



José Miguel Mora Fonz

Personal Information

Day of Birth: July 15, 1975

Place of Birth: Mexico, D.F.

Nationality: Mexican

Education:

- PhD in Chemistry, University College London.
- Master's Degree in Sciences, "Autonomous University of San Luis Potosí". San Luis Potosí Mexico, January 2002. First Class (grade average **95/100**).
- Bachelor's Degree, Chemical Engineering "Juárez Autonomous University of Tabasco". Cunduacán Tabasco Mexico, July 1998. First Class (grade average **98/100**), graduated with honours.
- High School, "C.B.T.i.s. No. 32". Villahermosa Tabasco Mexico, June 1993. (grade average **96/100**).
- The subject of my PhD thesis is the nucleation process during the hydrothermal synthesis of zeolites, using computational chemistry techniques. The reactions involved in the smallest oligomeric and ring clusters were analysed with Density Functional Theory, taking in account the solvation, high pH and the counterion effect. Result highlights include the demonstration of the role of pH in oligomerization and in particular ring formation, and also the development of a robust methodology to study such species.
- My other areas of research expertise are the analysis of natural zeolites with experimental techniques as Microcalorimetry, Scanning Electron Microscopy and Infrared Spectroscopy

Publications

1. M. J. Mora-Fonz, C. R. A. Catlow, D. W. Lewis, "H-bond interactions between silicates and water during zeolite pre-nucleation" **Physical Chemistry Chemical Physics Journal** (submitted)
2. Montero Cabrera, Luis; Pérez - Badell, Yoana; Mora - Fonz, Miguel Journal "An approach to hydration of model silica materials by exploring their multiple minima hypersurfaces. The role of entropy of association." **The Journal of Physical Chemistry** Manuscript ID: jp-2007-10583n.R2 (approved)
3. M. J. Mora-Fonz, S. Hamad, C. R. A. Catlow, *Modelling nucleation and nano-particle structures* **Molecular Physics** **2007**, 105, 177.
4. M. J. Mora-Fonz, C. R. A. Catlow, D. W. Lewis, *Oligomerization and Cyclization Processes in the Nucleation of Microporous Silicas* **Angew. Chemie Int. Ed.** **2005**, 44, 3082. (This paper was highlighted by the editors as a "Hot Paper").
5. M. J. Mora-Fonz, C. R. A. Catlow, D. W. Lewis, *The role of solvation and pH in the nucleation of pure silica zeolites* **Studies in Surface Science and Catalysis** **2005**, 158, 295.
6. M. J. Mora-Fonz, C. R. A. Catlow, D. W. Lewis *Modelling aqueous silica chemistry in alkali media* (To be submitted to J. Phys. Chem.).
7. Mora-Fonz, José Miguel and Moreno-Yntriago, Matias "Sistemas de masa variable y la no conservación de la energía" *Universidad y Ciencia* 12 (1996).

Lectures, Conferences and Meetings:

1. Oral presentation at the "Energy Landscape of Solids: from (hypothetical) topologies to material properties" Lausanne, 22-25 July 2008.
2. Oral presentation at the "6th Symposium of Mexican Students and Studies" London, 28-29 June 2008.
3. Poster presentation at the "15th International Zeolite Conference" Beijing, China, 12-17 August 2007.
4. Oral presentation at the "Modelling the structures and reactivity of silica" Lyon France, September 2007
5. Oral presentation at the "5th Symposium of Mexican Students & Studies" Brighton UK, June 2007
6. Poster presentation "Faraday Discussion 136: Crystal Growth and Nucleation" London, 02 - 04 April 2007.
7. Oral presentation at the "Annual Conference of the BACG" Edinburgh, 11 September 2006.
8. Oral presentation at the "Computational aspects of building blocks, nucleation, and synthesis of porous materials" Lyon France, 31 August 2006.
9. "Poster Competition" UCL Graduate School, London 7 March 2006.
10. "Research Image Competition" UCL Graduate School, London, 6 December 2005.
11. Oral and Poster presentations at the "New advances in crystal growth &

