

CURRICULUM VITAE
SERVET MARTINEZ AGUILERA

DATE July 2014

1.- PERSONAL DATA

Born at Santiago, CHILE on March 5, 1952.

Nationality: Chilean

2.- POSITION

· Full Professor Universidad de Chile. Departamento de Ingeniería Matemática y Centro de Modelamiento Matemático, Facultad de Ciencias Físicas y Matemáticas.

3.- DEGREES

· Mathematical Engineer, Universidad de Chile, 1975.

· Master in Statistics, CIENES, 1976.

· Doctorat 3ème cycle en Probabilités, Université de Paris Pierre et Marie Curie, 1976.

· Doctorat d'État en Mathématiques, Université de Paris Pierre et Marie Curie, 1985.

4.- RESEARCH SUBJECTS

· Stochastic Processes, Markov Chains, Potential Theory;

· Ergodic Theory, Symbolic Dynamics, Cellular Automata;

· Statistical Physics, Mathematics in Genomics.

5.- GRANTS AND FELLOWSHIPS

· Presidential Chair, Chilean Governement, 1997-1999.

· Director Millenium Nucleus in Information and Randomness, Initiative Scientific Millenium, 2002-2005 and 2005-2008.

· John Simon Guggenheim Memorial Foundation Fellowship, 2008.

6.- SCIENTIFIC SOCIETIES

· President Chilean Academy of Sciences 2004-2009 (two periods) and full member of the Chilean Academy of Sciences since 1996.

· President UMALCA (Mathematical Union for LatinAmerica and the Caraibes), elected 2009.

· Fellow TWAS, Academy of Sciences for the Developing World, elected 2005.

7.- PUBLICATIONS

7A.- BOOKS

· C. Dellacherie, S. Martínez and J. San Martín. Inverse M-Matrices and Ultrametric Matrices. Lecture Notes in Mathematics 2118, Springer Verlag, 2014.

· P. Collet, S. Martínez and J. San Martín. Quasi-stationary distributions. Markov chains, diffusions and dynamical systems. Collection Probability and its Applications, Springer Verlag, 2013, 280 p.

· E. Goles and S. Martínez. Neural and Automata Networks. Dynamical Behavior and Applications. Kluwer Academics Pub., Mathematics and Its Applications, 1990 (1st. Edition), 1991 (2nd. Edition), 250 p.

7B.- ARTICLES

· On Moebius duality and coarse-graining. To appear Journal of Theoretical Probability. (Co-author Thierry Huillet).

· STIT Tessellations have trivial σ -algebra. To appear Advances in Applied Probability (2014) 46, no 3. (Co-author Werner Nagel).

