter. J. of Contemporary Math. Sci.*, 5 (2010) 1645-1652 (Jt. C. Bhan).
- 2010 Review: An introduction to stochastic filtering theory by Jie Xiong, Oxford Univ. Press, 2008, *SIAM Review* 53 (2011), 202.
- 2010 Towards Nikishin's theorem on almost sure convergence of rearrangements of functional series, *Functional Analysis and Its Applications*, 45 (2011) 33-45 (Jt. S. Chobanyan, and S. Levental).
- 2010 Asymptotic properties of stochastic partial differential equations in Hilbert spaces driven by non-Gaussian noise, *Communication On Stochastic Analysis*, 5 (2011), 309-331.
- 2011 Stochastic differential equations in infinite dimensions with applications to stochastic PDE's, *Springer (Book)* 291, (2011) (Jt. L. Gawarecki).
- 2011 A problem of compact vector summation: Theoretical results and rearrangement algorithm (Jt. A. Chobanyan, and S. Chobanyan, and M. Mutka) (submitted).
- 2011 On computing approximation of correlations using Bernstein copula and Probabilistic Tools, (Jt. A. Fentaw and U. Naik-Nimbalkar) (submitted).
- 2011 Invariant measure and stability of solution of a SDE driven by a jump Le'vy processes (Jt. C. Bhan and P. Chakraborty) to appear in *J. of Contemporary Math. Sci.*
- 2011 Characterization of solutions of SDE's in dual of multi-Hilbertian spaces (Jt. L. Gawarecki and B. Rajeev).
- 2011 Obituary: A.V. Skorokhod *Bernuilla News* (2011).
- 2011 A Bayes formula for non-linear filtering with Gaussian and Cox noise (Jt.T. Meyer-Brandis and F. Proske) to appear in *J. of Prob. and Statistics*.

- 2011 Almost surely convergent summands of random sum (Jt. S. Chobanyan and S. Levental) to appear in *Statistics and Prob. Letters*.
- 2011 Asymptotic properties of stochastic partial differential equations in Hilbert spaces driven by non-Gaussian noise (jt. Wang, Li) *Commun. Stochastic Analysis* 5 (2011) 309-331
- 2011 On Nikishin's theorem on almost sure convergence of rearrangements of function series (jt. Chobanyan, S.A. & Levental, S.) *Functional Anal. and Applications* 45 (2011) 33-45
- 2013 Positive Harris recurrence of the CIR process and its applications (jt. B. Rüdiger et al.) *Comm. Stochastic Analysis* 7 (2013) 409-424
- 2013 The work of Wiener and Masani, Connected at Infinity II, 173-184
- 2013 Ito formula for Banach space valued jump process driven by Poisson Random Measures (jt. Rüdiger, B. and Tappe, S.) *Seminar on Stochastic Anal. Random Fields and applications VI*, 171-186.
- 2014 Teaching statistics for Engineers: Learning from experiential data. *Serdica J. Computing* 8, 227-232
- 2016 On Brownian motion with a hard membrane (jt. Pilipenko, A) *Stat. & Prob. Letters* 113 (2016) 62-70
- 2016 Tests for high-dimensional nonparametric functions in RKHS with kernel selection and regularization (jt. Tao He, Zhong, Cui)
- 2016 Ito formula for mild solutions to SDE driven by Gaussian and non-Gaussian noise (jt. Albeverio, S. et al)

**Papers Reprinted:** The papers 2, 3 and 5 from the publication list are reprinted in Benchmark Papers in Computer Science and Electrical Engineering: Random Processes: Multiplicity Theory and canonical decompositions. Ed. A. Ephremides and J. B. Thomas, 1973.

The papers 1978(e) and 1983(e) have appeared as chapters in a book by

invitation. The paper 1983(e) consists of lecture notes at University of

Strasbourg.

### **Lecture Notes (published)**

Central Limit Problem and invariance principle on Banach spaces: Seminaire des Prob. XVII, 1983.

### **Lecture Notes (unpublished)**

1. Multiparameter Gaussian Processes and their Markov Property, Department of Mathematics, EPF-Lausanne, 1975.
2. Second Order Processes: Multiplicity, prediction filtering and factorization, Michigan State University, 1979. RM-406. (Revised in 1987.)
3. Stochastics Models in Biology. Michigan State University.
4. Probability and Measure Theory Notes for 870-882-883 (1985). Revised (1988).
5. Existence of weak solutions for SDE in Hilbert space Lehrstúle Math. V, University of Mannheim, Germany.

### **Research Reports on Censored Data**

1. On asymptotic theory in censored survival analysis without independent censoring RM-431 (1983) Michigan State University. (with R. Chari).
2. On the asymptotic theory of estimation of the survival function in competing risks analysis. (with J. C. Gardiner) RM-432.

