

Curriculum vitae, G. Letac

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Born on Jan. 6th, 1940 at Yvetot (76), France. Citizenship: French.

Married (Pascale D. CARRI RE, 21.04.1962), 4 daughters (Anne-Sophie, 1963, Mathilde, 1964, Virginie, 1968, H l ne, 1971).

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BOOKS

1. LETAC, G. (1970) '*Probl mes de probabilit *', 128 pages, Presses universitaires de France, Paris.
2. LETAC, G. (1977) '*Cha nes de Markov sur les permutations*', 128 pages, S minaire de Math matiques sup rieures, **63**, Presses de l'Universit  de Montr al.
3. LETAC, G. (1983) '*Math matiques, premi re ann e des universit s*', Masson, Paris.
4. LETAC, G. (1992) '*Lectures on natural exponential families and their variance functions*', 128 pages, Monografias de matem tica, **50**, IMPA, Rio de Janeiro.
5. LETAC, G. (1995) '*Integration and probability, exercises and solutions*', Springer.
6. TOULOUSE, G. (1999) '*Th mes de probabilit s et statistique*'. Collective work, G.L. wrote Chapters 0, 3, 10 and 13.

PAPERS

1. LETAC, G. (1964) 'Une propri t  de fluctuation des processus de Poisson compos s croissants.' *Comptes Rend. Acad. Sc. Paris, Groupe 1* **258**, 1700-1703.
2. LETAC, G. (1966) 'Repr sentation des mesures de probabilit  sur le produit de deux espaces d nombrables, de marges donn es.' *Illinois Math. J.* **10**, 409-507.
3. LETAC, G. (1969) 'A note about Wiener-Hopf sets.' *Proc. Amer. Math. Soc.* **22**, 290-300.
4. LETAC, G. (1969) 'Sur certains polyn mes   coefficients positifs.' *Comptes Rend. Acad. Sc. Paris, S rie A.* **269**, 1066-1068.
5. LETAC, G. (1970) 'On slow variation.' *Proc. Amer. Math. Soc.* **24**, 745-746.
6. LETAC, G. (1970) 'Promenades al atoires ± 1 .' *Bulletin de l'A.P.M.E.P.* **50**, 379-384.

