

B V Rajarama Bhat

All publications up to 2015

(a) *Thesis*

- [1]. Markov Dilations of Nonconservative Quantum Dynamical Semigroups and a Quantum Boundary Theory, submitted to Indian Statistical Institute on July 6, 1993.

(b) *Published Papers*

- [2]. On a characterization of velocity maps in the space of observables, **Pacific Journal of Mathematics**, vol. **152**, No.1 : 1-14 (1992); MR **92K:46099**.
- [3]. A stochastic differential equation with time dependent and unbounded operator coefficients, (with Kalyan B. Sinha). **Journal of Functional Analysis**, Vol. **114**, 12-31 (1993); MR **95a:60080**.
- [4]. Generalized harmonic oscillators in quantum probability, (with K.R. Parthasarathy), **Seminaire de Probabilites XXV** , Springer LNM-1485 : 39-51 (1991); MR **93k:81117**.
- [5]. On greatest common divisor matrices and their applications, **Linear Algebra and Its Applications**, Vol. 158 : 77-99(1991) ; MR **92K:15038**.
- [6]. On some convex sets and their extreme points, (with V.Pati and V. S. Sunder), **Mathematische Annalen**, **296**, 637-648 (1993); MR **94f:46076**.
- [7]. Kolmogorov's existence theorem for Markov processes in C^* algebras (with K. R. Parthasarathy), **Proceedings of Indian Academy of Sciences (Math. Sci.)**, Vol.**103**, 253-262 (1994), MR **95g:46118**.
- [8]. Markov dilations of nonconservative dynamical semigroups and a quantum boundary theory, (with K. R. Parthasarathy) **Annales de l'Institut Henri Poincare**, Vol. **31**, 601-651 (1995). MR **96i:46079**.
- [9]. Examples of unbounded generators leading to nonconservative minimal semigroups, (with Kalyan B. Sinha), **Quantum Probability and Applications**, Vol. **IX**, 89-103 (1994).
- [10]. An index theory for quantum dynamical semigroups, **Transactions of American Mathematical Society**, Vol. **348** 561-583 (1996); MR **96g:46059**.
- [11]. On quantum extensions of semigroups of Brownian motions on an half-line (with F. Fagnola and K.B. Sinha), **Russian Journal of Mathematical Physics**, (**John Wiley**) **4** (1), 13-28 (1996), MR **97j:81177**.

- [12]. On minimality of Evans-Hudson flows (with F. Fagnola), **Bull. dell'Unione Mat. Ital., Serie VII**, Vol. **IX-A-3p.** (1997) 671-683, MR **98i:81124**.
- [13]. Product systems of one dimensional Evans-Hudson flows, **Quantum Probability Communications**, Vol. **X** (1998)187-194. MR **2001h:81127**.
- [14]. A generalised intertwining lifting theorem, **the Fields Institute Communications Volume: 20 Operator Algebras and their Applications, Vol. II**, Ed. P. Fillmore, J. Mingo, (1998) 1-10, MR **99j:47010**.
- [15]. Minimal dilations of quantum dynamical semigroups to semigroups of endomorphisms of C^* -algebras, **J. Ramanujan Math. Soc.** **14**, No. 2 (1999) 109-124. MR **2000m:46132**.
- [16]. Cocycles of CCR flows, **Mem. Amer. Math. Soc.**, **149**, no. 709 (2001). MR **2002e:46083**.
- [17]. Tensor product systems of Hilbert modules and dilations of completely positive semigroups (with M. Skeide), **Infin. Dimens. Anal. Quantum Probab. Relat. Top.**, Vol. **3**, Number 4, 519-575(2000). MR **2001m:46149**.
- [18]. Minimal isometric dilations of operator cocycles, **Integral Equations and Operator Theory**, **42**(2002)125-141. MR **1870435 (2002m:47051)**.
- [19]. A model theory for q -commuting contractive tuples, (with T. Bhattacharyya), **J. Operator Theory** Vol. **47**(2002), no. 1, 97-116. MR **1905815 (2003c:47018)**.
- [20]. Atomic dilations, Advances in quantum dynamics (South Hadley, MA, 2002), 99-107, **Contemp. Math.**, Vol. **335**, Amer. Math. Soc., Providence, RI, 2003. MR **2026012 (2005b:46150)**.
- [21]. Standard noncommuting and commuting dilations of commuting tuples. (with Tirthankar Bhattacharyya and Santanu Dey), **Trans. Amer. Math. Soc.** Vol. **356**(2004), no. 4, 1551-1568. MR **2034318 (2005b:47011)**.
- [22]. Type I product systems of Hilbert modules, (with S. Barreto, V. Liebscher and M. Skeide), **J. Funct. Anal.** Vol. **212** (2004), no. 1, 121-181. MR **2065240 (2005d:46147)**.
- [23]. Regular quantum stochastic cocycles have exponential product systems (with J. Martin Lindsay), in *Quantum Probability and Infinite Dimensional Analysis*, Ed. M. Schurmann and U. Franz, QP-PQ, Vol. XVIII, World Scientific (2004) 126-140. MR **2211885 (2007h:81128)**.
- [24]. On product systems arising from sum systems (with R. Srinivasan), **Infinite Dimensional Analysis, Quantum Probability and Related Topics**, Vol. **8**, no. 1 (2005) 1-31. MR **2126876 (2006e:46075)**.