**Books:**

1. Prediction Theory and Harmonic Analysis (with H. Salehi) Editor.
2. Proceedings of NWCC, 1994, Symposia in Applied Mathematics, AMS (with P.R. Masani). Editor.
3. Stochastic Differential Equations in infinite dimensions: with applications to SPDE (with L.Gawarecki) (Probability and Applications), Springer, 2011
4. Stochastic Integration in Banach spaces (Theory and Applications), Springer, 2015. (jt. with B. Rüdiger)
5. Stochastic Analysis for Gaussian Random Processes and Fields with Applications (jt. L. Gawarecki) CRC Press/chapman and Hall. (Monographs on Statistics and Applied Probability), 2016
6. Weak convergence of Stochastic Processes with Applications to Statistical Limit Theorems. de Gruyter (Text), 2016
7. Weakly Stationary Random Fields, Invariant Subspaces and Applications, 2017 (In Process)

## **Synopsis of Professional Activities**

- Participated in more than 40 International Conferences as an invited speaker at prestigious places such as Strasbourg, Oberwolfach, Banach Center, Trinity College, Johns Hopkins, Nagoya, IMA, Math. Sci. Inst. (Cornell), CIMAT (Mexico), ISI (Delhi, Calcutta), NATO- ASI, LUCAC Conference, IFIP and All India Science Congress.
- Visiting Scholar and Professor at places like MRC (Madison), Ecole Polytechnique (Lausanne, Paris), Center for Stochastic Proc. (UNC, Chapel Hill), University Louis Pasteur (Strasbourg), University of Melbourne (Australia), ISI (Calcutta, Bangalore), CIMAT (Mexico), Banach Center, (Warsaw) and Tech. Univ. of Wroclaw, Poland.
- Have had grants from NSF, ONR, ARO etc.
- At least 20 Ph.D students
- Proposal evaluations, Journal Refereeing (both Math and Stat.)
- Reviewer
- Letters for promotion and tenure
- Public service for City of East Lansing, India Cultural Society, India Council, Bharatiya Temple etc.

## **Measure Theory and Ergodic Theory**

1. (1967) Quasi-invariance of analytic measures on compact groups. Bull. Amer. Math. Soc. 73, 915-920. (with M. Nadkarni)
2. (1969) On quasi-invariant ergodic measures on the circle group. J. of Functional Analysis 3,157-163. (with M. G. Nadkarni).
3. (1976) Quasi-invariance of measures under translations. Math. Zeit. 154, 19-29. (with S. D.Chatterji).

## **Prediction Theory**

1. (1965) Multiplicity and representation of purely non-deterministic stochastic processes. *Theoria veryotnostell i ee primenueula USSR*. 614-644, 1965. (with G. Kallianpur).
2. (1970) The square-integrability of operator-valued functions with respect to a non-negative operator-valued measure and the Kolmogorov isomorphism theorem. *Indiana U. Math. J.* 20,545-563. (with H. Salehi).
3. (1971) Spectral theory of H-valued processes. *J. Multivariate Analysis* 1, 1-16. (with G. Kallianpur).
4. (1972) A characterization of oscillatory processes and their prediction. *Proc. Amer. Math. Soc.* 32, 280-284.
5. (1983) Non-deterministic random fields and Wold and Halmos decompositions for commuting isometries *Prediction Theory and Harmonic Analysis* North-Holland, 165-190. (with G. Kallianpur).

## **Operator Theory**

1. (1966) Semigroups of isometries and the representation and multiplicity of weakly stationary stochastic processes. *Arkiv fur Matematik* 6, Uppsala, Sweden, 319-355, 1966. (with G. Kallianpur).
2. (1972) On the factorization theory of D. Lowdenslager. *Proc. Amer. Math. Soc.* 31, 185-188. (with H. Salehi).
3. (1988) On Beurling type invariant subspaces of  $L^2(T^2)$  and their equivalence, (Jt. P. Ghatage). *J. Operator Theory* 20 83-89.
4. (1989) On complex operator-valued O-U processes, T-positivity and innovations of Okabe and Masani (Jt. A. Makagon). *J. of Multivariate Analysis*, 27.
5. (1990) Factorization through Hilbert-space and the dilation of  $L(X, Y)$ -valued measures, (with P. Richard). *Studia Math.* (107) 1993, 101-113.

## **Prob. on Vector Spaces**

1. (1970) Harmonic analysis on certain vector spaces. *Trans. Amer. Math. Soc.*, 213-231. (with J. Kuelbs).
2. (1972) Harmonic analysis for F-spaces with a basis. *Trans. Amer. Math. Soc.* 169, 113-152. (with J. Kuelbs).
3. (1973) Inversion formulas for Banach spaces with a basis. *Trans. Amer. Math.* 180, 143-169. (with G. Hamedani).
4. (1974) Domains of attraction of stable laws on Hilbert space. *Studia Math.*, 149-162. (with J. Kuelbs).
5. (1976) On Bochner and Levy theorems in Orlicz spaces, *Proc. Symposium on Measures on groups and Vector Spaces*, Symposia Math. 21 Academic Press. i77-196.
6. (1978) Levy-Khinchine representation and Banach spaces of type and cotype. (with G. Hamedani). *Studia Math.* 66. 207-214.

