

Curriculum Vitae

Name: Roberto Leonardo Oscar **Cignoli**.

Born in Rosario, Santa Fe, Argentina, on December 5, 1937.

Married, two children, three grandchildren.

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1962 Licenciado en Matemática, Universidad Nacional del Sur, Bahía Blanca, Argentina.

1969 Doctor en Matemática, same University.

Present positions:

- Fellow of the National Academy of Exact, Physical and Natural Sciences of the Argentinean Republic (since April 1998).
- Emeritus Professor, University of Buenos Aires (since November 2004)
- Fellow of the National Academy of Sciences in Córdoba (Argentina) (since September 2009).
- President of the National Academy of Exact, Physical and Natural Sciences of the Argentinean Republic (since May 2012).
- Chairman of the Committee for Logic in Latin American of the Association for Symbolic Logic.

Positions held:

1962-1976 Several teaching positions at the Univeridad Nacional del Sur. On leave of absence from September 1972 to August 1975.

1972-1974 Visiting Fellow, Department of Mathematics, Princeton University. Supported by a Fellowship from the Consejo Nacional de Investigaciones Científicas y Técnicas de la República Argentina (CONICET).

1974-1975 Visiting Assistant Professor, Department of Mathematics, University of Illinois at Chicago.

1976-1980 Professor Adjunto, Instituto de Matemática, Estadística y Ciencias de la Computación (IMECC), Universidade Estadual de Campinas (UNICAMP), São Paulo, Brasil.

1980-1983 Profesor Titular IMECC, UNICAMP, Brasil.

1983-1998 Profesor Titular, Departamento de Matemática, Facultad de Ciencias Exactas y Naturales (FCEyN), Universidad de Buenos Aires (UBA).

1985-1999 Investigador Principal, CONICET.

2000-2008 Investigador Superior, CONICET. (Retired January 2008)

1987-1990 Professor, Escuela Superior Latinoamericana de Informática (ESLAI).

1998-2002 Profesor Titular Plenario, Departamento de Matemática, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.

1978-1983 Dean of the IMECC section of the Graduate School of the UNICAMP.

1980-1983 Associate Dean of the University Graduate School, UNICAMP.

1984-1986 Associate Chairman, Department of Mathematics, FCEN, UBA.

1994-1995 Chief Adviser for the area Mathematics in the Project BIRF/Ministerio de Cultura y Educación to improve the quality of teaching Sciences and Engineering at Argentinean universities.

1998-2002 Chairman, Departamento de Matemática, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.

2000-2003 Assessor of the Division of Logic, Methodology and Philosophy of

Science of the International Union of History and Philosophy of Science.

Invited Lecturer at the following International Meetings:

- Latin-American Symposia on Mathematical Logic: Santiago de Chile (1970), Brasilia (1972), Bogotá (1981, 1995), Campinas, Brazil (1985), João Pessoa, Brazil, (1989), Mérida, Venezuela (1998).
- Second Chilean Symposium on Mathematical Logic, Santiago de Chile (1987).
- Latin-American Colloquia on Algebra: Santiago de Chile (1987, 1991).
- Latin-American School of Mathematics (ELAM): Santiago de Chile (1988).
- IV Chilean Symposium on Mathematics: Santiago de Chile (1993).
- International Seminars “Order in Algebra and Logic with applications”: Naples (1992, 1993, 1994, 1999, 2000), Oxford (1995), Galway (1996), Luminy-Marseilles (1997), and Barcelona (1998).
- Meeting on Mathematical Logic, Centre de Recerca Matemàtica, Universitat Autònoma de Barcelona, Barcelona (1994).
- International Conference on “Modern Algebra and its Applications”: Vanderbilt University, Nashville, USA (1996).
- Meeting of the “EU COST action on multiple-valued logics”: Liege University, Liege, (1998).
- Logica 98, Évora, Portugal, July 1998.
- “Fourth International Symposium on Economic Information. Section 9: Algebra of Logic”, Academy of Economic Studies, Bucharest, Romania (1999).
- AMS-UMI First Joint International Meeting, Session 51: Algebraic Logic and Universal Algebra, Pisa (Italy), June 2002.
- International Conference "The Logic of Soft Computing II", Anacapri (Italy), October 2002.
- XIII Encontro Brasileiro de Lógica, Campinas, Brazil, May 2003.
- 12th. International Congress of Logic, Methodology and Philosophy of Science. Section A2 “Philosophical Logic”. Oviedo (Spain), August 2003.
- International Conference "The Logic of Soft Computing III", Sienna, (Italy), November 2003.
- “Second Florence-Vienna Workshop on Logic and Computation”, Florence (Italy), November 2005.
- International Conference “Algebraic and Logical Foundations of Many-Valued Reasoning”, Gargnano (Italy) March 2006.
- XIV Encontro Brasileiro de Lógica, Itatiaia, (Brasil), abril de 2006.
- International Conference “Ordered Structures in Many-Valued Logic”, Massa Lubrense (Italia), May 2006.
- Colóquio António Aniceto Monteiro, Lesbon (Portugal), June 2007.
- Shanks Workshop “Proof Theory and Algebra”, Vanderbilt University, Nashville, Tennessee (USA), March 2008.
- IVX Simposio Latinoamericano de Lógica Matemática, Paraty (Brazil), May 2008.
- International Meeting on Mathematical Fuzzy Logic and Soft Computing, University of Barcelona, Barcelona, November 2008.
- Internacional Workshop “L-Groups vs MV-algebras”, Bowling Green State University, Ohio (USA), June 2009.
- International Meeting “Science, Truth and Consistency”, State University of Campinas, Brasil, August 2009.

- International Conference “Logic, Algebra and Truth Degrees 2010”, Academy of Sciences of the Czech Republic, Prague, 7-11 September 2010.

Publications.

Books:

1. (With Mischa Cotlar) “Nociones de Espacios Normados”, EUDEBA, Buenos Aires, Tomo I, 1967, Tomo II, 1971.
2. (With Mischa Cotlar) “An Introduction to Functional Analysis”, North-Holland Pub. Co. Amsterdam & London, American Elsevier, N.York, 1974.
3. (With I.M.L. D’Ottaviano and D. Mundici) “Álgebras das lógicas de Lukasiewicz”, Centro de Lógica, Epistemologia e História da Ciência, Universidade Estadual de Campinas, Campinas, São Paulo, 1994.
4. (With I.M.L. D’Ottaviano and D. Mundici) “Algebraic foundations of many-valued reasoning”, Kluwer Academic Publishers, Dordrecht, Boston, London, 2000.

Papers:

1. (With A. Monteiro) Construcción geométrica de las álgebras de Lukasiewiczz libres, *Revista de la Unión Matemática Argentina*, 22 (1964-1965), 151-152.
2. Boolean elements in Lukasiewicz algebras, *Proc.Japan Acad.*, 41 (1965), 670-675.
3. (With A.Monteiro) Boolean elements in Lukasiewicz algebras. II, *Proc. Japan Acad.*, 41 (1965), 676-680.
4. Boolean multiplicative closures. I & II, *Proc.Japan Acad.*, 42 (1966), 1168-1174.
5. Moisil Algebras, *Notas de Lógica Matemática N° 27*, Instituto de Matemática, Universidad Nacional del Sur, Bahía Blanca, 1970.
6. A Hahn-Banach theorem for distributive lattices, *Revista de la Unión Matemática Argentina*, 25 (1971), 336-342.
7. Representation of Lukasiewicz and Post algebras by continuous functions, *Colloquium Mathematicum*, 24 (1972), 127-138.
8. Stone filters and ideals in distributive lattices, *Bull. Math. Soc. Scie. Math. R.P.Roumanie*, 15 (63) (1971), 131-137.
9. Topological representation of Lukasiewicz and Post algebras, *Notas de Lógica Matemática N° 33*, Instituto de Matemática, Universidad Nacional del Sur, Bahía Blanca, 1974.
10. Injective De Morgan and Kleene algebras, *Proc. Amer. Math. Soc.*, 47 (1975), 269-278.
11. Free n-valued Lukasiewicz algebras without involution, *Proc. 1975 International Symposium on Multiple-valued Logic held at Indiana University. IEEE Computer Society, Long Beach, California, 1975, pp . 226-233.*
12. The lattice of global sections of sheaves of chains over boolean spaces, *Algebra Universalis*, 8 (1978), 357-373.
13. Deductive systems and congruences in ortholattices. *Mathematical Logic: Proceedings of the First Brazilian Conference.*(A. I. Arruda, N. C. da Costa and R. Chuaqui, Editors). *Lecture Notes in Pure and Applied Mathematics*, Vol.39, M.Decker Inc., N.York, 1978, pp 57-72.
14. A note on the interpolation of some martingale spaces, *Atas do 7° Seminário Brasileiro de Análise*, Recife, Maio de 1978, pp 34-41.
15. (With J. Hounie) Functions with arbitrary small periods, *American Mathematical Monthly*, 85 (1978), 582-584.

