

CURRICULUM VITAE (resume)
GERARDO RODRÍGUEZ FUENTES

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Nationality: Cuban **Date of birth:** October 29th, 1952 **Marital status:** Married

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QUALIFICATIONS

Scientific Degree: Doctor in Science ScD, 2015; PhD in Physics, 1987.

Scientific Category: Senior Researcher, 1995.

Special Scientific Category: Emeritus Researcher, 2019.

Full Member of the Academy of Science of Cuba, 2018-.

PhD Dissertation: Physical-Chemical Properties and Industrial Applications of Natural Clinoptilolite.

Place: Centro Nacional de Investigaciones Científicas (CENIC), La Habana, Noviembre 1987.

Doctor in Science Dissertation: Natural Zeolite Engineering: Development of New Materials and Their Utilization Technologies.

Place: Universidad de La Habana, Julio 2015.

AD Scientific Index 2025 reports **375 citations** of his works, **H index 28** and **i10 index 61**; **number 1** in the ranking of Cuba and **98** in Latin America on Metallurgical & Materials Engineering in Zeolites/Materials Science/Technological innovation.

EDUCATION

- 1975 Bachelor in Physics University of Havana
- 1978 Postgraduate diploma in Philosophy, CENIC, Cuba
- 1980 Postgraduate diploma in Nuclear Techniques, Institute of Physics and Nuclear Techniques, AGH, Krakow, Poland (fellowship of International Atomic Energy Agency IAEA)
- 1981 Postgraduate diploma in Nuclear Techniques, Institute of Nuclear Research, Swierck, Warsaw, Poland (fellowship of International Atomic Energy Agency IAEA)
- 1984 Postgraduate diploma in Physical and Chemical Properties of Zeolites, CENIC, Cuba
- 1984 Postgraduate diploma in Physics of Surfaces, CENIC
- 1984 Postgraduate diploma in Experimental Design, CENIC, Cuba

EMPLOYMENT TO DATE

- Professor at the "Enrique José Varona" Higher Pedagogical Institute, 1975 - 1978
- Researcher at the National Scientific Research Centre, CENIC, 1978 - 1989
- Senior researcher and consultant at the Materials Science and Technology Institute (IMRE), University of Havana, Cuba, 1989 - .

Languages: Spanish, English.

OTHER ASSIGNMENTS

- Main Consultant of Zeolite Development Program of the Republic of Cuba, Executive Committee of Ministers Council. 1987-1992.
- Coordinator of National Zeolite Group of Cuba, Science and Technology Section, 1991-2004.
- Member of Scientific Council, Materials Science and Technology Institute (IMRE), University of Havana,
- Expert on Zeolite of the Academy of Science of Cuba.
- Organizing Secretary of 3er International Conference of Occurrence, Properties and Uses on Natural Zeolites, La Habana, 1991.
- Head of the Zeolitic Active Products for Drug Formulation project, University of Havana. 1998-2000.
- Head of the Cuban Physics Society's Medic Physics and Biophysics Section.
- Expert of Catalysis and Adsorbents Subprogram V, CYTED
- Member of the Scientific Council of the University of Havana, 1997-2000.
- Organizing Secretary of I, IV y VI National Conference on Zeolites, Cuba, 1992, 1998 and 2003.
- Member of the Material Science Commission of the Academy of Sciences of Cuba, 1999.
- Member of the Scientific Council of the Pharmaceutical Industry of Cuba, MINSAP, 1999.

