Curriculum Vitae-&-Publication List

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Curriculum Vitae

1 Citizenship: American.

2 Summary

Have worked in the National Center for Scientific Research, Cuba (1978-1992) where, as laboratory director, researcher and doctoral supervisor, hardly labored to made my research group the world leader in Natural Zeolites Science-&-Technology, as was accepted by the International Committee on Natural Zeolites; here, obtained, the equivalent of circa five million dollars in research funds. In 1993, after been the most awarded Cuban scientist ever, due to a politic confrontation with the Cuban regime, left my country-land with my family as a political refugee owing to a negotiation lead by my friend-&-colleague Dr. Javier Solana-Madariaga, former Foreign Affairs Minister of Spain and the European Union. Next, worked at the Institute of Chemical Technology (1993-1996), Valencia, Spain; one of the elite research centers in, catalysis, energy storage, molecular dynamics and physical adsorption; later, performed my research at Clark Atlanta University, Atlanta, Georgia (1997-1998); subsequently was Lecturer at Barry University, Miami, Florida, USA (1998-1999). Thereafter, was dean-institute director-&-full professor of the School of Science at University of Turabo, Gurabo, PR (1999-2015), where was the most awarded scientist yet, obtaining more than three million dollars in external funds to run projects in: materials for energy storage, heterogeneous-photo-&-electro-catalysis, pollution abatement, nanomaterials impedance analysis and environmental electrochemistry. In April 2015 funded my Company named Materials for Art and Science Use, where under contract perform Materials Characterization Services to the University of Puerto Rico, Syrviatek, Carolina, PR and Solid Current Energy, Ontario, Canada. As result, of this immense activity, published: 135 papers, 5 books, 16 chapters, 16 patents, 43 extended abstracts and have presented 183 oral and poster papers at scientific conferences. Additionally, delivered courses on General-Modern-Statistical-Quantum-&-Solid State Physics, General-&-Physical Chemistry, Materials Characterization Methods, Calculus and Mathematical Methods for Physicists. Have finished a BSc in Physics at Havana University (Magna Cum Laude, 1970), a MSc in Surface Physics in the National Center for Scientific Research, Cuba–Dresden University of Technology, Germany (Summa Cum Laude, 1972), and a PhD in Solid State Physics at the National University for Science and Technology (Summa Cum Laude, 1978). Moreover, completed postdoctoral stints at the Dresden University of Technology (1978); Moscow State University (1982), Institutes of Physical Chemistry and Chemical Physics, Russian Academy of Sciences (1983), and Central Institute for Chemistry Hungarian Academy of Science (1984), with first class scientists. Additionally, the journal “Materials Today” in a note published in March 20, 2010, recognized that I was one of the creators, or the creator, of a new field in Materials Science,

namely: energy and pollution abatement uses of materials, as described in my book "The Physical Chemistry of Materials, CRC Press, 2009. Similarly, the journal "Chromatographia 66, (7/8) (2007)" acknowledged my contribution to Statistical Physics as explained in my book "Adsorption and Diffusion in Nanoporous Materials", CRC Press, 2007. I'm currently American citizen.

3. Core Competencies

i. Skills: Powder X-ray diffraction-crystallography; scanning-transmission-electron-optical-microscopy-&-Energy dispersive X-ray-analysis; Mössbauer spectrometry; Raman and IR spectrometry; Impedance spectrometry; thermo-differential, thermo-reduction, thermo-desorption and thermo-gravimetric-analysis; mass-spectrometry; X-ray-photoelectron spectrometry; X-ray-fluorescence;, additionally, invented-constructed-&-tested two new methods; specifically, thermo-dielectric-analysis and Fourier-transform-infrared-thermo-programmed-desorption, together with a new dew point sensor and a magnetic balance; finally, have a large experience applying the software: MS-Office, Origin, Peakfit, Pascal, Basic, Windows, Powder-Cell, Rietveld and Le-Vail.