- nucleation” Il Ciocco, Italy, 27 August to 3 September 2005.
12. Oral and Poster presentations at the “3rd International FEZA Conference”, Prague Czech Republic, 23-28 August 2005.
 13. Oral presentation at the “Colloquium of Mexican Students in the UK”, Manchester 22-23 July 2005.
 14. Oral presentation at the “MC7: Functional Materials for the 21st Century”, Edinburgh 5-8 July 2005.
 15. Poster presentation of Mexican PhD Students in the UK. University of Essex, 6-7 June 2005.
 16. Oral presentation at the “X-Rays, Neutrons and Computers in Materials Chemistry”, Mansfield College, Oxford 11-13 April 2005.
 17. Oral presentation at the “British Zeolite Association 28th Annual Meeting”, University of Bath, 4-6th April 2005.
 18. “Research Image Competition” UCL Graduate School, London, 9 December 2004.
 19. Poster presentation at the “MexSocUK Congress 2004” London, 21-22 May 2004.
 20. Oral presentation at the “Nanoclusters, Nucleation and Crystal Growth”, Mansfield College, Oxford 5-7 April 2004.
 21. Poster presentation at “Physical Chemistry Symposium”, Imperial College, London 16 June 2004.
 22. Invited talk, “Institute of Physical Chemistry and Electrochemistry”, University of Hannover, 8 July 2004.
 23. “Poster Competition” UCL Graduate School, London 10 March 2004.
 24. “Research Image Competition” UCL Graduate School, London, December 2003.
 25. Poster presentation at 14th International Zeolite Conference “Computational Studies of Nucleation and Growth of Silicate Species” Cape Town South Africa, April 2004.
 26. Oral presentation at the “Computational Studies of Nucleation and Growth of Silicate Species” London Atomistic Simulation Group, London 17th September 2003.
 27. Oral presentation at the “Brønsted Acidity in Zeolites”, U.J.A.T. Week of the Science 2002. Cunduacán Tabasco Mexico, September 2002.
 28. Poster presentation at 6th International Conference on the Occurrence, Properties and Utilization of Natural Zeolites “Acidity in natural and ion exchanged clinoptilolite” Thessaloniki Greece, June 3 - 7, 2002.
 29. Oral presentation at the “XXII National Meeting Mexican Chemical Engineering Academy” “DFT Analysis for the Brønsted Acid Sites in Clinoptilolite” Acapulco Guerrero Mexico, November 2001.
 30. Oral presentation at the “Second Mexican Natural Zeolites Congress” “Determination of Brønsted acidity in natural and modified clinoptilolite”. Puebla, Puebla Mexico, November 2001.
 31. Oral presentation at the “XXII National Meeting Mexican Chemical Engineering Academy” “Acidic Interactions in Natural and synthetic

zeolites determinate with adsorption microcalorimetry". Mazatlán, Sinaloa Mexico May 2001.

32. Poster presentation in the "XV Thermodynamics National Congress", "Thermochemical Properties in the gas adsorption process on heterogeneous surfaces". Oaxaca, Oaxaca Mexico October 2000.
33. Oral presentation at the "XXI National Meeting Mexican Chemical Engineering Academy "Adsorbent and Thermochemical Properties of natural zeolites from San Luis Potosí. Guanajuato, Gto. Mexico May 2000.
34. IV National Seminar of Heterogeneous Catalysis, Pátzcuaro Michoacán Mexico, November 1999.
35. Lecture at the "International Day against Drugs and Addictions". Villahermosa Tabasco Mexico, June 1998.
36. International Symposium "Oil Exploration and Production in Sensible Areas". Villahermosa Tabasco Mexico, June 1998.
37. Oral presentation "The next oil crunch". Villahermosa Tabasco Mexico, May 1998.
38. Lecture for children in the Mexico City subway. Mexico D.F., October 1996.
39. "What are the catalysts?" Lecture for High School Students. Villahermosa Tabasco Mexico, May 1998.
40. Talk "Collapse Temperature for a Pillared Clay" I Catalysis Heterogeneous Seminar. Cunduacán Tabasco Mexico, June 1998.
41. Talk "Pillared Clays", U.J.A.T. Week of the Science 1996. Cunduacán Tabasco Mexico, November 1996.
42. Talk "Analysis of Vehicular Emissions", VI Summer Scientific Meeting. Cd. del Carmen Campeche Mexico, August 1996.
43. Talk "Mass variable systems, the no-energy conservation", V Summer Scientific Meeting, Mazatlán Sinaloa Mexico, August 1995. Also in U.J.A.T. Week of the Science 1995, October 1995.
44. VI Mexican School of Particles & Fields. Villahermosa Tabasco Mexico, October 1994.