16. Coproducts in the categories of Kleene and three-valued Lukasiewicz algebras, *Studia Logica*, 28 (1979), 237-245.
17. (With M. S. de Gallego) The lattice structure of some Lukasiewicz algebras, *Algebra Universalis*, 13 (1981), 315-328.
18. Some algebraic aspects of many-valued logics, *Proceedings of the Third Brazilian Conference on Mathematical Logic*, Soc. Brasileira de Lógica, São Paulo, 1980, pp 49-69.
19. Proper n-valued Lukasiewicz algebras as S-algebras of Lukasiewicz n-valued propositional calculi, *Studia Logica*, 41 (1982), 3-16.
20. (With M. S. de Gallego) Dualities for some De Morgan algebras with operators and Lukasiewicz algebras, *Journal of the Australian Math. Society, Series A*, 34 (1983), 377-393.
21. Conditional expectations and martingales in Banach function spaces, *Indagationes Mathematicae*, 45 (1983), 7-18.
22. An algebraic approach to elementary theories based on n-valued Lukasiewicz logics, *Zeitschrift für Mathematische Logik und Grundlagen der Mathematik*, 30 (1984), 87-96.
23. The class of Kleene algebras satisfying an interpolation property and Nelson algebras, *Algebra Universalis*, 23 (1986), 262-292.
24. (With M. E. Adams) A note on the axiomatization of equational subclasses of n-valued Lukasiewicz algebras, *Notre Dame Journal of Formal Logic*, 31 (1990), 304-307.
25. Quantifiers on distributive lattices, *Discrete Mathematics*, 96 (1991), 183-197.
26. Complete and atomic algebras of the infinite-valued Lukasiewicz logic, *Studia Logica*, 50 (1991), 375-384.
27. (With A. Di Nola and A. Lettieri) Priestley duality and quotient lattices of many-valued algebras, *Rendiconti del Circolo Matematico di Palermo, Serie II*, 40 (1991), 371-384.
28. (With S. LaFalce and A. Petrovich) Remarks on Priestley duality for distributive lattices, *Order*, 8 (1991), 299-315.
29. (With G. A. Elliot and D. Mundici) Reconstructing C*-algebras from their Murray von Neumann orders, *Advances in Mathematics*, 101 (1993), 166-179.
30. Distributive lattice congruences and Priestley spaces, *Actas del Primer Congreso "Dr. Antonio A.R. Monteiro"* (Ed. A. Germani, H. Cendra, E.L. Fernández Stacco), Universidad Nacional del Sur, Bahía Blanca, 1991, pp 81-84.
31. Free lattice-ordered abelian groups and varieties of MV-algebras, *Proceedings of the IX Latin American Symposium on Mathematical Logic (Part 1)*, *Notas de Lógica Matemática* N° 38, Instituto de Matemática, Universidad Nacional del Sur, Bahía Blanca, 1993, pp. 113-118.
32. The algebras of Lukasiewicz many-valued logics, *Séminaire de Structures Algébriques Ordonnées 1992-1993* (Ed. F. Delon, M.A. Dickmann, D. Gondart), Équipe de Logique Mathématique, Université Paris VII, Paris, 1994, 18 pp.
33. Free Q-distributive lattices, *Studia Logica*, 56 (1996), 23- 29.
34. (With A. Torrens) Boolean products of MV-algebras. Hypernormal MV-algebras, *Journal of Mathematical Analysis and Applications*, 199 (1996), 637-653.
35. (With A. Torrens) The poset of prime l-ideals of an abelian l-group with a strong unit, *Journal of Algebra*, 184 (1996), 604-612.
36. (With D. Mundici) An elementary proof of Chang's completeness theorem for the infinite-valued calculus of Lukasiewicz, *Studia Logica*, 58 (1997), 79-97.