ii. Natural-&-synthetic zeolites: my role to made Cuba (my country-land) the world leader in Natural Zeolite Science and Technology was "sine-qua-non", this fact made me one of the worldwide key researchers in this field, as was acknowledged by Dr. Frederick Mumpton, President of the International Committee on Natural Zeolites; besides, developed from laboratory to pilot plant a process for the synthesis of Na-Y zeolite, by the hydrothermal transformation of a natural clinoptilolite and a Na-A zeolite using the liquors remaining after the hydrothermal transformation; furthermore synthesized AlPO-5, CoAPO-5, MnAPO-5, ZnAPO-5 and FeAPO-5 molecular sieves; finally, researched solid state reactions milling mixtures of Na-Y and Na-A zeolites along with $AlPO_4.3H_2O$ and a natural erionite zeolite plus $Fe_2(SO_4)_3.5H_2O$.

iii. Adsorption-&-Diffusion: my undertaking in these fields, as described in my books along with thirty-seven peer reviewed articles (adsorption) and eight (diffusion) have been outstanding; since, together with exceptional contributions to the theory made extensive experimental research, alone with the construction of pilot plants for air drying and "in-situ" natural gas cleaning reactors, together with filters for ammonia removal and profound gas drying, using natural zeolite packed bed adsorption reactors and experimental facilities to study single-component diffusion and two-component co-diffusion and counter-diffusion of hydrocarbons in zeolites at different temperatures using the FTIR methodology.

iv. Catalysis: have a large experience of successful research during which, produced Pt catalysts for methanol fuel cells; developed a phenol decomposition process using the mechanical activation of a rutile catalyst; deduced mathematical expressions for the calculation of the adsorption-enthalpy of hydrocarbons analyzing their relation to the activation energy of the cracking reaction; besides, studied pyrrole-furfural-&-aniline oligomerization; plus, citronellal cyclization, hexane hydrogenation and ethanol dehydration on zeolites; together with the research of the "catalytic effect" of natural zeolites in fermentation processes; besides, designed-&-constructed flow catalytic reactors for ethanol-dehydration, hexane-reduction and waste-water-cleaning and batch reactors for mechanical activation and oligomerization processes.

v. Magnetism: made relevant studies using the vibrating sample magnetometer method, to establish that, akaganeite displayed a superparamagnetic behavior; Cu(II) hexacyanoferrate (III) polymorph exhibited an antiferromagnetic conduct; layered porous molecular magnet shows an appreciable effective magnetic moment; Ni-&-Cu and Zn-&-Cd nitroprussides showed paramagnetic and diamagnetic behaviors respectively; and SWCNT-Fe_3O_4 composites exhibited the presence of a large quantity of catalytically active Lewis acid sites; hence, since all these materials are porous their magnetic properties could be modified during adsorption, then can be used as gas sensors.

vi. Ion conduction: have accomplishments in different research projects such as the conception of a new mechanism for proton conduction in perovskites; role of the framework structure of $BaCe_{0.95}Y_{0.05}O_{3-\delta}$,

under hydrogen diffusion, in the proton conduction rate; together with the elucidation of the mechanism of direct current transport in zeolites.

vii. Ion exchange: investigated the removal of Pb^{2+}, Cu^{2+}, Co^{2+} and Ni^{2+} from water solutions by dynamic ionic exchange in a zeolite packed ion exchange flow reactor; moreover, studied the location and reducibility of Ni ions in HEU type zeolite in order to learn how to produce a nickel zeolite catalyst for the hydrogenation of hexene and benzene; additionally, used ion exchange in natural zeolites in aquaculture, showing that the fishes in a pond where zeolite was poured, survived more time than in normal conditions without zeolite; finally, made a key contribution to the theory of ion-exchange by establishing the trend of the exchange reaction by means of the measurement of the heat evolved during ion-exchange, together with the deduction of the mathematical expression to calculate this parameter.