7. LETAC, G. (1972) 'Sur quelques aspects combinatoires du calcul des probabilités.' *Ann. Univ. Clermont.* **50**, 1-128.
8. LETAC, G. (1972) 'Reconstruction de probabilités à partir de processus simples' *Rapport technique. Département de mathématiques, Université de Clermont*, 19 pages .
9. LETAC, G. (1972) 'Groupe de Stam d'une probabilité.' *Ann. Inst. H. Poincaré, B* **8**, 175-181.
10. BERNARD, J. AND LETAC, G. (1973) 'Construction d'événements équiprobables et coefficients multinomiaux modulo p .' *Illinois Math. J.* **17**, 317-331.
11. LETAC, G. (1974) 'A unified treatment of some theorems on positive matrices.' *Proc. Amer. Math. Soc.* **43**, 11-17.
12. LETAC, G. (1974) 'Barycentres de matrices idempotentes stochastiques.' *Ann. Univ. Clermont.* **51**, 51-61.
13. LETAC, G. (1974) 'Transience and recurrence of an interesting Markov chain.' *J. Appl. Probab.* **11**, 818-824.
14. LETAC, G. (1975) 'On building random variables with a given distribution.' *Ann. Probab.* **3**, 298-306.
15. LETAC, G. (1975) 'Reconstruction de v.a. de lois données.' *Rapport technique. Département de mathématiques appliquées, Université de Clermont*, 20 pages .
16. LETAC, G. (1975) 'Librairies.' *Rapport technique.* **569**, *Centre de recherche mathématiques de l'Université de Montréal*, 29 pages .
17. LETAC, G. (1976) 'Produits de chaînes de Markov .' *Théorie ergodique, Rennes 1973-74. Lecture notes in mathematics, Springer.* **532**, 160-168 .
18. LETAC, G., MAZET, P. AND SCHIFFMANN, G. (1976) 'A note on left continuous random walks.' *J. Appl. Probab.* **13**, 814-817.
19. LETAC, G. (1976) 'Récurrence des librairies.' *Comptes Rend. Acad. Sc. Paris, Série A.* **283**, 49-52.
20. LETAC, G. (1977) 'Recurrence of products of renewal sequences.' *Ann. Probab.* **5**, 591-594.
21. LETAC, G. (1977) 'Recurrence of a class of Markov chains.' *Rapport technique. Laboratoire de Statistique et Probabilités, Université Paul Sabatier*, 15 pages.
22. LETAC, G. (1978) 'Which functions preserve Cauchy laws?' *Proc. Amer. Math. Soc.* **67**, 277-286.
23. LETAC, G. AND PRADINES, J. (1978) 'Seules les affinités préservent les lois normales.' *Comptes Rend. Acad. Sc. Paris, Série A.* **286**, 399-402.
24. LETAC, G. (1978) 'Chaînes colorées, trois extensions d'une formule de Nelson.' *J. Appl. Probab.* **15**, 321-339.
25. LETAC, G. (1978) 'Cauchy functional equation again.' *Amer. Math. Monthly* **85**, 663-664.
26. LETAC, G. AND MILHAUD, X. (1979) 'Une suite stationnaire et isotrope est sphérique.' *Z. Wahrscheinlichkeitstheorie und Verv. Geb.* **49**, 33-36.
27. LETAC, G. AND TAKÁCS, L. (1979) 'Random walks on the m -dimensional cube.' *J. für die Reine und Ang. Math.* **310**, 187-195.
28. LETAC, G. AND OLIÉ, F. (1979) 'Les fonctions intérieures de $\mathbb{R}_+^3 \rightarrow \mathbb{R}_+^2$ et la préservation des lois de Cauchy.' *Comptes Rend. Acad. Sc. Paris, Série A.* **289**, 215-218.