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- Scientific consultant of the Instituto de Fomento Pesquero of Chile.
- Scientific consultant of Grupo Bampoahi S.A. de C.V. México. 2006-2010
- Coordinator of the Cooperation Agreement of the University of Havana and the European Pole University of Montpellier, 2003.
- Research and Development Director of the Experimental Centre of Application of Zeolites, Edo Morelos, Mexico, 2004–2010.
- Deputy Director of Materials Science and Technology Institute, University of Havana, 2006-2010.
- Guest Professor of the University Montpellier 2, France, 2006.
- Guest Professor Researcher Faculty of Engineering at University Western Ontario, Canada, 2013.
- Guest Professor Researcher of Northern British Columbia University, Canada, 2016.
- Guest Professor of the Medical University of Vienne, Austria, 2018.
- Member of Committee on Nominations of International Natural Zeolite Association INZA, 2016 -.
- Member of the National Tribunal of Chemistry, Cuba, 2016 -.
- Scientific consultant of International Zeolite Corp (Canadian Zeolite Corp), 2016 -.
- Member of National Commission of Scientific Degree, Cuba, 2016 -.
- Full Member of the Academy of Science of Cuba, 2018- .

SCIENTIFIC PRODUCTION

- Scientific articles: 143 Citation: 3715
- Presentations at scientific conferences: 180
- Invitations to scientific conferences: 26
- Books and monographs: 9
- Patents: 4
- Industrial secrets: 8
- Trademarks: 9
- Drug registered: 1
- Sanitary registered: 1
- Fertilizer registered: 3
- Cuban standard: 1

BOOKS AND MONOGRAPHS

1. Manual para Ingenieros de Zeopónicos (Handbook for Zeoponic Engineer), G. Rodríguez-Fuentes y L. Rivero, *Ediciones Ministerio de Agricultura, República de Cuba, (1990)*
2. Memoirs of 3rd International Conference on Occurrence, Properties and Utilization on Natural Zeolites; G. Rodríguez Fuentes y J.A. González Morales editores, *Palacio de Convenciones Publicaciones., La Habana, (1993)*
3. Estado Actual de la Investigación sobre Zeolitas en Cuba, G. Rodríguez-Fuentes, F. Machado y B. Concepción editores, *Red Temática V.A CYTED, La Habana (1998)*
4. Zeolitas. Características, Propiedades y Aplicaciones Industriales; G. Giannetto, A. Montes y G. Rodríguez-Fuentes, *Editorial Innovación Tecnológica (EdiT) UCV, Caracas (2000)*
5. Catalizadores y Adsorbentes Iberoamericanos para la Remoción de Metales Pesados de Efluentes Industriales; G. Rodríguez-Fuentes y P. Ávila García editores, *Ediciones CYTED, Madrid, 2000.*
6. VI Conferencia Nacional sobre Zeolitas y Materiales Microporosos y Seminario Avanzado. Conferencias Plenarias, Mesas Redondas y Resúmenes ampliados de los trabajos. G. Rodríguez-Fuentes, E. Menéndez y B. Concepción-Rosabal editores. *Editorial SOFTCAL, CD ROM, La Habana, Cuba, 10-14 Marzo del 2003, IMRE-Univ. de La Habana, Cuba.*
7. Las zeolitas en la adsorción de iones metálicos y procesos terapéuticos G. Rodríguez-Fuentes Capítulo 11 en *Adsorbentes en la solución de algunos problemas ambientales. Francisco Rodríguez Reinoso Editor. Ediciones CYTED. (2004).*
8. Evaluation of a zinc clinoptilolite (ZZ) for drinking-water treatment. G. Rodríguez-Fuentes *et al.* Chapter 30 in *Aquananotechnology: Global Prospects. David E. Reisner and T. Pradeep editors. CRC Press, Taylor & Francis Group, USA, (2014) 600-623.*
9. La creación de la industria cubana de zeolitas naturales: un caso de universidad emprendedora. G. Rodríguez-Fuentes, F. Santiago Rodríguez, I. Rodríguez-Iznaga, J. Núñez Jover. En *Vinculación universidad-sector productivo para fortalecer los sistemas nacionales de innovación: experiencias de Cuba, México y Costa Rica. / coordinadores G. Dutrénit, J. Núñez Jover. Editorial UH, 2017, p123-151.*

PATENTS AND REGISTRIES

1. Proceso de Recuperación de Níquel, Amoníaco y Agua licores de desecho carbonato-amoniaco; *Patente No.21 503, 10/07/1985.*