viii. Design and construction of new research methods: Thermo-Dielectric-Analysis (TDIA)-&- Dielectric Spectrometry (DS); for both methods, the sensor circuit was an operational amplifier plugged in for impedance comparison with two capacitors, i.e., sample and reference capacitors; for TDIA, both the sample-filled and alumina-filled cylindrical capacitors were enclosed in the equipment furnace, fed with the input voltage, V_I, generated with a rectified sinusoidal signal, V_{in}, of 400 Hz and 25 V, then the output voltage, V_O, was fed to an X-Y-plotter to get the V_O-T thermos-dielectric profile; for DS, the sample capacitor was cylindrical, it was enclosed in a Pyrex tube that comprised two welded wolfram wires connecting the sample capacitor plates with the sensor circuit; similarly as reference was used a carefully calibrated commercial capacitor; moreover, the sample capacitor was enclosed in a furnace and the enclosing Pyrex tube was hooked up to a vacuum system comprising an adsorption-volumetric facility to measure isotherms; finally, the circuit was fed with a wave generator (V_I) while an oscilloscope measured the output signal (V_O) to get the dielectric spectra; lastly, the Fourier-transform-infrared-thermo-programmed-desorption methodology consisted of a commercial high temperature IR cell, that allowed gas flow-&-heating; then, the adsorbent sample was pressed to produce a self-supported thin wafer, that was placed in the IR cell, then heated while pure nitrogen was flowed to degas it; thereafter, to adsorb benzene, toluene or ethylbenzene, the pure nitrogen gas was saturated with these hydrocarbons by flowing it in liquid benzene, toluene or ethylbenzene; next, the sample wafer was contacted with the gas flow while the FTIR spectrometer in kinetic mode acquired spectra of 1 scan per spectrum, 0.85 seconds per scan, without delay between scans, acquiring enough spectra to draw an absorbance versus temperature profile.

4. Experience

i. Materials for Art and Science Use, President. In April 2015 founded this company to provide under contract Materials Characterization Services to the University of Puerto Rico, Syrviatek, Carolina, PR, Solid Current Energy, Ontario, Canada and other institutions. The services consist in: structure elucidation of complex materials, study of thermodynamic of physical adsorption of nitrogen and carbon dioxide in porous materials, morphological research by scanning electron microscopy and thermal stability research with thermal methods.

i. Dean-Institute Director-&-Full Professor, University of Turabo (UT), Ana G. Mendez University Systems (AGMUS), Gurabo, Puerto Rico, USA. Initially, in 1999, my responsibility was as Dean, supervise the academic-&-research operation of the School of Science, the performance of the staff and faculty, oversaw the transformation of the Department of Science into the more complex School of Science, together with the direction of NASA, AMGEN and MIE-NSF research projects; then, after my liberation as Dean, to do research, was Director of the Institute of Physical Chemical Applied Research (IPCAR), principal investigator (PI) of two NSF Major Research Instrumentation and the PI of the project number one of the DoE-Massie-Chair-Program; at IPCAR supervised twenty-five graduate and seventy-five undergraduate students, together with seven research professors and two research associates and created one of the most successful materials research groups in Puerto Rico; becoming one of the most awarded Professors in the Ana G. Mendez University System. In addition, supervised a lot of academic undertakings; such as: the transformation of the Department of Science into the more complex School of

Science, the creation of a PhD program in Environmental Science with three tracks, i.e. Chemistry, Biology and Management, participation in the creation of the Puerto Rico Energy Center; together with the supervision of fifteen PhD and ten MSc students; moreover, as educator taught undergraduate and graduate courses on, Materials Science, Instrumental Methods of Materials Characterization, Modern Physics, General Physics, Physical Adsorption and Chemical Physics.

ii. Lecturer, Barry University, Miami, FL, US,
April 1997 - February 1998 (11 months)
Mathematics tutor in the university learning center

iii. Research Professor, Clark Atlanta University, Atlanta, GA

May 1997 to February 1998 (8 months).