37. (With A. Torrens) Retractive MV-algebras, *Mathware & Soft Computing*, 2 (1995), 157-165.
38. (With A. Petrovich) On the minimum number of variables needed to characterize some subvarieties of a congruence distributive variety, *Notas de la Sociedad de Matemáticas de Chile*, 15 (1996), 1-6.
39. (With M. Abad and R. P. Díaz Varela) K-Post algebras of order n , *Mathematica Japonica*, 48 (1998), 267-273.
40. (With D. Gluschankof and F. Lucas) Prime spectra of lattice-ordered abelian groups. *Journal of Pure and Applied Algebra*, 136 (1999), 217-229..
41. (With D. Mundici) An elementary presentation of the equivalence between MV-algebras and l-groups with strong units, *Studia Logica*, 61 (1998), 49-64.
42. (With D. Mundici) An invitation to MV-algebras, *Advances in Algebra and Model-Theory*, (M. Droste and R. Goebel, eds.), Gordon and Breach Publishing Group, Readings, UK, 1997, pp.171-197.
43. (With A. Torrens) An algebraic analysis of product logic, *Multiple Valued Logics*, 5 (2000), 45-65.
44. n-Valued Connectives. *Information Technology. Proceedings Fourth International Symposium on Economic Informatics – May 1999*. (I. Smeureanu, I. Rosca, Editors), INFOREC Printing House, Bucharest, 1999, pp. 923-929.
45. Lattice-ordered abelian groups and completeness of Łukasiewicz and Product t-norms, *Séminaire de Structures Algébriques Ordonnées 1997-1998* (Ed. F. Delon, M.A. Dickmann, D. Gondart), Équipe de Logique Mathématique, Université Paris VII, Paris, 1999, 14 pp.
46. (With E. Esteva, L. Godo y A. Torrens) Basic fuzzy logic is the logic of continuous t-norms and their residua, *Soft Computing*, 4 (2000), 106-112.
47. (With A. Torrens) Free cancellative hoops, *Algebra Universalis*, 43 (2000), 213-216.
48. (With A. Torrens) Free Stone algebras, *Discrete Mathematics*, 222 (2000), 251-257.
49. (With D. Mundici) Partial isomorphisms on totally ordered abelian groups and Hájek's completeness theorem for Basic Logic, *Multiple Valued Logic*, 6 (2000), 89-94.
50. (With X. Caicedo) An algebraic approach to intuitionistic connectives, *Journal of Symbolic Logic*, 66 (2001), 1620-1636.
51. (With A. Torrens) Free algebras in varieties of MV-algebras with a boolean retract, *Algebra Universalis*, 48 (2002), 55-79.
52. (With E. Esteva, L. Godo, F. Montagna) On a class of left-continuous t-norms, *Fuzzy Sets and Systems*, 131 (2002), 283-296.
53. (With A. Torrens) Hájek basic fuzzy logic and Łukasiewicz infinite-valued logic, *Archive for Mathematical Logic*, 42 (2003), 361–370.
54. (With E. Dubuc, D. Mundici) An MV-algebraic invariant for boolean algebras with a finite-orbit automorphism, *Tatra Mountain Mathematical Publications* 27, (2003), 23--43.
55. (With E. Dubuc y D. Mundici) Extending Stone duality to multisets and locally finite MV-algebras, *Journal of Pure and Applied Algebra* 189 (2004), 37—59.
56. (With A. Torrens) Glivenko like theorems in natural expansions of BCK logic, *Mathematical Logic Quarterly*, 50 (2004), 111-125.
57. (with A. Torrens) Standard completeness of Hájek Basic Logic and decompositions of BL-chains, *Soft Computing. Special issue on BL-algebras*, 9 (2005), 862 – 868.