- STIT tessellations are Bernoulli and standard. *Ergodic Theory and Dynamical Systems* (2014) 34, no 3, 876-892.
- Occupancy distributions arising in sampling from Gibbs-Poisson abundance models. *J. Stat. Physics* (2013) 153, no. 5, 763-800. (Co-author Thierry Huillet).
- Stochastic behavior for a chemostat and long-time behavior. *Adv. Appl. Probab.* (2013), 45, no. 3, 822-837. (Co-author Pierre Collet, Sylvie Méléard, Jaime San Martín).
- The class of inverse M-matrices associated to random walks. *SIAM J. Matrix Anal. Appl.* 34 (2013), no. 2, 831-854. (Co-authors Claude Dellacherie, Jaime San Martín).
- Hadamard functions that preserve inverse M-matrices. *SIAM J. Matrix Anal. Appl.* 33 (2012), no. 2, 501-522. (Co-authors Claude Dellacherie, Jaime San Martín).
- Ergodic description for STIT tessellations. *Stochastics* 84 (2012), 113-134. (Co-author Werner Nagel).
- A Gibbs approach to Chargaff's second parity rule. *J. Stat. Physics* 146 (2012), no. 2, 408-422 (Co-authors Andrew Hart, Felipe Olmos).
- Quasi-stationary distributions for structured birth and death processes with mutations. *Probab. Theory Related Fields* 151 (2011), no. 1-2, 191-231. (Co-authors Pierre Collet, Sylvie Méléard, Jaime San Martín).
- Discrete evolutionary genetics: multiplicative fitnesses and the mutation-fitness balance. *Appl. Math.* 2 (2011), no. 1, 11-22. (Co-author Thierry Huillet)
- Duality and intertwining for discrete Markov kernels: relations and examples. *Adv. in Appl. Probab.* 43 (2011), no. 2, 437-460. (Co-author Thierry Huillet).
- Statistical testing of Chargaff's second parity rule in bacterial genome sequences. *Stoch. Models* 27 (2011), no. 2, 272-317. (Co-author Andrew Hart).
- Some properties of quasi-stationary distributions for finite Markov chains. *Surveys in stochastic processes* (2011), 5966, EMS Ser. Congr. Rep., Eur. Math. Soc., Zurich. (Co-author Jaime San Martín).
- R -positivity of nearest neighbor matrices and applications to Gibbs states. *Stochastic Process. Appl.* 120 (2010), no. 12, 2432 - 2446. (Co-author Jorge Littin).
- Energy efficiency of consecutive fragmentation processes. *J. Appl. Probab.* 47 (2010), no. 2, 543-561. (Co-authors Joaquín Fontbona, Natalie Krell).
- Quasi-stationary distributions and diffusion models in population dynamics. *Ann. Probab.* 37 (2009), no. 5, 1926-1969. (Co-authors Patrick Cattiaux, Pierre Collet, Amaury Lambert, Sylvie Méléard, Jaime San Martín).
- Ultrametric and tree potential. *J. Theoret. Probab.* 22 (2009), no. 2, 311-347. (Co-authors Claude Dellacherie, Jaime San Martín).
- Hadamard functions of inverse M -matrices. *SIAM J. Matrix Anal. Appl.* 31 (2009), no. 2, 289-315. (Co-authors Claude Dellacherie, Jaime San Martín).
- On prolific individuals in a supercritical continuous-state branching process. *J. Appl. Probab.* 45 (2008), no. 3, 714-726, (Co-authors Jean Bertoin, Joaquín Fontbona).
- Dirichlet-Kingman partition revisited. *Far East J. Theor. Stat.* 24 (2008), no. 1, 1-33. (Co-author Thierry Huillet).
- Asymptotic velocity of one dimensional diffusions with periodic drift. *J. Math. Biol.* 56 (2008), no. 6, 765-792. (Co-author Pierre Collet).
- Martnez, Servet; Remenik, Daniel; San Martn, Jaime Level-wise approximation of a Markov process associated to the boundary of an infinite tree. *J. Theoret. Probab.* 20 (2007), no. 3, 561-579. (Co-authors Daniel Remenik, Jaime San Martn).
- A simple maximization model inspired by algorithms for the organization of genetic candidates in bacterial DNA. *Adv. in Appl. Probab.* 38 (2006), no. 4, 1071-1097. (Co-authors Andrew Hart, Leonardo Videla).
- Stationary processes whose filtrations are standard. *Ann. Probab.* 34 (2006), no. 4, 1589-1600. (Co-authors Xavier Bressaud, Alejandro Maass, Jaime San Martín).