During this period made the research to write the first chapter of my book Adsorption and Diffusion in Nanoporous Materials were was included, as was recognized in the Journal Chromatographia 66, (7/8) (2007) "a very well thought out introduction to Statistical Mechanics along with the publication of two papers and the realization of the calculations to publish three more papers

iv. Researcher, Chemical Technology Institute (Instituto de Tecnologia Quimica), Valencia, Spain,

December, 1992 to August 1996 (3 years and 8 months).

At the ITQ made one of the most comprehensives studies of the diffusion, co-diffusion and counter-diffusion of hydrocarbons in microporous materials ever made. Additionally, developed a theoretical a model to calculate the self-coefficient of diffusion of gases and vapors in microporous crystalline materials and new adsorption isotherms and made their experimental test.

vi. National Center for Scientific Research, Havana Cuba

February, 1978 to September 1992

My work here was the "sine-qua-non" condition to make Cuba (my country-land) the world leader in Natural Zeolite Science and Technology. This fact made me one of the worldwide key researchers in this field, as was acknowledged by Dr. Frederick Mumpton, President of the International Committee on Natural Zeolites; besides, developed from laboratory to pilot plant different process, was director of the mathematics department and the laboratories of zeolites and materials, member of the grade commission, the institution general council and supervised the dissertation of fourteen PhD and five MSc students, along with the management of about one hundred scientific collaborators. Due to this effort became the most awarded Cuban Scientist ever

5. Awards

x. Invited Lecturer to the 43 IUPAC World Conference, to congresses of the International Zeolite Association, The French Zeolite Association, the International National Zeolite Conference, in Budapest, Hungary, Idaho-USA and Havana, Cuba Chairman of the International Zeolite School of the Havana's Natural Zeolite Conference
ix. Three awards for been the professor with the greater amount of awarded research proposals, one every year, UT, PR, USA
viii. Four distinctions for been the professor that obtained the higher amounts of external funds, one every year, UT, PR, USA
vii. Six publication awards for been the Professor with more publications, one every year, UT, PR, USA
vi. UNESCO-Puerto Rico Branch, Award for Science, PR, USA
v. Numeracy Academic of the Puerto Rico Academy of Science, PR, USA
iv. The Award for the Result Most Useful for Cuban Higher Education, Ministry of Higher, Havana, Cuab

iii. Medal for Cuba Education, given that I was the most awarded researcher in Cuba up to my incorporation to the Democratic Opposition in 1992.
ii. Four National Research Awards in Science and Higher Education, Trade Union of Education. and Science. This awards were endowed by the President of the Cuban Academy of Science and the Secretary of the Trade Union of Education and Science to the best researchers and high education teachers nationally. Havana, Cuba
i. Three Special Awards for One of the Twenty Best Researchers of Cuban Higher Education, Havana, Cuba.

7. Certifications

From 2007 to 2014, every year, received a License issued by the Puerto Rico Police Department allowing me to Use Explosive-&Dangerous Chemicals.

8. Sponsored research projects

Period	Project Title	Funding-Institution	Role
2015-present	Adsorption in microporous materials	NSF	Researcher
2010-2015	Study of the magnetic susceptibility of single walled carbon nanotube magnetite composites during gas adsorption for the creation of sensors	DoE-Massey-Chair-Project, $ 300,000	PI, project1
2013-2015	Creation of a Physical Adsorption Laboratory	NSF-MRI, $ 117,400	PI
2009-2012	Creation of an X-ray Diffraction Materials Characterization Laboratory	NSF-MRI-R^2, $ 173,400	PI
2007-2010	Synthesis and Characterization of Silica Aerogels for Cherenkov Counters,	DOE-Massey-Chair, $400,000	PI, project 1
2005-2006	Synthesis and Characterization of Proton Conducting Perovskites for Hydrogen Cleaning,	DOE-Massey-Chair, $250,000	PI, project 1
2004-2005	Synthesis and Porosity Characterization of Membranes for Gas Cleaning	NASA, $ 150,000	PI
2002-2003	Manufacturing limited site service-agreement	Amgen, $750,000	Co-PI
2001-2004	Liquid chromatography Mass-spectrometry Laboratory	Waters Technologies Corporation, Puerto Rico Branch, $70,000	PI
2001-2002	Design-&-construction of ionic exchange modular canisters	MIE-NSF-UMET-UT-$15,000	PI
2000-2001	Synthesis and Characterization of Na-Y Zeolite by the hydrothermal transformation of clinoptilolite	MIE-NSF, UMET-UT, $15,000	PI