29. LETAC, G. (1979) 'La préservation des trajectoires du mouvement brownien et la préservation des lois de Cauchy.' *Ann. Univ. Clermont.* **69**, 81-85.
30. LETAC, G. AND TAKÁCS, L. (1980) 'Random walks on a 600-cell polyhedron.' *SIAM J. Algebraic and Discrete Math.* **1**, 114-123.
31. LETAC, G. AND TAKÁCS, L. (1980) 'Random walks on a dodecahedron.' *J. Appl. Probab.* **17**, 373-384.
32. LETAC, G. (1981) 'Isotropy and sphericity, some characterisations of the normal distribution.' *Ann. Statist.* **9**, 408-417.
33. LETAC, G. (1981) 'Problèmes classiques de probabilité sur un couple de Gelfand.' Analytic methods in probability theory. *Lecture notes in mathematics, Springer.* **861**, 93-120.
34. LETAC, G. (1982) 'Les fonctions sphériques d'un couple de Gelfand symétrique et les chaînes de Markov.' *Adv. Appl. Probab.* **14**, 272-294.
35. LETAC, G. (1983) 'Dual random walks and special functions on homogeneous trees.' *Publications de l'Institut Henri Cartan.* **7**, 96-142.
36. LETAC, G. (1983) 'Mesures sur le cercle et convexes du plan.' *Ann. Univ. Clermont.* **76**, 35-65.
37. LETAC, G. (1983) 'Représentation intégrale du produit tensoriel de certaines représentations irréductibles de $SL(2, \mathbb{C})$.' *Publications du laboratoire de statistique et probabilités, Toulouse.* **02-83**, 73-80.
38. LETAC, G. AND SESHADRI, V. (1983) 'A characterization of the generalized inverse Gaussian distribution by continued fractions.' *Z. Wahrscheinlichkeitstheorie und Verv. Geb.* **62**, 485-489.
39. CHASSAING, PH., LETAC, G. AND MORA, M. (1984) 'Brocot sequences and random walks on $SL(2, \mathbb{C})$.' Probability on Groups. *Lecture notes in mathematics, Springer.* **1034**, 37-50.
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41. ARNAUD, J.-P. AND LETAC, G. (1985) 'La formule de représentation spectrale d'un processus gaussien stationnaire sur un arbre homogène.', Actes du colloque SMF "Probabilités sur les structures géométriques" Toulouse juin 1984. *Publications du laboratoire de statistique et probabilités, Toulouse.* **01-85**, 1-12.
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43. LETAC, G. (1985) 'A characterization of the gamma distribution.' *Adv. Appl. Probab.* **17**, 911-912.
44. LETAC, G. AND SESHADRI, V. (1985) 'On Khatri characterization of the inverse Gaussian distribution.' *Canadian J. of Statist.* **13**, 249-252.
45. LETAC, G. (1986) 'Brownian-path-preserving functions on $\mathbb{R}_+^{n+1}$ and Cauchy distributions on $\mathbb{R}^n$.' *Probability theory and harmonic analysis*, John A. Chao and Wojbor A.Z. Woyczynski editors. Marcel Dekker, New York and Basel, 149-165.
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47. LETAC, G. (1986) 'A contraction principle for certain Markov chains and its applications.' *Contemp. Math.* **50**, 263-273.

