**Professor ROSALINDA CONTRERAS THEUREL**

Present Position:
Emeritus Professor since 2003 of the Research Center for Advanced Studies (Cinvestav Mexico).

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Born in Jalapa Veracruz Mexico, December 17, 1946.

Bachelor in Biological Chemistry (1966) and Bachelor in Industrial Chemistry (1966). School of Chemistry, University of Puebla, Mexico.

Research fellow (Directed by Dr. Pierre Crabbé) at the Syntex Research Laboratories in Mexico City, 1967-1970.

Diplome d'études approfondies (Structural Chemistry) (1971) and PhD in Chemistry (with honors), (1973) Paul Sabatier University, Toulouse France.
Thesis (Directed by Professor Robert Wolf): "Apport du pouvoir rotatoire a l'étude de la pentacovalence. Vers la configuration absolue de quelques spirophosphoranes de norephedrine.

Assistant Professor 1973, Full Professor 1980, Emeritus Professor 2003 at the Chemistry Department of Research Center for Advanced Studies (Cinvestav-Mexico)

Chair Person of the Chemistry Department (1981-1989)

Academic Dean of Cinvestav, 1995.

President of Cinvestav 2002-2006.

Visiting Professor at the Universities: Paul Sabatier, Toulouse France; Purdue, Indiana USA and Munich, Germany.

Research
Heterocyclic chemistry, main group organic comounds, Stereochemistry, Coordination Chemistry Weak interactions and NMR

Research papers 190, Meeting papers more than 100, papers for scientific divulgation 25. Plenary Conferences in México and abroad: 180. Lecturer for children and young people. Chemistry courses and seminars in many universities in Mexico
Director of 72 Bachelor, Master of Sciences and PhD thesis

Member of Scientific Societies:
Mexican Chemical Society,
American Chemical Society,
Founder and President of the Mexican Academy of Inorganic Chemistry,
Mexican Academy of Sciences, Member and Treasurer for four years.

Member of the Technical Board of the Mexico-USA Foundation for the Sciences.
Board Member of the International Meetings on Boron Chemistry Council. IMEBORON (UPAC).
Board Member of the International Council of the Main Groups Elements.
Board Member of the Boron-Americas workshops
President of the Boron worshop held in Mexico (1996)

Prizes:

National Award of Exact Sciences from the Mexican Academy of Science (1986)

Award as Distinguished Boron Chemistry Scientist from the Boron Americas Worshop (2004)

Honors:

Holder of the French Goverment Scholarship for PhD studies 1970-1973.

Holder of a Humbolt Foundation Scholarship for Research Activities at the Institut of Inorganic Chemistry of the University of Munich (1979).

Hostess Professor for the Seminar of Scientific Innovation and the New Industrial Revolution (DAAD, Germany), 1987.

President of the Conference of the Nobel Prize Mario Molina (DAAD, Germany), México 1997

**PAPERS**

**1)** Spirophosphoranes dérivant d'amino (2) ethanols optiquement actifs. R. Contreras, J.F. Brazier, A. Klaébé, R. Wolf. *Phosphorus*, **2**, 67-71 (1972).

**2)** Sur la synthese ameliorée de quelques spirophosphoranes nouveaux. R. Contreras, R. Wolf M. Sánchez. *Synth. Inorg. Metal-Org. Chem.* **3(1)**, 37-45 (1973).

**3)** Reducción de 3-ceto esteroides con hidruro de boro e hidroboratos. M.L. Mendoza, R. Contreras. *Rev. Soc. Quim. Mex.* **2(4)**, 1977.

**4)** 1-Pirrolilborano nuevo y eficiente agente hidroborante y reductor. R. Contreras, M. Añez, L. Martínez. *Rev. Soc. Quim. Mex.* **2(4)**, 1977.

**5)** Revisión de la reacción de hidroboración del fenil-propadieno y del 3-fenil-1-butadieno. R. Contreras, G. Uribe, T. Mancilla. *Rev. Soc. Quim. Mex.* **2(4)**, 1977.

**6)** Estereoselectividad de la reducción de carbonilos con borohidruros. M.L. Mendoza, H. Mora, R. Contreras. *Rev. Soc. Quim. Mex*. **22**, 1978.