1994-1996	Creation of the method of Fourier Transform Infrared-Temperature Programmed Desorption	Institute of Chemical Technology-CSIC, Spain, Research Grant, $ 150,000	Co-PI
1993-1996	Theoretical and experimental study of diffusion in microporous materials	Institute of Chemical Technology-CSIC, Spain, Research Grant, $ 125,000	Co-PI

9. Education

i. Postdoctoral

a. Mossbauer Spectrometry, Institute of Chemical Physics, Russian Academy of Science. Moscow, Supervisor Prof. Dr. Evgenii S. Makarov

b. X-ray Diffraction Crystallography, Central Research Institute for Chemistry, Hungarian Academy of Science, Budapest, Supervisor Dr. Herman Bayer

c. Surface-&-Colloid Science, Moscow State University, Prof. Dr. Evgenii D. Shchukin

d. Physical Adsorption of Gases, Institute of Physical Chemistry, Russian Academy of Science, Moscow, Supervisors: Academic Mijail M. Dubinin and Vladimir V. Serpinskii.

f. Surface Physics, Dresden University of Technology, Germany, Prof. Dr. Fritz Störbeck,.dc

ii. Graduate

b. PhD in Solid State Physics, Moscow Institute of Steel and its Alloys (nowadays National University for Science and Technology). Supervisors, Prof Dr. Alexander A. Zhujovotskii and Prof. Dr. Boris S. Bokstein. Summa Cum Laude.

a. Master of Science in Chemical Physics, National Center for Scientific Research, Havana- Dresden University of Technology, Germany. Supervisor, Dr. Jürgen Büttner. Summa Cum Laude.

iii. Undergraduate

Bachelor in Science, Physics, University of Havana, Cuba, Magna Cum Laude.

III. **Publication list**

Comentado [RR1]:

Comentado [RR2R1]:

i. Books

7. Roque-Malherbe, The Physical Chemistry of Materials: Applications in Pollution Abatement and Sustainable Energy (2nd edition). CRC Press, Boca Raton, FL, USA, 2017 (In progress).

6. R. Roque-Malherbe, Adsorption and Diffusion of Gases in Nanoporous Materials (Chinese Translation), CRC Press, Beijing, People's Republic of China, in press, 2017.

5. R. Roque-Malherbe, Electrochemistry. Energy and Environmental Applications, LAMBERT Academic Publishing, Saarbrücken, Germany, 2017.

4. R. Roque-Malherbe, The Physical Chemistry of Materials: Applications in Pollution Abatement and Sustainable Energy. CRC Press, Boca Raton, FL, USA, 2009.

3. R. Roque-Malherbe, Adsorption and Diffusion of Gases in Nanoporous Materials, CRC Press-Taylor & Francis, Boca Raton, FL, USA, 2007.

2. R. Roque-Malherbe.
Chemical Physics of Zeolites
Publishing Department of the Ministry of Higher Education, Havana, Cuba, 1988.