Awards:

1. Shortlisted for the "**Science Graduate of the Year**", London April 2006.
2. Awarded the 2005 "**Apley Thesis Prize**" London 20 October 2005.
3. British Zeolite Association bursary for participating in the FEZA Conference, Prague Czech Republic. September 2005.
4. Nominated for the "**Ramsay Medal**" London 4 July 2005.
5. Overall Winner "**Poster Competition**" UCL Graduate School, London 9 March 2005.
6. 1st prize in the Poster presentation at "Young Materials Modellers Forum", Daresbury Laboratory 27 May 2004.
7. Prize "The best Student of Mexico" México D.F. 25 November 2002.

8. First student of Chemical Engineering graduated with honours at the "Juárez Autonomous University of Tabasco". Cunduacán Tabasco Mexico, May 2000.
9. Honourable Mention poster competition "IV National Seminar of Heterogeneous Catalysis". Pátzcuaro Mexico, November 1999.
10. Diploma to The Best Student awarded by: Juchimanes de Plata Association, El Sureste Newspaper, Tabasco Government, Juárez Autonomous University of Tabasco, and Education Secretary of Tabasco. Villahermosa Tabasco Mexico, December 1998.
11. Highest grade in the 1993-1998 generation from Engineering Division at Juárez Autonomous University of Tabasco. Cunduacán Tabasco Mexico, August 1998.
12. Municipal Recognition for Academic Activities. Villahermosa Tabasco Mexico, December 1998.
13. State-Youth Prize 1997 in Academic Activities. Villahermosa Tabasco Mexico, February 1998.
14. State-Youth Science and Technology Competition, 3rd place. Villahermosa Tabasco Mexico, October 1996.
15. Mexican Government Recognition as a Champion in the Science National Olympiads. Los Pinos D.F. Mexico, August 1993.
16. Participation in the 25th International Chemistry Olympiad. Perugia Italy, July 11-22 1993.
17. Selected for the 25th International Chemistry Olympiad. Mexico D.F., June 1993.
18. Basic Sciences State Competition, 1st place. Villahermosa Tabasco Mexico, May 1993.
19. Second National Chemistry Olympiad, 1st place. Valle de Bravo Estado de Mexico, February 1993.
20. Second State Chemistry Olympiad, 1st place. Villahermosa Tabasco Mexico, January 1993.
21. Second National Biology Olympiad, 3rd place. Colima Colima Mexico, September 1992.
22. Second State Biology Olympiad, 3rd place. Villahermosa Tabasco Mexico, July 1992.
23. XIV Basic Sciences National Competition 3rd place. Veracruz Veracruz Mexico. June 1992.
24. Basic Sciences State Competition, 1st place. Villahermosa Tabasco Mexico, May 1992.
25. First State Chemistry Olympiad, 3rd place. Villahermosa Tabasco Mexico, December 1991.

**Research
Experience**

1. Nucleation of Zeolites, supervisors Prof. Richard Catlow and Dr. Dewi Lewis. 2003-present.
2. Brönsted Acidity in Clinoptilolite an Experimental and *Ab Initio* study, supervisors Dra. Guadalupe Cárdenas Galindo and Dr. Brent E. Handy. San Luis Potosí, Mexico, 1998-2002.

3. Pillared Clays, supervisor: Dr. José Antonio de los Reyes Heredia. Metropolitan Autonomous University 1997.
4. Analysis of Vehicular Emissions, supervisor: Dr. Isaac Schifter Secora. Petroleum Mexican Institute. Mexico D.F, 1996.
5. Problems of Classic Mechanics, supervisor: Dr. Matías Moreno Yntriago. Physics Institute U.N.A.M, 1995.

**Conference
Organization**

1. Organizing Committee “Engineering Today”, for Undergraduate Students. Villahermosa Tabasco, May 1998.
2. Organizing Committee for High School Conferences “Pa’ciencia”. Villahermosa Tabasco, May 1998.
3. Youth Association of Science Divulgators, President of estate coordination. Villahermosa Tabasco 1996.
4. Organizing Committee, VI Mexican School of Particles & Fields. Villahermosa Tabasco Mexico, October 1994.