- Large deviations-based upper bounds on the expected relative length of longest common subsequences. *Adv. in Appl. Probab.* 38 (2006), no. 3, 827-852. (Co-authors Raphael Hauser, Heinrich Matzinger).
- Limit measures for affine cellular automata on topological Markov subgroups. *Nonlinearity* 19 (2006), no. 9, 2137-2147. (Co-authors Alejandro Maass, Marcelo Sobottka).
- Asymptotic randomization of subgroup shifts by linear cellular automata. *Ergodic Theory Dynam. Systems* 26 (2006), no. 4, 1203-1224. (Co-authors Alejandro Maass, Marcus Pivato, Reem Yassawi).
- Collet, Pierre; Martínez, Servet; San Martín, Jaime Ratio limit theorem for parabolic horn-shaped domains. *Trans. Amer. Math. Soc.* 358 (2006), no. 11, 5059-5082. (Co-authors Pierre Collet, Jaime San Martín).
- Around multicolour disordered lattice gas. *J. Stat. Phys.* 123 (2006), no. 1, 181-192. (Co-author Azzouz Dermoune).
- Fragmentation energy. *Adv. in Appl. Probab.* 37 (2005), no. 2, 553-570. (Co-author Jean Bertoin).
- Corrigendum: "On the existence of conditionally invariant probability measures in dynamical systems" [*Nonlinearity* 13 (2000), no. 4, 1263-1274]. *Nonlinearity* 17 (2004), no. 5, 1985-1987, (Co-authors Pierre Collet, Véronique Maume-Deschamps).
- Martínez, Servet Some bounds on the coupon collector problem. *Random Structures Algorithms* 25 (2004), no. 2, 208-226.
- A class of *MM*-matrices whose graphs are trees. *Linear Multilinear Algebra* 52 (2004), no. 5, 303-319. (Co-authors Jaime San Martín, Xiao-Dong Zhang).
- Asymptotic distribution of tests for expanding maps of the interval. *Ergodic Theory Dynam. Systems* 24 (2004), no. 3, 707-722. (Co-authors Pierre Collet, Bernard Schmitt).
- Sequential dynamics of high order polynomial automata networks: an application to the Erlang fixed-point equations. *Appl. Math. Comput.* 151 (2004), no. 2, 507-522. (Co-author Andrew Hart).
- Classification of killed one-dimensional diffusions. *Ann. Probab.* 32 (2004), no. 1A, 530-552. (Co-author Jaime San Martín).
- The homotopical reduction of a nearest neighbor random walk. *Bull. Braz. Math. Soc. (N.S.)* 34 (2003), no. 3, 509-528. (Co-author Joaquín Fontbona).
- Sampling from finite random partitions. *Methodol. Comput. Appl. Probab.* 5 (2003), no. 4, 467-492. (Co-author Thierry Huillet).
- Order relations of measures when avoiding decreasing sets. *Statist. Probab. Lett.* 65 (2003), no. 3, 165-175. (Co-authors Pierre Collet, Javier López).
- Uniform Bernoulli measure in dynamics of permutative cellular automata with algebraic local rules. *Discrete Contin. Dyn. Syst.* 9 (2003), no. 6, 1423-1446. (Co-authors Bernard Host, Alejandro Maass).
- The λ -classification of continuous-time birth-and-death processes. *Adv. in Appl. Probab.* 35 (2003), no. 4, 1111-1130. (Co-authors Andrew Hart, Jaime San Martín).
- A new class of inverse *M*-matrices of tree-like type. *SIAM J. Matrix Anal. Appl.* 24 (2003), no. 4, 1136-1148, (Co-authors Jaime San Martín, Xiao-Dong Zhang).
- Asymptotic of the heat kernel in general Benedicks domains. *Probab. Theory Related Fields* 125 (2003), no. 3, 350-364. (Co-authors Pierre Collet, Jaime San Martín).
- Exponential inequalities for dynamical measures of expanding maps of the interval. *Probab. Theory Related Fields* 123 (2002), no. 3, 301-322. (Co-authors Pierre Collet, Bernard Schmitt).
- Asymptotic behavior of a stationary silo with absorbing walls. *J. Statist. Phys.* 106 (2002), no. 3-4, 521-546, (Co-authors Saulo Barros, Pablo Ferrari, Nancy Garcia).
- Sequential iteration of the Erlang fixed-point equations. *Inform. Process. Lett.* 81 (2002), no. 6, 319-325, (Co-author Andrew Hart).
- Decaying rates and cutoff for convergence and hitting times of Markov chains. *Advances Applied Probability*, 33, 188-205, 2001 (Co-author Bernard Ycart).
- Rates of decay and *h*-processes for one-dimensional diffusions conditioned on non-absorption. *Journal of Theoretical Probability*, 14, 199-212, 2001 (Co-author Jaime San Martín).