1. R. Roque-Malherbe.
Physical Adsorption of Gases
Publishing Department of the Ministry of Higher Education. Havana, Cuba, 1987.

ii. Peer reviewed articles

Comentado [RR3R1]:

135. R. Roque-Malherbe, C. Rivera, A. Rios, C. Lozano and R. Polanco, Synthesis, structure and adsorption study on a Cu-succinic metal organic framework; submitted to Journal of Materials Science and Engineering C (2017)

134. L. Hernandez-Colon and R. Roque-Malherbe, Synthesis and structure elucidation on three new covalent organic frameworks, Submitted to Solid State Sciences (2017)

133. R. Roque-Malherbe, F. Lugo and R. Polanco, Synthesis, structural elucidation and carbon dioxide adsorption on Zn (II) hexacyanoferrate (II) Prussian blue analogue. Applied Surface Science 385 (2016) 360-367

132. R. Roque-Malherbe, E. Carballo, R. Polanco, F. Lugo, and C. Lozano, Structure, magnetic and adsorption properties of a porous cooper hexacyanoferrate polymorph, Journal of Physics and Chemistry of Solids 86 (2015) 65-73.

131. R. Roque-Malherbe, F. Lugo, C. Rivera, R. Polanco, P. Fierro, and O.N.C. Uwakweh, Synthesis, characterization and thermodynamic study of CO2 adsorption on akaganeite, Current Applied Physics Vol. 15 (2015) 571-579.

130. A. Suleiman, C. Cabrera, R. Polanco and R. Roque-Malherbe, Active catalyst produced by platinum electro-deposition on a Y-zeolite/carbon black support, RSC Advances, Vol. 5 (2015), 7637-7646.

129. S. Nieto, R. Roque-Malherbe, R. Polanco, L. Fuentes-Cobas and R.S. Katiyar High temperature proton transport in $BaCe_{0.95}Yb_{0.05}O_{3-\delta}$ perovskite, Ceramics International Vol. 40 (2014) 11359-11367

127. R. Roque-Malherbe, A. Costa, C. Rivera, F. Lugo and R. Polanco, Study of the adsorption space of modified clinoptilolites, Journal of Materials Science & Engineering A Vol. 3 (2013) 263-280.

126. R. Roque-Malherbe, Media portrayal of scientists, Chemical & Chemical Engineering News Vol. 90 (30) (2012) 2.

125. A. Rios, C. Rivera, G. Garcia, C. Lozano, P. Fierro, L. Fuentes-Cobas and R. Roque-Malherbe, Synthesis, structure, adsorption space and magnetic properties of Ni-oxalate porous molecular magnet Journal of Materials Science & Engineering A Vol. 2 (2012) 284-301.

124. R. Roque-Malherbe, D. Sanchez, N. Ortega, R.S. Katiyar, A. Kumar, J.S. Scott. A New Room-Temperature Multiferroic: Lead Iron Tantalate Zirconate Titanate, Emerging Materials Research 01/2012; Vol. 1(S1):27-33 2012.

123. R. Roque-Malherbe, D. Sanchez, N. Ortega, R.S. Katiyar, A. Kumar, J.S. Scott. A New Symmetries and Multiferroic Properties of New Room-Temperature Magnetoelectrics: Lead iron tantalate– lead zirconate titanate (PFT/PZT), AIP Advances Vol. 1 (2011) 042169, 1-14.

122. R. Roque-Malherbe, O.N.C. Uwakweh, C. Lozano, R. Polanco, A. Hernandez-Maldonado, P. Fierro, F. Lugo and J. N. Primera-Pedrozo, Structural effects and interactions of carbon dioxide molecules adsorbed on Ni-Zn-&-Cd-nitroprussides, J. Phys. Chem. C 115, (2011) 15555-15569.

121. R. Roque-Malherbe, C. Lozano, R. Polanco, F. Marquez, F. Lugo, A. Hernandez-Maldonado and J. Primera-Pedroso, Study of the adsorption of carbon dioxide on a Cu-nitroprusside polymorph, Journal of Solid State Chemistry 184 (2011) 1236-1244.

120. F. Marquez-Linares, J. Duconge, C. Morant, J. M. Sanz, E. Elizalde, P. Fierro and R. Roque-Malherbe, Synthesis and Characterization of Monodisperse Magnetite Hollow Nanospheres, Soft Nanoscience Letters (2011) Article ID: 4600007.