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**9)** The reduction of 5$\alpha$-cholestan-3-one and 5$\beta$-cholestan-3-one by some boranes and hydroborates. R. Contreras, L. Mendoza. *Steroids.* **34(2),** 121-124 (1979).

**10)** Hydroborierung von 3-methyl-l,3-butadien mit boran in THF und DMS. R. Contreras, B. Wrackmeyer. *Z. Naturforsch*. B. **35b**, 1229-1235 (1980).

**11)** Hydroborierung von 1,5-cyclooctadien mit boran in THF. R. Contreras B. Wrackmeyer. *Z. Naturforsch*. B. **35b**, 1236-1240 (1980).

**12)** 1-Pyrrolylborane tetrahydrofuran complex. A new bifunctional hydroborating agent. M. Anez, G. Uribe, L. Mendoza, R. Contreras. *Synthesis Commun.* 214-216(1981).

**13)** Hydroborierung von 3-methyl-1,3-butadien mit 1,2:1,2-Bis(tetramethylen) diboran(6), R. Contreras, B. Wrackmeyer. *J. Organometal. Chem*. **205,** 15-19 (1981).

**14)** Phosphoranes bicycles a liaison P-H: Bases de Lewis Potentielles. R. Contreras, D. Houalla, A. Klaebe, R. Wolf. *Tetrahedron Lett.* **22(10),** 3953-3954 (1981).

**15)** Approche cinetique du mecanisme d'isomerisation de spirophosphoranes optiquement actifs. A. Klaébé, J. F. Brazier, A. Cachapuz Carrelhas, B. Garrigues, M.R. Marre, R. Contreras. *Tetrahedron.* **38(14)**, 2111-2122 (1982).

**16)** Obtention de 3 types de derivés du bore: Esters aminoboriques tris N-boranes, esters aminoboriques bis N-boranes et aminoalcools N-boranes a partir de la reaction d'aminoalcools-1,2 avec $BH_3$ THF et $BH_3$.DMS. Mise en evidence d'une coordination interne B←N. T. Mancilla, F. Santiesteban, R. Contreras, A. Klaébé. *Tetrahedron Lett.* **23(15)**, 1561-1564 (1982).

**17)** Application of 11B NMR spectroscopy to the study of hydroboration-III. 11B NMR study of exchange reactions of triorganyl boranes with borane in THF and DMS. R. Contreras, B. Wrackmeyer. *Spectrochim. Acta* Part A. **38A(8)**, 941-951 (1982).

**18)** Synthesis of -O-BH2←N derivatives of 8-hydroxyquinoline, 1-methyl-8-hydroxy-1,2,3,4-tetrahydroquinoline, N,N-dimethyl-2-aminophenol and borane. N. Farfán, R. Contreras. *Nouv. J. Chimie.* **6(5)**, 269-272 (1982).

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**21)** Consequences stereochimiques de la fixation de $BH_3$ sur la paire libre de l'azote des ephedrines: Echange isotopique NH/ND stereospecifique. F. Santiesteban, T. Mancilla, A. Klaébé, R. Contreras. *Tetrahedron Lett.* **24(8)**, 759-760 (1983).

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**24)** Stereochemistry of ephedrine- and pseudoephedrine-derived oxazolidines and of their N-borane adducts determined by nuclear overhauser effect difference spectroscopy. F. Santiesteban, C. Grimaldo, R. Contreras, B. Wrackmeyer*. J. Chem. Soc. Chem. Commun*. 1486-1487 (1983).

**25)** Catalytic effect of lithium bromide on the hydroboration of alkenes and reduction of carbonyl compounds with catecholborane. L. Mendoza, M.B. Peña, L. Cuellar, R. Contreras. *Rev. Latinoam. Quím.* **15**, 57-60 (1984).

**26)** Spiroborates derived from catecholborane and ephedrine type amino alcohols- model compounds for the study of intramolecular N→B coordination by dynamic $^{1}H$, $^{11}B$ AND $^{13}C$-NMR. F. Santiesteban, M.A. Campos, H. Morales, R. Contreras, B. Wrackmeyer. *Polyhedron.* **3(5)**, 589-594 (1984).

**27)** Crystal structure determination of the 2,6-diphenyl-1,3,6,2-dioxazaphosphorane-p-monoborane adduct. Evidence for the lack of transannular interaction and observation of a P

atom deformation towards pseudo pentacoordination. R. Contreras, A. Murillo, A. Klaébé. *Heterocycles,* **22** 1307-1313 (1984).