48. LETAC, G. AND MORA, M. (1986) 'Sur les fonctions variances des familles exponentielles naturelles.' *Comptes Rend. Acad. Sc. Paris, Série I.* **302**, 551-554.
49. LETAC, G. (1986) 'Seul le groupe des similitudes-inversions préserve le type de la loi de Cauchy conforme de $\mathbb{R}^n$ pour $n > 1$.' *J. Funct. Anal.* **68**, 43-54.
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52. DEVROYE, L., LETAC, G. AND SESHADRI, V. (1986) 'The limit behavior of an interval splitting scheme.' *Stat. and Probab. Letters* **4**, 183-186.
53. LETAC, G. AND SESHADRI, V. (1988) 'Haight's distributions as a natural exponential family.' *Stat. and Probab. Letters* **6**, 165-169.
54. LETAC, G. (1989) 'A characterization of the Wishart exponential family by an invariance property.' *J. of Theoret. Probab.* **2**, 76-86.
55. LETAC, G. (1989) 'Le problème de la classification des familles exponentielles naturelles de $\mathbb{R}^d$ ayant une fonction variance quadratique.' Probability on Groups IX, Oberwolfach. *Lecture notes in mathematics, Springer.* **1379**, 192-216.
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57. LETAC, G. AND SESHADRI, V. (1989) 'The expectation of X^{-1} as a function of $\mathbb{E}(X)$ for an exponential family on the positive line.' *Ann. Statist.* **17**, 1735-1741.
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61. LETAC, G. (1991) 'The classification of the natural exponential families by their variance functions.' *Proceedings of the ISI Cairo Congress.* **3**, 271-298.
62. BAR-LEV, S.K., BSHOUTY, D. AND LETAC, G. (1992) 'Natural exponential families and self-decomposability.' *Stat. and Probab. Letters.* **13**, 147-152.
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65. CHAMAYOU, J.-F. AND LETAC, G. (1994) 'A transient random walk on stochastic matrices with Dirichlet distribution.' *Ann. Probab.* **22**, 424-430.
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69. LETAC, G. (1994) 'Les familles exponentielles statistiques invariantes par les groupes du cône et du paraboloïde de révolution.' *J. Appl. Probab.* **31 A**, 883-928.
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71. CASALIS, M. AND LETAC, G. (1995) 'Les lois beta, de Dirichlet et de Wishart sur un cône symétrique et la caractérisation de Lukacs.' *Comptes Rend. Acad. Sc. Paris, Série I.* **320**, 489-492.
72. LETAC, G. AND SESHADRI, V. (1995) 'A random continued fraction in $\mathbb{R}^{d+1}$ with an inverse Gaussian distribution.' *Bernoulli* **1**, 381-393.
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81. LETAC, G. AND MASSAM, H. (1998) 'A formula on multivariate Dirichlet distributions.' *Statist. Probab. Lett.* **38**, 247-253.
82. KAGAN, A. AND LETAC, G. (1999) 'Characterization of the normal distribution through the power of a one-way ANOVA.' *J. Statist. Plann. Inference* **77**, 1-10.
83. JORGENSEN, B. AND LETAC, G. (1999) 'Babel variance functions.' Research report *Dep. of Statistics and Demography, Odense University* **3** 10 pages.
84. CHAMAYOU, J.-F. AND LETAC, G. (1999) 'Additive properties of the Dufresne laws and their multivariate extension.' *J. of Theoret. Probab.* **12**, 1045-1066.
85. LETAC, G. (1999) 'Stationary sequences with simple joint Poisson distribution.' *J. Statist. Plann. Inference* **90**, 1-20.
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88. LETAC, G. (2000) 'The symmetric cones as Gelfand pairs: probabilistic applications.' *Contemp. Math.* **261**, 121-142.
89. LETAC, G. AND MALOUCHE, D. (2000) 'The Markov chain associated to a Pick function.' *Probab. Th. Rel. Fields* **118**, 439-454.
90. LETAC, G. AND WESOŁOWSKI, J. (2000) 'An independence property for the product of GIG and gamma laws.' *Ann. Probab.* **28**, 1371-1383.
91. LETAC, G. AND MASSAM, H. (2001) 'Moments des lois de Wishart, arbres binaires et produits triples.' *Comptes Rend. Acad. Sc. Paris, Série I.* **332**, 1345-1350.
92. LETAC, G., MASSAM, H. AND RICHARDS, D. (2001) 'An expectation formula for the multivariate Dirichlet distribution.' *J. Multiv. Anal.* **77**, 117-137.
93. LETAC, G. AND MASSAM, H. (2001) 'The normal quasi-Wishart distribution.' *Contemp. Math.* **287**, 231-239.
94. FERRARI, A., LETAC, G. AND TOURNERET, J.-Y. (2002) 'Detection in a multivariate Poisson distribution.' *Proc. of IEEE Int. Conf. on Acoust., Speech and Signal*, (ICASSP'02), 1572-1576, Orlando.
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97. BAR-LEV, S.K., BSHOUTY, D. AND LETAC, G. (2002) 'Normal, gamma and inverse-Gaussian are the only NEFs where the bilateral UMPU and GLR tests coincide.' *Ann. Statist.* **30**, 1524-1534.
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99. LETAC, G. (2002) 'The use of Lévy processes in the classification of exponential families.' Second MaPhySto Conference on Lévy Processes: Theory and Applications. *Centre for Mathematical Physics and Stochastics, Aarhus*, **22**, 183-191.
100. GRACZYK, P., LETAC, G. AND MASSAM, H. (2003) 'The complex Wishart distribution and the symmetric group.' *Ann. Statist.*, **31** no 1, 287-309.
101. LETAC, G. AND MASSAM, H. (2004) 'All invariant moments of the Wishart distribution', *Scand. J. Statist.*, **31**, 285-318.
102. FERRARI, A., LETAC, G. AND TOURNERET, J.-Y., (2004) 'Multivariate Mixed Poisson Distributions.' *12th Conf. on Sig. Proc.* (EUSIPCO'04), Vienne, Autriche, September 6-10, 2004.
103. GRACZYK, P., LETAC, G. AND MASSAM, H. (2005) 'The hyperoctahedral group, symmetric group representations and the moments of the real Wishart distribution.' *J. Theoret. Probab.*, **18**, 1-42.
104. LETAC, G. AND SESHADRI, V. (2005) 'Exponential stopping and drifted stable processes.' *Stat. Probab. Letters*, **72**, 137-143.
105. LETAC, G. AND MASSAM, H. (2006) 'Extremal rays and duals for cones of positive definite matrices with prescribed zeros.' *Linear Algebra Appl.*, **418**, 737-750.