119. F. Marquez-Linares, O. Uwakweh, N. Lopez, E. Chavez, R. Polanco, C. Morant, J. M. Sanz, E. Elizalde, C. Neira, S. Nieto and R. Roque-Malherbe, Study of the surface chemistry and morphology of single walled carbon nanotube-magnetite composites, Journal of Solid State Chemistry, 184 (2011) 655–666.

118. R. Roque-Malherbe, R. Polanco and F. Marquez-Linares, Study of the Interaction between Silica Surfaces and the Carbon Dioxide Molecule, Journal of Physical Chemistry C 114 (2010) 17773–17787.

117. F. Marquez, V. Lopez, C. Morant, R. Roque-Malherbe, C. Domingo, E. Elizalde, F. Zamora, Structure and Characterization of Vertically Aligned Single-walled Carbon Nanotube Bundles, Journal of Nanomaterials (2010) Article ID: 189214, 7 pages doi:10.1155/2010/189214.

116. R. Roque-Malherbe and V. Ivanov, Diffusion, Codiffusion and Counterdiffusion of para-xylene and ortho-xylene in a Zeolite with 10 MR/12 MR Interconnected Channels. An Example of Molecular Traffic Control. Journal of Molecular Catalysis A 313 (2009) 7-13.

115. M. C. Cotto, A. Emiliano, S. Nieto, J. Duconge and R. Roque-Malherbe, Degradation of Phenol by Mechanical Activation of a Rutile Catalyst, Journal of Colloid and Interface Science 339 (2009) 133-139.

114. C. Muñiz, F. Diaz and R. Roque-Malherbe, Paranitrophenol liquid-phase adsorption in dealuminated Y zeolite, Journal of Colloid and Interface Science Vol. 329 (2009) 11-16.

113. R. Roque-Malherbe, F. Marquez, W. del Valle and M. Thommes, Ammonia Adsorption on Nanoporous Silica Materials for Hydrogen Storage and Other Applications. Journal of Nanoscience and Nanotechnology Vol. 8 (2008) 5993-6002.

112. R. Roque-Malherbe and F. Diaz-Castro, Calculation of the Energy of Adsorption of n-Paraffins in Nanoporous Crystalline and Ordered Acid Catalysts, and its Relationship with the Activation Energy of the Monomolecular Catalytic Cracking Reaction. Journal of Molecular Catalysis A Vol. 280 (2008) 194-202.

111. R. Roque-Malherbe, W. del Valle, J. Ducongé, and E. Toledo. Lead, copper, cobalt and nickel removal from water solutions by dynamic ionic exchange in leca zeolite beds. International Journal of Environment and Pollution Vol. 31 (2007) 292-303.

110. S. Nieto, R. Polanco and R. Roque-Malherbe. Absorption Kinetics of Hydrogen Nanocrystals of $BaCe_{2.95}Yb_{0.05}O_{3-\delta}$ Proton Conducting Perovskite, Journal of Physical Chemistry C, Vol. 111, (2007) 2809-2818..

109. F. Marquez and R. Roque-Malherbe, Synthesis and Characterization of Large Specific Surface Area Silica Particle-Packing Materials. Journal of Nanoscience and Nanotechnology Vol. 6 (2006) 1114-1118.

108. Rolando M. A. Roque-Malherbe, F. Marquez. Synthesis and Characterization of Silica Sphere-Packing. Mesoporous Materials. Surface and Interface Analysis Vol. 37 (2005) 393-397 2005.

107. R. Roque-Malherbe, W. del Valle, F. Marquez, J. Duconge and M.F.A. Goosen, Synthesis and Characterization of Zeolite Based Porous Ceramic Membranes, Separation Science and Technology Vol. 41 (2006) 73-96.