**28)** Application of $^{11}B$ NMR spectroscopy to the study of the reactivity of ortho substituted anilines with $BH_3$.THF. Formation reactions of new boron hetero-cycles. H.R. Morales, H. Tlahuext, F. Santiesteban, R. Contreras. *Spectrochim. Acta*, Part A **40** 855-862 (1984).

**29)** Borane-THF as a useful reagent in the N-monoalkylation of amino alcohols by carbonyl compounds. H.R. Morales, M. Pérez-Juárez, L. Cuéllar, L. Mendoza, H. Fernández, R. Contreras. *Synth. Commun.* **14(13),** 1213-1220 (1984).

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**32)** Carbon-13 NMR studies of oxazolidines, N-borane-oxazolidines and oxazolidinium salts derived from pseudoephedrine: Steric effect of the $BH_3$ and $CH_3$ groups on the chemical shifts. M.A. Paz-Sandoval, F. Santiesteban, R. Contreras. *Magn. Reson. Chem.* **23(6)**, 428-432 (1985).

**33)** Structure du (diphényl-2,6-dioxa-1,3-aza-6-phospha-2-cyclooctyl-2) trihydroboron, $C_{16}H_{21}BNO_2P$. A. Dubourg, J.P. Declerq, R. Contreras A. Murillo, A. Klaébé. *Acta Crystalogr.* Sect. C. **41C**, 1314-1316 (1985).

**34)** Synthesis and reactivity of a new dibenzobicyclic phosphorane of unusual high stability: 1-pheny1-5-aza-2,8-dioxa-1-phosphadibenzo[c,f] bicyclo[3.3.0] octane. R. Contreras, A. Murillo, G. Uribe, A. Klaébé. *Heterocycles*. **23**, 2187-2192 (1985).

**35)** New boron heteropentacyclic compounds of C2 symmetry bearing two chiral atoms: Nitrogen and boron. N. Farfán, R. Contreras. *Heterocycles*, **23** 2989-2993 (1985).

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**38)** New heterocycles derived from a simultaneous substitution and reductive acetylation of 2,5-dihydroxy-l,4-benzoquinone by N-containing heterocycles. N. Farfán, E. Ortega, R. Contreras. *J. Heterocyclic Chem.,* **23**, 1609-1612 (1986).

**39)** Studies on aromatic amine boranes by $^{11}B$ and $^{1}H$ NMR. C. Camacho, M.A. Paz-Sandoval, R. Contreras. *Polyhedron*, **5**, 1723-1732 (1986).

**40)** $^{13}$Carbon NMR study of aniline derivatives. A. Bulbarela, H. Tlahuext, H.R. Morales, L. Cuéllar, G. Uribe, R. Contreras. *Magn. Reson. Chem.,* **24**, 1093-1094 (1986).

**41)** Un aparato sencillo para la preparación del complejo borano-THF. L. Cuéllar, G. Uribe y R. Contreras. *Rev. Soc. Quim. Mex.,* **30**, 158-159 (1986).

**42)** High Yield syntheses of N-(2-hydroxyethyl)-N-alkylglycine derivatives by reaction of ethanolamines with glyoxal. N. Farfán, L. Cuéllar, J. M. Aceves, R. Contreras. *Synthesis.* **(10),** 927-929 (1987).

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**44)** $^{11}B$ NMR study of the reactivity of borane THF with representative dithianes, diazolidines, thiazolidines, benzothiazolines and benzothiazoles. R. Contreras, H.R. Morales, M.L. Mendoza, C. Domínguez. *Spectrochim. Acta,* Part A, **43A(1)**, 43-49 (1987).

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**46)** $^{13}C$ NMR studies of aromatic amineborane adducts. M.A. Paz-Sandoval, C. Camacho, R. Contreras, B. Wrackmeyer. *Spectrochim. Acta Part A.* **43A(11)**, 1331-1335 (1987).

**47)** Boron-11 Nuclear Magnetic Resonance study of the reactions of 2-functionalized pyridines with borane Tetrahydrofuran and dimethyl sulphide. Formation of borinic esters and N→B bond energy differences in five and six-membered ring borates. N. Farfán, R. Contreras. *J. Chem. Soc. Perkin Trans. II.* 1787-1791 (1988).