7. (1979) On sums of independent random variables with values in  $L_p$  ( $2 \leq p < \infty$ ) (with E. Gine & J. Zinn). Probability in Banach spaces II. OBERWOLFACH Lecture Notes #709 p. 111-124.
8. (1980) Central Limit Problem for symmetric case; convergence to non-Gaussian laws. (with J. Zinn). Studia Math LXVII, 279-296.
9. (1981) On accompanying laws theorem in Banach spaces: (with A. Araujo, E. Gine and J. Zinn). Ann Prob. 9, 202-210.
10. (1983) Central Limit Problem and invariance principles on Banach Spaces. Seminaire des Probabilities XVII Lectures Notes #986, 425-496.

### **Gaussian & Stable Proc.**

1. (1972) Stable probability measures on Banach spaces. Studia Mathematica 42, 133-143 (with A. Kumar).
2. (1978) Equivalence and singularity of Gaussian measures and applications. (with S. D. Chatterji). Probabilistic Analysis and Related Topics, Academic Press. Vol. 1, 169-197.
3. (1980)  $p$ -stable measures and absolutely summing operators (with W. Linde and A. Weron). Probability Theory on Vector Spaces II, Lecture Notes #828, 167-178.
4. (1982) Radonifying maps related to  $p$ -stable measures on Banach spaces (with I W. Linde and A. Weron). Probability and Math. Stat. 2.
5. (1990) On the spectral representation of stable processes: Harmonizability and regularity (with Makagon). Probability Theory and Related Fields 85 (1990) 1-11.
6. (1991) On multiple markov  $S\alpha S$  processes, Stable Processes and Related Topics (Ed Cambanis et al) Birkhauser, Boston, 1991, 253-260 (Jt. with B. Thelen).
7. (1992) Stable generalized moving averages (Jt. with D. Surgailis, J. Rosinski and S. Cambanis). Prob. Theory and related topics, 97, p. 543-558.
8. (1994) Remarks on AC-continuity and the spectral representation of stationary  $S\alpha S$  sequences, Ullam Quarterly 2, 1994 (Jt. A. Makagon).

### **Stochastic Analysis**

1. (1969) On the existence of optimal stochastic controls. J. of Math. and Mechanics, 1151-1166. (with H. Becker).
2. (1992) On stability of stochastic evolution equations (Jt. with R. Khasminskii) in E.B. Dynkin Festschrift (ed M. Freidlin) Birkhauser 1994, p. 185-198.
3. (1993) Ito-Ramer, Skorohod and Ogawa integrals with respect to Gaussian processes and their interrelationship (Jt. with L. Gawarecki). Chaos Expansions, Wiener-Ito Integrals and their applications Ed Perez-Abreu and Houdre. CRC Press, London p. 349-373.
4. (1994) Lyapounov type theorem for (deterministic) and stochastic evolution equations, Stochastic Analysis and applications to Physics, NATO-ASI Series (Ed L. Streit et al) Kluwer, 1994.
5. (1994) Girsanov type theorem for anticipative shifts (with L. Gawarecki), Probability on Banach Spaces 9 (Ed Hoffman-Jorgensen et al) Birkhauser, 1994, p. 301-316.



6. (1996) Ultimate boundedness and invariant measures of stochastic evolution equations (Jt. R. Liu) *Stochastic and Stochastic Reports*, 56, p. 75-101.
7. (1997) Stochastic semilinear evolution equations, Lyapunov function, stability and ultimate boundedness (Jt. R. Liu) *Journal Math. Anal. and Applications*, 212, p. 537-553.
8. (1997) Existence of weak solutions of stochastic differential equation in Hilbert space to appear in *Proc. of IFIP Conference in Detroit (1997)*.

### **Random Fields**

1. (1974) The Markov property for generalized Gaussian random fields. *J. Inst. Fourier, Grenoble*, 143-167. (with G. Kallianpur).
2. (1976) Germ-field Markov property for multiparameter processes. *Seminare de Probabilities X, Lecture Notes #511, Springer-Verlag*. 78-85.
3. (1983) Markov properties for random fields: *Probabilistic Analysis and Related Topics, Academic Press Vol. III (Ed A. T. Barucha-Reid)* 161-193.
4. (1992) Markov property of measure-indexed Gaussian random fields: *Stochastic processes: A festschrift in honor of G. Kallianpur (1993) (Jt. with S. Zhang)*. 253-262.
5. (1996) Determination of discrete spectrum of random fields with application to texture classification (Jt. H. Zhang), (revised).

### **Statistics**

1. (1989) On a limit theorem and invariance principle for symmetric statistics, *J. of Prob. and Math. Stat.* 10 (1989) 271-276.
2. (1990) Joint weak convergence on the whole line in the truncation model. (with B. Thelen) *Proc. of R.C. Bose Symposium on Prob., Stat. and Design of Exp. (1990) Wiley Eastern, New Delhi* 495-515.
3. (1993) Limit theorems for symmetric statistics of exchangeable random variables (Jt. with R.F. Patterson) *Stat. Prob. letters.* 17, 157-161.
4. (1994) Sample moments and symmetric statistics (Jt. with M. Meerschaert) *Pitman- Longman (Japan-USA Seminar on Stability) (Ed H. Kuo and Kunita)*.