- [25]. A completely entangled subspace of maximal dimension, **International Journal of Quantum Information**, Vol. 4, No. 2 (2006) 325-330.
- [26]. Minimal Cuntz-Krieger dilations and representations of Cuntz-Krieger algebras, (with Santanu Dey and J. Zacharias), **Proceedings of the Indian Academy of Sciences, Mathematical Sciences**, Vol. 116 (2006), No. 2, 193-220. MR **2226131 (2007h:46066)**.
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- [28]. A Problem of Powers and the Product of Spatial Product Systems, (with Volkmar Liebscher and Michael Skeide), Proceedings of the 28th Quantum Probability Conference, Sep 2-8, 2007, held in Guanajuato, Quantum probability and related topics, 93106, QPPQ: Quantum Probab. White Noise Anal., 23, World Sci. Publ., Hackensack, NJ, (2008). MR2590656 (2011c:46142).
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- [30]. Inclusion systems and amalgamated products of product systems (with Mithun Mukherjee), **Infinite Dimensional Analysis Quantum Probability and Related Topics (IDAQP)** Vol. 13, No. 1, 126, (2010) MR**2646788 (2011f:46087)**.
- [31]. Subsystems of Fock Need Not Be Fock: Spatial CP-Semigroups, (with Volkmar Liebscher and Michael Skeide), **Proc. Amer. Math. Soc.** 138 no. 7, 2443–2456, (2010). **arXiv:0804.2169** MR **2607874**.
- [32]. Stinespring’s theorem for maps on Hilbert C*-modules (with G. Ramesh and K. Sumesh), **J. Operator Theory** 68:1(2012), 173178. MR2966040
- [33]. The spatial product of Arveson systems is intrinsic. (with Volkmar Liebscher, Mithun Mukherjee, Michael Skeide) **J. Funct. Anal.** 260, no. 2, 566573 (2011),MR **2737413** (2011k:46090).
- [34]. Linear maps respecting unitary conjugation, **Banach J. of Math. Anal.** Vol. 5, No. 2, 1-5 (2011). MR2780863 (2012d:47111)
- [35]. Roots of states, **Communications on Stochastic Analysis** Vol. 6, No. 1 (2012) 85-93.
- [36] Bures distance for completely positive maps (with Sumesh K.) *Inf. Dimens. Anal. Quantum Probab. Relat. Top.* 16 (2013), no. 4, 135001, 22pp MR3192708.

- [37] The Schur-Horn theorem for operators with finite spectrum, with Mohan Ravichandran, Proc. Amer. Math. Soc. 142 (2014), no. 10, 34413453. MR3238420.
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- [39] On submajorization and eigenvalue inequalities,(with Arup Chattopadhyaya and Kosuru, G. Sankara Raju Kosuru), Linear Multilinear Algebra 63 (2015), no. 11, 22452253, (2014) MR3401940.
- [40] Pure semigroups of isometries on Hilbert C^* Modules, (with M. Skeide), J. Funct. Anal. 269 (2015), no. 5, 15391562. MR3369946.

(c) Books

- [41]. Lectures on Operator Theory, (Editor jointly with G. Elliott and P. Fillmore), Fields Institute for Research in Mathematical Sciences Monograph Series, Vol. **13**, Amer. Math. Soc. 323pp. (1999). MR **2001j:46077**.
- [42]. Quantum Independent Increment Processes I: From classical probability to quantum stochastic calculus. (with David Applebaum, Johan Kustermans, J. Martin Lindsay), Springer Lecture Notes in Mathematics, 1865 (Ed. M. Schurmann and U. Franz), Springer-Verlag, Berlin, (2005). MR**2132092 (2005j:81087)**.
- [43]. Mini-Workshop: Product Systems and Independence in Quantum Dynamics. Abstracts from the mini-workshop held February 15-21, 2009. Organized by B. V. Rajarama Bhat, Uwe Franz and Michael Skeide. Oberwolfach Reports. Vol. 6, no. 1. Oberwolfach Rep. 6 (2009), no. 1, 493547, MR **2604064**. [Report of a Workshop on recent developments in the field].

(d) Expository articles

- [44]. Continuous tensor product systems of Arveson and Powers' Index Theory for E_0 -semigroups, Centro Vito Volterra (Preprint series No. 177), Universita Degli Studi di Roma "Tor Vergata", June 1994.
- [45]. Dilations of quantum Markov semigroups, in *Symposium on Recent developments in E -semigroups and related topics*, Ritsumeikan University, Japan (2005).
- [46]. Operators as Random Variables, in Proceedings of the UGC sponsored national seminar on spectral theory of operators and wavelet analysis, NSS College, Ottapalam, 45-51 (2006).
- [47]. Wigner's Semicircle Law and Free Independence, **Resonance, J. of Science Education**, Vol. 14, No 10, 970-977 (Oct. 2009).

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