**48)** Synthesis and structure of pseudo atrane compounds derived from 2,2',2"- nitrilotriphenol and $BH_3$.THF, $P(NMe_2)_3$ and $AlCl_3$. M.A. Paz-Sandoval, C. Fernández-Vincent, G. Uribe, R. Contreras, A. Klaébé. *Polyhedron,* **7(9)** 679-684 (1988).

**49)** Synthesis and structure of two new dibenzobicyclic phenylboronates. N. Farfán, P. Joseph-Nathan, L.M. Chiquete, R. Contreras*. J. Organometal. Chem.* **348**, 149-156 (1988).

**50)** Study of the interaction of Lewis bases with mercury(II) chloride and mercury(II) acetate by Hg-199 NMR. R. Fraginals, N. Barba-Behrens, R. Contreras. *Spectrochim. Acta*, Part A. **45A(5),** 581-584 (1989).

**51)** $^{13}C$ and $^{1}H$ NMR investigations of quinic acid derivatives: Complete spectral assignment and elucidation of preferred conformations. A. Flores Parra, D.M. Gutiérrez Avella, R. Contreras, F. Khuong-Huu. *Magn. Reson. Chem.,* **27**, 544-555 (1989).

**52)** Reactions of $NaCNBH_3$ with benzothiazolium and -thiazolonium cations. Formation of benzothiazolines, thiazolidines and stable thiazaboroles. H. Singh, R. Sarin, K. Singh, R. Contreras, G. Uribe. *Tetrahedron.* **45(16),** 5193-5202 (1989).

**53)** Structural evaluation of a dibenzobicyclic phosphorane. Another example of a Berry exchange coordinated. R. Contreras, A. Murillo, P. Joseph-Nathan. *Phosphorus, Sulfur and Silicon.* **47**, 215-224 (1990).

**54)** NMR and X-ray diffraction studies of two bicyclic borates containing chiral boron and nitrogen atoms. N. Farfán, T. Mancilla, D. Castillo, G. Uribe, L. Carrillo, P. Joseph-Nathan, R. Contreras. *J. Organometal. Chem.* **381**, 1-13(1990).

**55)** Syntheses and reactivity of new P-H dibenzobicyclic phosphoranes bearing hydroxy-, alkoxy-, oxo-, amido-, and dihydrido- functions at the phosphorus atom. A. Murillo, L.M. Chiquete, P. Joseph-Nathan, R. Contreras. *Phosphorus Sulfur and Silicon,* **53**, 87-101, 1990.

**56)** Preparation of new quinic acid boron esters in aprotic media. A. Flores-Parra, C. Paredes-Tepox, P. Joseph-Nathan, R. Contreras. *Tetrahedron.* **46(12),** 4137-4148 (1990).

**57)** Coordination compounds derived from the interaction of streptomycin and cobalt nickel, copper and calcium salts. Characterized by $^{13}C$ NMR and spectroscopic studies. Structure and bonding properties of the streptidine fraction. N. Barba-Behrens, J.L. Bautista, M.E. Ruíz, P. Joseph-Nathan, A. Flores-Parra, R. Contreras. *J. Inorg. Biochem.* **40**, 201-215 (1990).

**58)** Preparation, X-ray crystal structure and $^{13}C$ and $^{1}H$-NMR study of 1-methyl-2-(N-methyl-N-phenylglycyl)-3-(N-methylanilino)indole. N. Farfán, J.M. Hernández, P. Joseph-Nathan, R. Contreras. *J. Heterocyclic Chem.* **27**, 1745-1749 (1990).

**59)** Inhibición del Crecimiento de Mucoor rouxii por substancias sintéticas. M. Sabanero, E. Rojas, V. Torres, N. Farfán, R. Contreras. *Rev. Latinoam. Microbiol.* **33**, 1991.

**60)** Preparation and characterization of new transition metal complexes of nitroimidazoles. X-ray crystal structures of two copper complexes: Bis-[m-chloro)-chloro-bis-(1-(2-hydroxy-ethyl)-2-methyl-5-nitroimidazole)-copper(II)] and dichloro-bis-(methyl-5-nitroimidazol) copper (II). First observation of a nitro- group coordination to the metal ion in these heterocycles. N. Barba-Behrens, A.M. Mutio-Rico, P. Joseph-Nathan, R.Contreras. *Polyhedron.* **10(12),** 1333-1341 (1991).