- Cesàro mean distribution of group automata starting from measures with summable decay. *Ergodic Theory and Dynamical Systems*, 2000 (Co-authors Pablo Ferrari, Alejandro Maass, Peter Ney).
- Asymptotic behaviour of a Brownian motion on exterior domains. *Probability Theory and Related Fields* 116, 2000 (Co-authors Pierre Collet, Jaime San Martín).
- Description of the subMarkov kernel associated to generalized ultrametric matrices. An algorithmic approach. *Linear Algebra and Its Applications*, 318, 1-21, 2000 (Co-authors Claude Dellacherie, Jaime San Martín).
- Stochastic Domination and Markovian Coupling. *Advances in Applied Probability*, 32, 1064-1076, 2000 (Co-authors Javier López, Gerardo Sanz).
- On the existence of conditionally invariant distributions in dynamical systems. *Nonlinearity*, 13, 1263-1274, 2000 (Co-authors Pierre Collet, Véronique Maume-Deschamps).
- A ratio limit theorem of a Brownian motion killed at the boundary in Benedicks domains. *Annals of Probability* 27, 1999 (Co-authors Pierre Collet, Jaime San Martín).
- On the enhancement of diffusion by chaos, escape rates and stochastic instability. *Transactions American Mathematical Society*, 351, 2875 - 2897, 1999 (Co-authors Pierre Collet, Bernard Schmitt).
- Diffusion coefficient in transient chaos, *Nonlinearity* 12, 445 - 450, 1999 (Co-author Pierre Collet).
- The Baker transformation as a nonlinear combination of pointwise mean expected value operators and the pointwise convergence to equilibrium. *Chaos, Solitons and Fractals* 10, 1843 - 1853, 1999 (Co-author Enrique Tirapegui).
- Limiting Conditional and Conditional Invariant Distributions for the Poisson Process with Negative Drift. *Journal Applied Probability*, 1999 (Co-authors Raúl Fierro, Jaime San Martín).
- Hamiltonians on random walks trajectories. *Stochastic Processes and Applications*, 78, 47 - 68, 1998 (Co-author Pablo Ferrari).
- Noyaux potentiels associés à une filtration. *Annals Inst. H. Poincaré - Probabilités*, 34, 707 - 725, 1998 (Co-authors Claude Dellacherie, Jaime San Martín, D. Taibi).
- Domain of attraction of quasi-stationary distributions for the Brownian motion with drift. *Advances Applied Probability*, 30 No 2, 1-27, 1998 (Co-authors Pierre Picco, Jaime San Martín).
- Coding nested mixing one-sided subshifts of finite type as Markov shifts having exactly the same alphabet. *Proceedings American Mathematical Society*, Vol. 126, 1219-1230, 1998 (Co-author Alejandro Maass).
- A Pointwise Spectrum and Representation of Operators. *Proceedings American Mathematical Society*, Vol. 126, 375-382, 1998 (Co-authors Nestor Bertoglio, Jaime San Martín).
- On Cesàro limit distribution of a class of permutative cellular automata. *Journal Statistical Physics*, Vol. 90, 435-452, 1998 (Co-author Alejandro Maass).
- Truncated Pareto law and oresize distribution of grinded rocks. *Mathematical Geology*, Vol.30, 661-673, 1998 (Co-author Daniela Devoto).
- The Pianigiani-Yorke measure for topological Markov chains. *Israel Journal of Mathematics*, Vol. 97, 61-70, 1997 (Co-authors Pierre Collet, Bernard Schmitt).
- Ultrametric matrices and induced Markov chains. *Advances in Applied Mathematics*, Vol. 17, 169-183, 1996 (Co-authors Claude Dellacherie, Jaime San Martín).
- R-positivity, quasi-stationary distributions and ratio limit theorem for a class of probabilistic automata. *Annals of Applied Probability*, Vol. 6, no. 2, 577-616, 1996 (Co-authors Pablo Ferrari, Harry Kesten).
- Phase transition for absorbed Brownian motion with drift. *Journal Statistical Physics*, Vol. 86, no. 1/2, 213-231, 1996 (Co-authors Pablo Ferrari, Jaime San Martín).
- Thermodynamics of a Brownian bridge polymer model in a random environment. *Journal Physica A: Math. Gen.*, Vol. 29, 1267-1279, 1996 (Co-author Dimitri Petritis).
- Entropy values of chains of partitions of infinite countable sets. *Rocky Mountains Journal of Mathematics*, Vol. 26, Issue 1, 213-227, 1996 (Co-author Jaime San Martín).

