

Heberto Balmori-Ramírez, Ph.D.  
Professor of Materials Science and Engineering

## CURRICULUM VITAE

Departamento de Ingeniería Metalúrgica y de Materiales  
Escuela Superior de Ingeniería Química e Industrias Extractivas  
Instituto Politécnico Nacional  
[hbalmori@ipn.mx](mailto:hbalmori@ipn.mx)



### POSICIONES ACADÉMICAS Y ADMINISTRATIVAS

1981 – 1990 ♦ Profesor Asociado ♦ Instituto Politécnico Nacional, Mexico  
1990 – present ♦ Profesor Titular ♦ Instituto Politécnico Nacional, Mexico  
2000 – 2001 ♦ Professor Invitado ♦ The University of Alabama, E. U.  
2005 – 2013 ♦ Director de Investigación ♦ Instituto Politécnico Nacional, Mexico

### EDUCACION

#### **Ecole Polytechnique de Montreal, Universidad de Montreal, Canada**

Fecha de Graduación: Abril de 1990  
Grado: Ph.D en Ingeniería Metalúrgica

#### **National Polytecnic Institute, México**

Fecha de Graduación: Agosto de 1985  
Grado: M. en C. en Ingeniería Metalúrgica

#### **National Polytecnic Institute, México**

Fecha de Graduación: Mayo de 1981  
Grado: Licenciatura en Ingeniería Metalúrgica

### AFILIACIONES PROFESIONALES

The American Ceramic Society, Sociedad Mexicana de Materiales, A.C.

### DISTINCIONES HONORÍFICAS

- Fellow, The American Ceramic Society, (2005)
- Miembro (Nivel II) del Sistema Nacional de Investigadores, Consejo Nacional de Ciencia y Tecnología, Mexico (1997-presente)
- Miembro (Nivel I) del Sistema Nacional de Investigadores, Consejo Nacional de Ciencia y Tecnología, Mexico (1994-1994)
- Miembro (Candidato) del Sistema Nacional de Investigadores, Consejo Nacional de Ciencia y Tecnología, Mexico (1992-1994)
- Diploma de Investigación, Instituto Politécnico Nacional, (2002)

### PUBLICACIONES CIENTÍFICAS RECIENTES

#### PUBLICACIONES RECIENTES EN REVISTAS CIENTÍFICAS

1. Enrique Rocha-Rangel y Heberto Balmori-Ramírez, “Reaction-Bonding of Mullite-Zirconia Using Sintering Additives”, *Advances in Technology of Materials and Materials Processing Journal (ATM)*, 2(73-86)2000.