**61)** NMR study of the effect of nitrogen-borane coordination on the conformational equilibrium of six membered ring heterocycles. A. Flores-Parra, N. Farfán, A.I. Hernández-Bautista, L. Fernández-Sánchez, R. Contreras. *Tetrahedron* **47(34)** 6903-6914 (1991).

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**63)** Stereochemical study of imines and their N-borane adducts by $^{1}H$, $^{11}B$, $^{13}C$ and $^{15}N$ NMR. A. Ariza Castolo, A. Paz-Sandoval, R. Contreras. *Magn. Reson. Chem.,* **30**, 520-526 (1992).

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**67)** Stereoselectivity of the sulphenylation of 4-phenylbutyrolactone. Configurational and conformational analyses by H NMR spectroscopy. A. Flores-Parra, D.M. Gutiérrez-Avella, Y. J. Guzmán-Vázquez, A. Ariza-Castolo, R. Contreras. *J. Org. Chem*. **57.** 6067-6071 (1992).

**68)** Cálculos Ab-initio de las barreras rotacionales de N-metil-imidazoles. M.A. Morales, I.I Padilla, R. Contreras, A. Vela. *Rev. Soc. Quim. Mex.,* **36(6)** (1992).

**69)** El papel de la conformación y enlace por puente de hidrógeno intramolecular en el proceso de ciclación de oxamidas. H. Tlahuext, M. Tlahuextl, R. Contreras. *Rev. Soc. Quim. Mex.* **36(6)** (1992).

**70)** Reactivity of dithiazinanes towards $BH_3$, $BD_3$ and $BF_3$. New heterocycles: 5,5-dimethyl-l,3-dithia-5-azonia-6-boratacyclohexane and 6,6-dideuterio-5-methyl-5-methyl-5-[D1]methyl-1,3-dithia-5-azonia-4-boratacyclohexane. A method for the dimethylation and monodeuterio methylation of primary amines. A. Flores-Parra, G. Cadenas-Pliego, L.M. R. Martínez-Aguilera, M. L. García-Nares, R. Contreras. *Chem. Ber.* **126**, 863-867 (1993).

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**72)** 1,4,7,8-Triazaborabicyclooctanes, first examples of new boron heterocycles. A.R. Tapia-Benavides, R. Contreras. *Heteroatom Chem.,* **4(4)** 323-327 (1993).

**73)** New perhydrodithiazines, NMR and X-ray diffraction studies. G. Cadenas Pliego, L. M. R. Martínez-Aguilera, A. M. Bello-Ramírez, M.J. Rosales Hoz, R. Contreras, J. C. Daran, S. Halut, A. Flores-Parra. *Phosphorus, Sulfur and Silicon.* **81**, 111-123 (1993).

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**75)** $^{1}H$, $^{13}C$, $^{15}N$, 2D, and variable temperature NMR study of the role of hydrogen bonding in the structure and conformation of oxamide derivatives. F. J. Martínez-Martínez, A. Ariza-Castolo, H. Tlahuext, M. Tlahuextl, R. Contreras. *J. Chem. Soc. Perkin Trans 2*. 1481-1485 (1993).

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**81)** Diethanolamines, diphenolamines, diethylenetriamines, the game with phosphorus and boron. R. Contreras. *Main Group Chemistry News*. **2(1),** 22-28, (1994).

**82)** New chiral heterocycles: 5-[(R)-(+)-1'-methylbenzyl]-1,3,5-dithiazine and 3,7-di-[(R)-(+)-1'-methylbenzil]-3,7-diaza-l,5-dithiacyclooctane. Conformational studies and their reactions with borane. G. Cadenas-Pliego, M. J. Rosales-Hoz, R. Contreras and A. Flores-Parra. *Tetrahedron Asymm.* **5(4),** 633-640 (1994).

**83)** Diethanolamines, diphenolamines, diethylenetriamines, the game with phosphorus and boron. R. Contreras. *Phosphorus Sulfur and Silicon*. **87,** 49-58 (1994).

**84)** Determination of the nitrogen configuration in ephedrine N-boranes and a study of their assisted stereospecific deuteration of NH. H. Tlahuext, F. Santiesteban, E. García-Báez, R. Contreras. *Tetrahedron Asymm.* **5(8),** 1579-1588 (1994).

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