- Existence of quasi stationary distributions. A renewal dynamical approach. *Annals of Probability*, Vol. 23, N°2, 501-521, 1995 (Co-authors Pablo Ferrari, Harry Kesten, Pierre Picco).
- Asymptotic laws for one dimensional diffusions conditioned to non absorption. *Annals of Probability*, Vol. 23, No. 3, 1300-1314, 1995 (Co-authors Pierre Collet, Jaime San Martín).
- Entropy pairs for a measure. *Ergodic Theory and Dynamical Systems*, Vol. 15, 621-632, 1995 (Co-authors François Blanchard, Bernard Host, Alejandro Maass, Dan Rudolph).
- Markov chain associated to the minimal Q.S.D. of birth-death chains. *Journal of Applied Probability*, Vol. 32, 25-38, 1995 (co-author Maria Eulalia Vares).
- Inverses of strictly ultrametric matrices are of Stieltjes type. *SIAM J. on Matrix Analysis*, Vol. 15, no. 1, 98-106, 1994 (co-authors Gérard Michon, Jaime San Martín).
- Quasi-stationary distributions for a Brownian motion with drift and associated limit laws. *Journal of Applied Probability*, Vol. 31, 911-920, 1994 (co-author J. San Martín).
- The Yorke - Pianigiani measure and the limit law for the Cantor attractor of a one-dimensional expanding system. *Nonlinearity*, Vol. 7, no. 5, 1437-1443, 1994 (co-authors Pierre Collet, Bernard Schmitt).
- Quasi-stationary distributions: a continued fraction criterion for recurrence. *Resenhas*, Vol. 1, N°2/3, 321-333, 1994 (co-author Pablo Ferrari).
- On the limits set of some universal cellular automata. *Theoretical Computer Science*, 110, 53-78, 1993 (co-authors Eric Goles, Alejandro Maass).
- Existence of non trivial quasi-stationary distributions in the birth and death chains. *Advances Applied Probability*, 24, 795-813, 1992 (co-authors Pablo Ferrari, Pierre Picco).
- Automata networks and optimization. *Information Processing Letters*, 42, 339-343, 1992 (co-author Eric Goles).
- A lower bound for the memory capacity in the Potts-Hopfield model. *Journal Statistical Physics*, Vol.66, 55/6, 1643-1652, 1992 (co-authors Pablo Ferrari, Pierre Picco).
- Simple nests invariant by compact self-adjoint operators: a non standard approach. *Journal of Mathematical Analysis and Applications*, Vol.162, no. 2, 404-409, 1991 (co-author Nestor Bertoglio).
- On a test for generalized upper truncated Weibull distributions. *Probability and Statistical Letters*, Vol.12, no. 1, 273-279, 1991 (co-author Fernando Quintana).
- A regularisation result of the continuous PMC Markov semigroups. *Stochastic Analysis and Applications*, Vol.4, no. 4, 387-399, 1991 (co-authors Nestor Bertoglio, Pablo Dartnell, Jaime San Martín).
- Relations between Lyapunov functionals for discrete and continuous symmetric networks, *Revista de Matemáticas Aplicadas*, Vol. 12, no. 2, 127-134, 1991.
- Measure preserving Markov process densely similar to endomorphisms. *Physica A* 170, 439-446, 1991 (co-author Nestor Bertoglio).
- Lyapunov functionals for automata networks defined by cyclically monotone functions. *SIAM J. on Discrete Mathematics*, Vol. 4, no. 2, 200-206, 1991 (co-author Eric Goles).
- Finite coarse-graining and Chapman-Kolmogorov equation in conservative dynamical systems. *Chaos, Solitons and Fractals*, Vol.1 No.1, 25-37, 1991 (co-authors Gregoire Nicolis, Enrique Tirapegui).
- Fluctuations in Derrida's random energy and generalized random energy models. *Journal Statistical Physics*, Vol 54, no. 1/2, 515-529, 1989 (co-authors Antonio Galves, Pierre Picco).
- Energy functions in neural networks with continuous local functions. *Complex Systems*, Vol.3, 269-293, 1989 (co-authors Françoise Fogelman, Eric Goles, C. Mejía).
- Exponential transient classes of symmetric neural networks for synchronous and sequential updating. *Complex Systems*, Vol.3, 589-597, 1989 (co-author Eric Goles).
- Opérateurs filtrés et tribus invariantes sur des espaces atomiques. *Lecture Notes in Mathematics*, Vol.1321, 197-213, 1988 (co-authors Pablo Dartnell, Jaime San Martín).
- The one site distribution of Gibbs states on Bethe lattice and non linear dynamics on probability vectors which limit points are of period ≤ 2 . *Journal Statistical Physics*, Vol.52, no. 1/2, 267-285, 1988 (co-author E. Goles).