2. Juan Zarate, Héctor Juárez, María Eugenia Contreras, J. Tartaj, Heberto Balmori R., "Influence of  $\alpha$ -Alumina Seeding on the Sinterability of Sol-Gel Derived Zirconia-Alumina Composites", *Advances in Technology of Materials and Materials Processing Journal*, 3(19-26)2001.
3. S. D. de la Torre, H. Miyamoto, H. Balmori-Ramírez y E. Rocha Rangel, "Sinterización Asistida por Plasma de Cerámicos Reforzados Mullita-ZrO<sub>2</sub>", *Revista Mexicana de Física*, 46[6]519-522(2000).
4. M. A. Valenzuela, L. Téllez, P. Bosch, H. Balmori, "Solvent Effect on the Sol-Gel Synthesis of Lithium Aluminate", *Materials Letters*, 47(252-257)2001.
5. Flavia Cunha-Duncan, J. Aguilar-Santillan, H. Balmori-Ramirez, Richard C. Bradt, "The mullite/magnesia reaction to form spinel and forsterite", pgs. 1311-1320 en UNITECR 2001, 7<sup>th</sup> Biennial Worldwide Conference on Refractories, ALAFAR, México, 2001.
6. H. Balmori-Ramirez, Richard C. Bradt, "Alumina effects on the mullitization of attrition-milled kyanite", pgs. 1536-1552 en UNITECR 2001, 7<sup>th</sup> Biennial Worldwide Conference on Refractories, ALAFAR, México, 2001.
7. C. Gómez-Yáñez, H. Balmori-Ramírez, "Dilatometric Studies on BaTiO<sub>3</sub> Samples Doped with Y<sub>2</sub>O<sub>3</sub> and ZrO<sub>2</sub>", *Dielectric Materials and Devices*, pp. 13-24, The American Ceramic Society, Westerville, OH, 2002.
8. Joaquín Aguilar-Santillan, Ricardo Cuenca-Alvarez, Heberto Balmori-Ramírez, Richard C. Bradt, "Mechanical Activation of the Decomposition and Sintering of Kyanite", *Journal of the American Ceramic Society*, 85(2425-2431)2002.
9. F. Hernández-Cuevas, C. Gómez-Yáñez, H. Balmori-Ramírez, "Efficiency of Ammonium Polyacrylate to Disperse Alumina in Water with High Salt Concentration", pg. 25-30 en Shaping II, 2<sup>th</sup> International Conference on Shaping of Advanced Ceramics, VITO, Bélgica, 2002
10. "Reduction of NO<sub>x</sub> with NH<sub>3</sub> and O<sub>2</sub> over CuSo<sub>4</sub>/ZrO<sub>2</sub> catalyst", pgs. 308-312 en Proc. 5<sup>th</sup> International Symposium of E.S.I.Q.I.E., México, 2002.
11. Raúl Arauz Martínez, Heberto Balmori Ramírez, David Jaramillo Viguera, "Resistencia al Choque Térmico de Refractarios Base Alúmina", *Moldeo y Fundición*, 24(42-48)2002.
12. Carlos Gómez-Yáñez, Heberto Balmori-Ramírez, José Antonio Romero-Serrano, José de Jesús Cruz-Rivera, O. Domínguez Espino, "Dissolution of Zr and Y into BaTiO<sub>3</sub> by Milling", *Ceramic Engineering and Science Proceedings*, 24, No. 4, pp. 87-94, 2003.
13. Juan Muñoz-Saldaña, Heberto Balmori-Ramírez, David Jaramillo-Viguera, Takeo Iga, G. A. Schneider, "Mechanical Properties and Low Temperature Aging of Tetragonal Zirconia Polycrystals", *Journal of Materials Research*, 18(2415-2426)2003.
14. Flavia N. Cunha, Heberto Balmori-Ramírez, Charles C. Sorrell, Richard C. Bradt, "Synthetic Spinel-Forsterite Refractory Aggregates from the Sillimanite Minerals", *Minerals and Metallurgical Processing*, 20(143-152)2003.
15. Flavia N. Cunha, Heberto Balmori-Ramírez, Charles C. Sorrell, Richard C. Bradt, "Formation of a spinel/forsterite refractory aggregate from Sillimanite", pgs. 172-175 en Proc. UNITECR 2003, 8<sup>th</sup> Biennial Worldwide Conference on Refractories, Japón, 2003.
16. E. Rocha-Rangel, E. Refugio, H. Balmori-Ramírez, Richard C. Bradt, "Reaction sintering of attrition-milled kyanite and aluminum to produce mullite", *Sintering 2003, Proc. de 3<sup>th</sup> International Conference on Science, Technology and Applications of Sintering*, The Penn State University, Estados Unidos, 2003.  
<http://www.mri.psu.edu/conferences/sint03/>
17. Ivan Vernet-Patiño, Heberto Balmori-Ramírez, Richard C. Bradt, "Synthesis of Cordierite Ceramics with a Mixture of Kyanite and Talc", *Ceramic Transactions*, 154(269-279)2003.