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2. Procedimiento para la obtención de catalizador níquel (II) intercambiado en clinoptilolita o heulandita y el catalizador así obtenido; *Patente cubana No.21742, 09/07/1989.*
3. Procedimiento para la obtención de un catalizador ácido de clinoptilolita-heulandita natural modificada, *Patente cubana No. 22083 A1, 30/04/1993.*
4. ENTEREX tabletas antidiarreicas; *Registro de Medicamento No.0823, Control Estatal de la Calidad de los Medicamentos de Cuba, 1995.*
5. Procedimiento para la obtención de los sustratos zeopónicos y fertilizantes NEREA, *Secreto Industrial Universidad de la Habana (UH), 1987.*
6. Procedimiento para la obtención del opacificador OPAZ, *Secreto Industrial UH, 1990.*
7. Procedimiento para la obtención del microbicida ZZ, *Secreto Industrial UH, 1992.*
8. Procedimiento para la purificación de la zeolita natural, *Secreto Industrial UH, 1993.*
9. Procedimiento para la obtención del hipocolesteremiante CZ, *Secreto Industrial UH, 1994.*
10. Procedimiento para la obtención del hipoglucemiante FZ, *Secreto Industrial UH, 1996.*
11. ZZ para la purificación de agua, *Licencia Sanitaria No. 009/99 - II/99, INHA, Cuba*
12. COLESTINA Trademark OCPI No.1391/2000
13. NEUTACID Trademark OCPI No.1387/2000
14. NEUTACID-M Trademark OCPI No.1390-2000
15. ZZ Trademark OCPI No.1392/2000.
16. Elaboración de monolitos zeolíticos estabilizados hidrotermalmente para la depuración de fluidos, *Patent PCT/ES/00339, WO 2004/009234*
17. Reporte y Validación de Resultados para productos Zeolíticos. Rancho Chinobampo. *INIFAP Estado Morelos, México, 2008.*
18. ZNPmed Trademark OCPI 3483/2012
19. NEREA Trademark OCPI No. 0096/2014
20. FZ, Trademark OCPI No. 2016-0550
21. NatZEng, Trademark, OCPI No. 2016-2102
22. NEREA® fertilizante: *Registro de fertilizante No. RCF 018/20.*
23. NEREA® sustrato: *Registro de fertilizante No. RCF 019/20.*
24. NEREA® PLUS-U fertilizante foliar: *Registro de fertilizante No. RCF 017/20.*
25. Procedimiento para la obtención de sustratos y fertilizantes zeolíticos de liberación controlada y métodos de tratamiento de las plantas. *Patent CU 2021-0017.*
26. Procedure for obtaining substrates and controlled release zeolitic fertilizers and plant treatment methods. *Patent application H8327186CA.*
27. Zeolitic sulfur products obtained by mechanochemistry useful for plant treatment. *Patent application CU 2024-0005*