- Matrices supermétriques. *Revista de Matemáticas Aplicadas*, Vol.9, N^o2, 42-52, 1988 (co-authors Pablo Dartnell, Jaime San Martín).
- The P.M.C. processes associated to the $(\frac{1}{2}, \frac{1}{2})$ - Bernoulli shifts are also Bernoulli. *Journal Statistical Physics*, Vol.47, no. 3,4, 527-541, 1987.
- The role of stable manifolds and information in Prigogine theory of irreversibility. *Journal Statistical Physics*, Vol.48, no. 5/6, 1283-1294, 1987 (co-author Enrique Tirapegui).
- Properties on positive functions and the dynamics of associated automata networks. *Discrete Applied Mathematics*, Vol.18, 39-46, 1987 (co-author Eric Goles).
- Points d'orbite dense de certains langages des mots infinis. *Theoretical Computer Science*, 44, 107-110, 1986 (co-author François Blanchard).
- Non equilibrium entropy on stationary Markov processes. *Acta Applicandae Mathematicae*, Vol.3, 221-238, 1985.
- A possible physical interpretation on the Λ operator in the Prigogine theory of irreversibility. *Physics Letters*, Vol.110A, no. 2, 81-83, 1985 (co-author Enrique Tirapegui).
- Description of a class of Markov processes "equivalent" to K-shifts. *Journal Statistical Physics*, Vol.37, 173-186, 1984 (co-author Enrique Tirapegui).
- Hyperbolic dynamical systems with isolated points. *Geometric Dynamics. Lecture Notes in Mathematics*, Vol.1007, 578-583, 1983.
- Irreversible evolution of dynamical systems. *Lecture Notes in Physics*, Vol.179, 239-244, 1983 (co-author Enrique Tirapegui).
- Markov process and entropy associated for a reversible evolution. *Physics Letters*, Vol.95A, N. 3,4, 143-145, 1983 (co-author Enrique Tirapegui).
- Entropy functionals associated for shift dynamical systems. *Physica* 122A, 593-601, 1983 (co-author Enrique Tirapegui).
- Maximal entropy measures in topologically transitive and hyperbolic dynamical systems. *Mathematicae Notae*, Inst. Beppo-Levi, 37-46, 1981-1982.
- A short proof on the cyclic behaviour of multithreshold symmetric automata. *Information and Control*, Vol.51, no. 2, 95-97, 1981 (co-author Eric Goles).