- 106. JOFFE, A. AND LETAC, G. (2006) 'Multitype linear fractional branching processes.' *J. Appl. Probab.*, **43** 1091-1106.
- 107. LETAC, G. AND MASSAM, H. (2007) 'Wishart distributions on decomposable graphs.' *Ann. Statist.*, **35** No 3 1278-1323.
- 108. FERRARI, A., LETAC, G. AND TOURNERET, J.-Y. (2007) 'Exponential families of mixed Poisson distributions.' *J. Multiv. Anal.*, **93**, 1283-1292.
- 109. LETAC, G. AND WESOŁOWSKI, J. (2007) 'Laplace transforms which are negative powers of quadratic polynomials' *Trans. Amer. Math. Soc.* to appear.
- 110. LETAC, G. AND MASSAM, H. (2007) 'The non central Wishart as an exponential family and its moments.' *J. Multiv. Anal.*, to appear.
- 111. ASCI, C., LETAC, G. AND PICCIONI, M. (2007) 'Beta-hypergeometric distributions and random continued fractions.' *Statist. Probab. Lett.*, to appear.

EDUCATION

Licence en mathématiques (1960) Diplôme d'études supérieures (1960), Agrégation de mathématiques (1962), Université de Caen.

Doctorat d'état en mathématiques (1972) (Thesis advisor: Paul Malliavin), Université de Clermont.

PROFESSIONAL EXPERIENCE

1960-62: Assistant, Université de Caen.

1962-64: Assistant agrégé, Université de Paris Orsay.

1964-1966: Maître assistant, Université de Paris Orsay.

1966-1969: Assistant Professor, University of Montreal.

1969-1973: Chargé d'enseignement, Institut universitaire de technologie de Clermont. Chairman of the computer science department.

1973-... : Professor, Université Paul Sabatier, Toulouse (France) (première classe 1981, classe exceptionnelle 1990, emeritus 2003).

1996-1998: Chairman of the Laboratoire de Statistique et Probabilités.

VISITING POSITIONS

1981: Case Western Reserve University, Cleveland.

1987: Université du Québec, Montréal.

1994: University of Toronto.

1999: Pennsylvania State University, State College.

2004: Indiana University, Bloomington.

2005: Università di Roma "La Sapienza".

DIRECTION of PH.D

R. Berthuet (1970), C. Lepetit (1971), G. Fourt (1972), J.-P. Arnaud (1977), M. El Rayes (1978), S. Ben Mansour (1979), J. Dies (1980), M. El Bachir (1982), J.-L. Dunau (1983), H. Sénateur (1983), B. Ycart (1984), J.-B. Ruiz (1984), M. Boudiba (1985), A. Elharzalli (1985), M. Mora (1986), C. Hassenforder (1988), M. Casalis (1990), E. Bernadac (1992), C. Kokonendji (1993), A. Hassairi (1994), A. Koudou (1995), D. Pommeret (1995) with M. Casalis as codirector, D. Malouche (1997), P. Bernardoff (2003) with E. Bernadac as codirector.

MISCELLANEOUS

Distinctions: Officier des Palmes académiques. Membre du jury d'admission à l'entrée de l'Ecole Polytechnique: 1986-2002.

Associated Editor: Test 1993-1997. Journal of Theoretical Probability: 1990-2007.

Chairmanship of the seminar of Probability: 1973-1999.

Number of Ph.D. students: 24.

Hobbies: History of classical Western music, mountain climbing, tennis (modestly ranked).