SCIENTIFIC ARTICLES LAST 5 YEARS

1. Characterization of zeolite as sorbent for Ni(II) concentration in aqueous solutions. J. Al. Ricardo-García, Y. Enamorado-Horrutiner, G. Rodríguez-Fuentes, M. S. Pomares-Alfonso, M. E. Villanueva-Tagle. *Microchemical Journal (IF4.821), Volume 164, May 2021*
2. Composite materials of natural zeolite modified with N, P and organic nitrogenous substances for agroecological purposes. E.Y. de la Nuez Pantoja, I. Rodríguez Iznaga, V. Petranovskii, E. Smolentseva, G. Rodríguez Fuentes, A. Martínez García, Odalys Collazo García. *Proceeding of Symposium of Nanoscience and Nanomaterials. CNYN-UNAM-CICESE, México. p. 190. April/2019.*
<https://snn2019.nnsymposium.com/proceedings>.
3. Ammonium modified natural clinoptilolite to remove manganese, cobalt and nickel ions from wastewater: Favorable conditions to the modification and selectivity to the cations. I. Rodríguez-Iznaga, G. Rodríguez-Fuentes, G. Rodríguez-Fuentes, A. Martínez García, Odalys Collazo García. *Proceeding of Symposium of Nanoscience and Nanomaterials. CNYN-UNAM-CICESE, México. p. 190. April/2019.*
4. Sedimentary Zeolite Deposits in Cuba. A.D. Brito-Rojas, D.P. Coutín-Correa and G. Rodríguez-Fuentes. *International Zeolite Association (IZA), Comission on Natural Zeolites. Catalog of Deposits 2017.*
<http://www.iza-online.org/natural/default.htm>
5. La microscopía electrónica en el estudio de las zeolitas naturales. G. Rodríguez-Fuentes, *Acta Microscopica, Vol. 26 Supp. A (2017). Web of Science (Science Citation Index) IF: 0.07. ISSN: 0798-4545.*
6. Natural Clinoptilolite Materials Enriched in Nitrogen and Phosphorous for Agricultural Purposes: A Comprehensive Study on Their Development. De la Nuez, E.Y., Rodríguez Iznaga, I., Rodríguez Fuentes, G., Petranovskii, V., Martínez García, A., Calvino Gámez, J.J., Goma Jiménez, D., Cauqui, M.A., Rivero González, L.A., Collazo García, O. *Journal of Inorganic and Organometallic Polymers and Materials* <https://doi.org/10.1007/s10904-023-02991-4>
7. Application of statistical criteria to FTIR spectroscopy obtained from the NEREA® Substrate. Molina-Amat, J.C., de la Nuez-Pantoja, E.Y., Rodríguez-Iznaga, I., Rodríguez-Fuentes, G., Rivero-González, L.A., Rivero-Robaina, E.L. and Petranovskii, V. *Proceeding Symposium of Nanoscience and Nanomaterials 2024, UNAM, Ensenada, México.*

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8. Industrial production of NEREA® zeolitic products for the agricultural industry: alternatives for the curing-drying process. Molina-Amat, J.C., Rodríguez-Iznaga, I., Rodríguez-Fuentes G., de la Nuez-Pantoja, E.Y. and Caisés Ávalos, A. *Tecnología Química* Vol. 44, No 3, sept.-dic., 2024 (pp. 529-543)
9. Sedimentary Zeolite Deposits in Cuba. Second report. *Natural Zeolite Engineering Innovation: Industrial production of NEREA® materials for Agriculture*. Rodríguez-Fuentes, G., Rodríguez-Iznaga, I., Lariot-Sánchez, C.A., Concepción Rosabal, B., Molina-Amat, J.C., Rivero-González, L.A., Rivero-Robaina, E.L., De la Nuez-Pantoja, E.Y., and Caisés Ávalos, A. IZA-NZ <https://iza-online.org/natural/default.htm> ("Additions and insights") (2025)

TEACHING EXPERIENCE

- University courses: 19
- Postgraduate courses: 33
- Tutorship of university diploma: 21
- Tutorship of master degree thesis: 9
- Tutorship of PhD degree thesis: 11
- Tutorship of PhD degree thesis in development: 3
- Doctor in science examination boards: 5
- Opponent of doctor in science thesis: 2
- PhD examination board: 6
- Opponent of PhD thesis: 9
- Master examination board: 7

DECORATIONS

1. **Carlos J. Finlay Medal** presented by Council of State of the Republic of Cuba, 2007.
2. **José Tey Medal** presented by Council of State of the Republic of Cuba, 2002.
3. **Decoration for merits in Cuban Education**, 2000.
4. **Hallmark 495th Anniversary** of the Village San Cristobal de La Habana to the Outstanding Personality, Government of La Habana, 2017.
5. **Emeritus Researcher**, Special Scientific Category presented by Minister of Science, Technology and Environment of the Republic of Cuba, 2019.
6. **Hallmark 295th Anniversary** of University of Havana, 2023