7C.- ARTICLES ON MATHEMATICAL MODELING

- Simple Lattice Model with inertia for sand piles. *Granular Matter* 1, 137 - 140, 1998 (Co-authors Eric Goles, Gregorio González, H. Herrmann).
- Genome-wide identification of new Wnt/ β -catenin target genes in the human genome using CART method. *BMC Genomics* 11:348, 2010. (Authors: C. Hodar, R. Assar, M. Colombres, A. Aravena, L. Pavez, M. Gonzalez, S. Martínez, N.C. Inestrosa, A. Maass).
- Calcium / calmodulin dependent protein kinase type IV (CaMKIV) is a target gene of the Wnt/ β -catenin signaling pathway. *Journal of Cellular Physiology* BMC 221, 658-667, 2009. (Authors: M. Arrazola, L. Varela-Nallar, M. Colombres, R. Assar, A. Aravena, M. Gonzalez, A. Maass, S. Martínez, N.C. Inestrosa).
- On the interoccurrence time distribution of large earthquakes: a stochastic time-predictable model on the basis of simple physical considerations. *Revista de Geofísica*, Ed. Inst. PanAmer. Geof. Hist., 1995 (co-authors Edgar Kausel, Víctor H. Salinas, Jaime San Martín, Eliana Scheihing).
- Sismicidad histórica: una ley de probabilidad para la energía elástica total y distribución de los tiempos entre ocurrencias. *Sismodinámica*, Vol.1, 185-198, 1991 (co-a. Víctor H. Salinas, Eliana Scheihing).

7D.- CHAPTERS OF BOOKS

- Notes and a remark on quasi-stationary distributions. *Pyrenees International Workshop on Statistics, Probability and Operations Research: SPO 2007*, 61-80, Monogr. Semin. Mat. Garca Galdeano, 34, Prensas Univ. Zaragoza, Zaragoza, 2008,

- Attractiveness of the Haar measure for linear cellular automata on Markov subgroups. *Dynamics & stochastics*, 100-108, IMS Lecture Notes Monogr. Ser., 48, Inst. Math. Statist., Beachwood, OH, 2006. (Co-authors Alejandro Maass, Marcus Pivato, Reem Yassawi).
- Markovian increasing couplings and queuing. *Actes des VI^{èmes} Journées Zaragoza-Pau de Mathématiques Appliquées et de Statistiques* (Jaca, 1999), 377-384, Publ. Univ. Pau, Pau, 2001, (Co-authors Javier López, Gerardo Sanz).
- Time averages for some classes of expansive cellular automata. *Cellular Automata and Complex Systems in Nonlinear Phenomena and Complex Systems*, Kluwer Academic Publishers, 3, 37-54, 1999. (Co-author Alejandro Maass).
- Introduction to neural networks. Storage capacity and optimization. *Disordered Systems*, CIMPA, Hermann, 133-153, 1996.
- Quasi-stationary distributions and Gibbs measures of expanding systems. *Instabilities and Non-Equilibrium Structures V*, Kluwer Acad. Publ., 205-219, 1995 (co-authors Pierre Collet, Bernard Schmitt).
- Quasi-stationary distributions for birth death chains. existence, convergence radii and Yaglom limit. *Les Houches, Cellular Automata and Cooperative Systems*, NATO-ASI Series, Kluwer Acad. Pub., 491-505, 1993.
- Polar decomposition and dense similarity to unitary operators. *Instabilities and Non Equilibrium Structures IV*, Mathematics and Its Applications, Kluwer, 101-107, 1993 (co-authors Nestor Bertoglio, Jaime San Martín).
- Automata networks strategies for optimization problems. *Automata Networks, Dynamical Systems and Statistical Physics*, Kluwer, 65-87, 1992 (co-author Eric Goles).
- Some properties on quasi stationary distributions in the birth and death chains. *Instabilities and non equilibrium structures III*, Mathematics and Its Applications, Kluwer, 177-187, 1991 (co-authors Pablo Ferrari, Pierre Picco).
- Cylinder distribution of thermodynamic limit on Bethe lattice, instabilities and non-equilibrium structures II, *Mathematics and Its Applications*, Kluwer, 117-130, 1989.
- A Lyapunov functional approach to the evolution of linear symmetric automata. *Disordered Systems and Biological Models*, World Scientific, 22-37, 1989.
- Filtered operators and ultrametricity. *Universalities in Condensed Matter*, Springer Verlag, 165-167, 1988.
- Systèmes intrinsèquement aléatoires et désordre. *Colloque Traitement Numérique des Attracteurs Etranges*. Editions C.N.R.S., 265-276, 1987.
- Relating topological entropy to finite dynamical systems. *Analysis, Geometry and Probability. Lecture Notes in Pure and Applied Mathematics*, Marcel Dekker, Vol.96, 221-226, 1985.