58. (With F. Esteva, L. Godo y C. Noguera) On product fuzzy logic with truth-constants. In: Proceedings of the Eleventh International Fuzzy Systems Association World Congress IFSA 2005. (Yingming Liu, Guoqing Chen and Mingsheng Ying Editors.) Tsinghua University Press and Springer-Verlag, Beijing - Heidelberg, 2005, pp. 1244-1249.
59. (with M. Busaniche) Free algebras in varieties of BL-algebras generated by a BL_n-chain, *Journal of the Australian Mathematical Society*, 80 (2006), 419-439.
60. (with D. Mundici y M. Navara) Kleene-isomorphic σ -complete MV-algebras with product are isomorphic, *Journal of Multiple-Valued Logic and Soft Computing*, 12 (2006), 1-8.
61. (with A. Torrens) Free algebras in varieties of Glivenko IMTL-algebras satisfying the equation $2(x^2) = (2x)^2$, *Studia Logica*, 83 (2006), 155 – 179.
62. (with L. Monteiro) Maximal subalgebras of MV_n-algebras. A proof of a conjecture of A. Monteiro, *Studia logica*, 84 (2006), 393--495.
63. (with D. Mundici) Stone duality for Dedekind σ -complete ℓ -groups with order-unit. *Journal of Algebra*, 302 (2006), 848--861.
64. (with P. Savický, F. Esteva, L. Godo y C. Noguera) On product logic with truth-constants, *Journal of Logic and Computation*, 16 (2006), 205 –225.
65. Free algebras in varieties of Stonean residuated lattices, *Soft Computing*, 12 (2008), 315 –320.
66. (with M. Busaniche) Free MV_n-algebras, *Algebra Universalis*, 58 (2008), 335–340.
67. (with F. Esteva y L. Godo), On Łukasiewicz logic with truth constants. In: *Theoretical Advances and Applications of Fuzzy Logic and Soft Computing*, *Advances in Soft Computing* vol. 42, O. Castillo et al. (eds.), pp. 869--875, Springer-Verlag, 2007.
68. The algebras of Łukasiewicz many-valued logic: A historical overview. In: S. Aguzzoli et al. (Editors), *Algebraic and Proof-theoretic Aspects Non-classical Logics*, *Lectures Notes on Artificial Intelligence* 4460 (2007), 69-83.
69. (with M. Busaniche) Constructive logic with strong negation as a substructural logic, *Journal of Logic and Computation*, 20 (2010), 761-793.
70. (with M. Busaniche) Residuated lattices as an algebraic semantics for paraconsistent Nelson's logic, *Journal of Logic and Computation* 19 (2009), 1019 –1029.
71. (with F. Esteva) Commutative integral bounded residuated lattices with an added involution, *Annals of Pure and Applied Logic*, 161 (2009), 150--160.
72. (with E. Marra) Stone duality for real-valued multisets, *Forum Mathematicum*, 24 (2012), 1317–1331.
73. Boolean skeletons of MV-algebras and ℓ -groups, *Studia Logica*, 98 (2011), 137-143.
74. (with M. Busaniche) Remarks on an algebraic semantics for paraconsistent Nelson's logic, *Manuscrito. Revista Internacional de Filosofía*, 34 (2011), 99—114.
75. (with A. Torrens) Varieties of commutative integral bounded residuated lattices admitting a Boolean retraction term, *Studia Logica*, 100 (2012), 1107--1136.
76. (with M. Busaniche) The subvariety of commutative residuated lattices represented by twist-products, *Algebra Universalis*, accepted for publication.