AWARDS

1. Outstanding Young Researcher, CENIC, 198.
2. Outstanding Researcher, CENIC, 1987.
3. Scientific Results of Great Economical Benefit, Higher Education Ministry of Cuba, 1989 for Zeoponic technology based on NEREA substrates.
4. Acknowledgement from Dr. Frederick A. Mumpton Chairman of the International Committee on Natural Zeolites, 1991.
5. Award for Best Research Department, University of Havana, 1993.
6. Award for Best Scientific Result on Natural Resources and Environment, University of Havana, 1994.
7. Award for Best Scientific Result on Drugs and Biotechnological Products, University of Havana, 1995.
8. Award for Best Scientific Result of New Materials, University of Havana, 1997.
9. Award for Best Research Department University of Havana, 1997.
10. Annual Award of the Academy of Sciences of Cuba, 1999, for Development and utilization of NZ Purified Natural Zeolites.
11. Annual Award of the Academy of Sciences of Cuba, 2000, for Structural Properties of Zeolitic Materials: Studies via Computational Simulation.
12. Award for Best Research Department, University of Havana, 2000 y 2001.
13. Annual Award of the Academy of Sciences of Cuba, 2001, for Validity of Cuban Natural Zeolites in the New Century for Agricultural and Livestock Production.
14. Award for Best Researcher of the University of Havana, 2003.
15. Award for the Best Published Paper of the Universidad de La Habana, 2006.
16. Annual Award of the Academy of Sciences of Cuba, 2005, for Zeolitic Material of Pharmaceutical Potential Use: New Modifications of the Natural Clinoptilolite.
17. Annual Award of the Academy of Sciences of Cuba, 2006, for Utilization of Nontraditional Cuban Aluminosilicates in the Production of Sodium-Calcium Glass.
18. Annual Award of the University of Havana, 2008.
19. Annual Award of the Academy of Sciences of Cuba, 2008, for Determination of Iron Species in the

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- Cuban Natural Clinoptilolite.
20. Annual Award of the Academy of Sciences of Cuba, 2008, for Introduction and Characterization of Metal Clusters and Nanoparticles on Zeolitic Matrixes with Catalytic and Microbicide Properties of Wide Spectrum.
 21. Annual Award of the University of Havana, 2015.
 22. Award of the National Commission of Scientific Degree of the Republic of Cuba for the Best Thesis of Doctor in Science Defended, 2016.
 23. Annual Award of the University of Havana "Applied Result of Higher Social Impact", 2017: Thousand Questions Thousand Answers.
 24. Special Award CITMA Technological Innovation for its Social Impact, 2017: Thousand Questions Thousand Answers.
 25. Annual Award of the Academy of Sciences of Cuba, 2017: Thousand Questions Thousand Answers.
 26. Annual Award of the Academy of Sciences of Cuba, 2019: Cuban natural sorbents for the decontamination and/or determination of toxic metals in waters by solid phase extraction.
 27. Annual Award of the Academy of Sciences of Cuba, 2020: Employ of clays and ceramic nanoparticles for the fast microbiological diagnostic.
 28. Distinguish Speaker Award y Distinguished Scientific Member of the Conference on Nanomaterials & Machine Learning. Brazil-India-Cuba-China-United-Kingdom (BIC²UK), 2023.
 29. Premio A la Creatividad y la Innovación, Expociencia Holguín 2023.
 30. Medalla de Oro, Premio Calidad del Producto, XVI Edición Feria Comercial Holguín 2023.
 31. The Province of Ontario Honors International Zeolite Corp as a Recipient of the Fertilizer Accelerating Solutions and Technological Challenge, 2023.
 32. Government of Canada-Funded i.d.e.a. FundTM awards International Zeolite Corp as a Recipient of the Fertilizer Accelerating Solutions and Technological Challenge, 2023.
 33. Award for Technological Innovation CITMA Havana, 2022. NEREA[®]: Productos y tecnologías innovadoras para la agricultura sostenible.
 34. National Award for Technological Innovation CITMA 2023. NEREA[®]: Productos y Tecnologías Innovadoras para la agricultura cubana
 35. Special Award CITMA for the Highest Economic Impact, 2023. NEREA[®]: Productos y Tecnologías Innovadoras para la agricultura cubana