106. R. Roque-Malherbe and F. Marquez,
Synthesis and Characterization of Silica Sphere-Packing Mesoporous Materials
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105. R. Roque-Malherbe and F. Marquez
Synthesis and Characterization of Silica Microsphere Based Mesoporous Materials,
Materials Science in Semiconductor Processing Vol. 7 (2004) 467-46

104. F. Márquez, J. Ducongé, W. del Valle and R. Roque-Malherbe
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103. R. Roque-Malherbe and F. Marquez-Linares
Zeolites. Part 2. Adsorption, Diffusion and Catalysis
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102 F. Marquez-Linares and R. Roque-Malherbe.
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Facets-IUMRS Journal Vol 2 No. 4 (2003) 14-17.

101. Rolando Roque Malherbe and Rune Wendelbo
Study of Fourier Transform Infrared-Temperature Programmed Desorption of Benzene, Toluene and Ethylbenzene from H-ZSM-5, H-BETA and H-MCM-22 Zeolites
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100. R. Roque-Malherbe
Letter to the Editor Study of Diffusion and Counter-diffusion of Para and Ortho Xylene in H-SSZ-24 and H-ZSM-11 Zeolites
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99. R. Roque-Malherbe and V. Ivanov
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98. R. Roque-Malherbe
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Microporous and Mesoporous Materials Vol. 41 (2000) 227-240

97. G. Sastre, N. Raj, C. Richard, C. Catlow, R. Roque-Malherbe and A. Corma.
Selective diffusion of C8 aromatics in a 10 and 12 MR zeolite. A molecular dynamic study.
Journal of Physical Chemistry B, Vol.102 (1998) 3198-3209.

96. R. Wendelbo and R. Roque-Malherbe.
A comparative study of the kinetics of adsorption of benzene and o-xylene in H-MCM-22, H-ZSM-5 and H-Beta zeolites

Microporous Materials, Vol. 10 (1997) 231-246.

95. A. Jacas, M. Hernandez-Velez, R. Roque-Malherbe, E. Gonzales-Aragon and J. de Oñate-Martinez.
Synthesis and characterization of molecular sieves with $AlPO_4$-5 framework.
Preliminary biomedical essays.
Materials Letters Vol. 28 (1996) 507-511.
94. C. de las Pozas, W. Kolockiewics and R. Roque-Malherbe
Modification of clinoptilolite by ortophosphoric acid leaching
Microporous Materials Vol. 5 (1996) 325-331 .

93. R. Roque-Malherbe
Endless zeolite deposits
CUBANEWS. Miami Herald Pub. Co., Vol.4(12) (1996) 10.

92. R. Roque-Malherbe, R. Wendelbo, A. Mifsud and . A. Corma
Diffusion of aromatic hydrocarbons in H-ZSM-5, H-Beta and H-MCM-22 zeolites.
Journal of Physical Chemistry Vol. 99 (1995) 14064-14071

91. M. Hernández-Vélez, O. Raymond, A. Alvarado, A. Jacas and R. Roque-Malherbe
New materials obtained from high temperature phase transformations of natural zeolites.
Journal of Material Science Letters Vol. 14 (1995) 1653-1656

90. M. Hernández-Vélez and R. Roque-Malherbe
Dielectric relaxation in hydrated natural mordenite
Journal of Material Science Letters Vol. 14 (1995) 1112-1114.

89. M. Hernandez-Velez, A. Blanco, R. Roque-Malherbe, H. Villavicencio, F. Fernandez,
A. Berazain and J.M. Albella
Dielectric properties of zeolite materials
Bol. Soc. Esp. Ceram. Vidrio, Vol.34 (1995) 409-413.

88. C. de las Pozas, R. López-Cordero, C. Díaz-Aguilas, M. Cora and R. Roque-Malherbe
Location and reducibility of Ni ions in HEU type zeolite
Journal of Solid State Chemistry, Vol. 114 (1994) 108-111.

87. C. de las Pozas, R. López-Cordero, J.A. González-Morales, N. Travieso and R. Roque-Malherbe.
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