8.- PATENTS

- A. Maass, A. Aravena, M. González, S. Martínez, K. Ehrenfeld. Method for designing oligonucleotides for molecular biology techniques. Obtained in: USA, No. US 7 853 404, 14/12/2010; South Africa, No. 2006/06828, 26/03/2008; Australia, No. 2006203551, 17/05/2011.
- P. Parada, K. Ehrenfeld, I. Pacheco, A. Maass, A. Aravena, M. González, S. Martínez. Method of identification and quantification of microorganisms useful in the process of bioleaching. Obtained in: South Africa, No. 2006/07131, 30/05/2007; Chile, No. 46,739, 31/08/2010.
- R. Badilla, A. Maass, P. Parada, A. Aravena, P. Moreno, S. Martínez, K. Ehrenfeld. Arrangements of DNA fragments of bioleaching microorganisms and method for their detection. Obtained in: South Africa, No. 2006/09650, 27/12/2007; Argentina, No. AR0576112B1, 09/09/2010; Peru, No. 1432-2010, 29/10/2010.

9.- EDITED BOOKS

- Information and Randomness. *Collection Travaux en Cours*, 66, Hermann Éditeurs, Paris, 2006. (Co-Editors Alejandro Maass, Jaime San Martín).
- Dynamics and Randomness II. *Nonlinear Phenomena and Complex Systems*, 8, Kluwer Academic Publishers, 2004 (Co-Editors Alejandro Maass, Jaime San Martín).

- Dynamics and Randomness. Nonlinear Phenomena and Complex Systems, 7, Kluwer Academics Publishers, 2002 (Co-Editors Alejandro Maass, Jaime San Martín).
- Complex Systems. Nonlinear Phenomena and Complex Systems, Kluwer Academics Publishers, 2001, 300 p. (Co-Editor Eric Goles).
- Cellular Automata and Complex Systems. Nonlinear Phenomena and Complex Systems, Kluwer Academics Publishers, 1999, 180 p. (Co-Editor Eric Goles).
- Dynamical Systems. Hermann, 1996, Paris, 188 p. (Co-Editors Rodrigo Bamón, Jena-Marc Gambaudo).
- Disordered Systems. Hermann 1996, Paris, 169 p. (Co-Editors Rodrigo Bamón, Jena-Marc Gambaudo).
- Dynamics of Complex Interacting Systems. Nonlinear Phenomena and Complex Systems, Kluwer Academics Publishers, 1996, 177 p. (Co-Editors Eric Goles).
- Cellular Automata, Dynamical Systems and Neural Networks. Mathematics and Its Applications, Kluwer Academics Publishers, 1994, 189 p. (Co-Editors Eric Goles).
- Cellular Automata and Cooperative Systems, NATO-ASI Series, Kluwer Academics Publishers, 1993, 536 p. (Co-Editors Nino Boccara, Eric Goles, Pierre Picco).
- Automata Networks, Dynamical Systems and Statistical Physics. Mathematics and Its Applications, Kluwer Academics Publishers, 1992, 207 p. (Co-Editor Eric Goles).