18. Heberto Balmori-Ramírez, Enrique Rocha-Rangel, Elizabeth Refugio García, Richard C. Bradt, "Dense Mullite from Attrition-Milled Kyanite and Aluminum Metal", *Journal of the American Ceramic Society*, 87[1]144-146(2004).
19. Enrique Rocha Rangel, Heberto Balmori Ramírez, "Effects of the Variations in Milling Time and Sintering Temperature on the Production of Mullite-ZrO<sub>2</sub> Composites", *Journal of Ceramic Processing Research*, 5[1]58-63(2004).
20. V. Pérez Moreno, J. J. Castro Arellano, H. Balmori Ramírez, "Characterization and preparation of Porous Membranes with a Natural Mexican Zeolite", *J. Phys.: Condens. Matter*, 16(2004)S2345-S2352.
21. I. Vernet-Patiño, H. Balmori-Ramírez, J. Aguilar-Santillán, F. Cunha, and R.C. Bradt, "Synthesis of Different Traditional and Composite Refractory Aggregates from Kyanite", pp. 741-755 in *Advances in Refractories for the Metallurgical Industries IV*, ed. by M. Rigaud and C. Allaire, The Canadian Institute of Mining, Metallurgy and Petroleum, Montreal, Quebec, Canada, 2004.
22. Joaquín Aguilar-Santillán, Heberto Balmori-Ramírez, Richard C. Bradt, "Sol-Gel Formation and Kinetic Analysis of the In-Situ Self/Seeded Transformation of Bayerite [Al(OH)<sub>3</sub>] to  $\alpha$ -Alumina", *Journal of Ceramic Processing Research*, vol. 5, No. 3, 196-202, 2004.
23. Enrique Rocha-Rangel, Sebastián Díaz de la Torre, Heberto Balmori-Ramírez, "Effect of Particle Size on the Characteristics of Mullite-ZrO<sub>2</sub> Ceramics Produced by Spark Plasma Sintering", *Ceramics Transactions: Innovative Processing and Synthesis of Ceramics, Glasses and Composites VIII*, vol. 166, pp. 111-120, eds. N.P. Bansall, J.P. Singh, and H. Schneider, The American Ceramic Society, Westerville, OH 2005.
24. Enrique Rocha-Rangel, Sebastián Díaz de la Torre, H. Miyamoto, Minoru Umemoto, Heberto Balmori-Ramírez, "Zirconia Mullite Composites Consolidated by Spark Plasma Sintering from Zircon and Alumina", *J. Am. Ceram. Soc.*, **88**[5]1150-1157(2005).
25. Richard C. Bradt, Heberto Balmori-Ramírez, "Effects of Attrition Milling on the Decomposition of the Sillimanite Minerals", (Invited paper) pp. 33 - 40 en *Proc. 3<sup>rd</sup> Fulrath Memorial International Symposium on Advanced Ceramics*, Japan Fulrath Award Committee, Tokyo, Japan, April 6, 2005.
26. Richard C. Bradt, Joaquin Aguilar-Santillan and Heberto Balmori-Ramirez, "Nano-Milling of the Sillimanite Mineral, Kyanite, and its Reactions with Alumina to Form Mullite", *J. Ceram. Processing Research*, vol. 6, No. 4, 271-275, 2005.
27. Jorge Pineda-Piñón, Alejandro Manzano-Ramírez, Francisco Pérez-Robles, Heberto Balmori-Ramírez, Martín A. Hernández-Landaverde, Ventura Rodríguez-Lugo, "Characterization of adobes used in the building industry, enhanced by the addition of chemical agents", paper 632, *Symp. on Ecologically Friendly Materials, Mechanics and Materials Conf. 2005, McMat 2005, Joint ASME/ASCE/SES Conference*, Junio 1-3 de 2005, Baton Rouge, Louisiana, E.U.
28. Francisco Cruz-Gandarilla, R. Gayosso-Armenta, J. Gerardo Cabañas-Moreno, Heberto Balmori-Ramírez, *The Transformation of Co-Rich Alloys Produced by Mechanical Alloying*, *Materials Science Forum*, vol. 509, 135-140, 2006.
29. Ivan Vernet-Patiño, Heberto Balmori-Ramírez, "Thermal Analysis and Evolution of Phases During the Synthesis of Cordierite From Kyanite and Talc", *Materials Science Forum*, vol. 509, 199-204, 2006.
30. Joaquin Aguilar-Santillan, Heberto Balmori-Ramirez, and Richard C. Bradt, "Dense Mullite from Attrition Milled Kyanite and  $\alpha$ -Alumina", *Journal of Ceramic Processing Research*, Vol. 8, No. 1, 1-11, 2007.
31. L. Téllez, H. Balmori, M. A. Valenzuela, J. Rubio, F. Rubio, J. L. Oteo, "Pore Structure and Texture of Organic/inorganic Hybrid Materials", *Ceramic Engineering and Science Proceedings: Mechanical Properties and Performance of Engineering Ceramics and Composites II*, Ed. Por R. Tandon, A. Wereszczak and E. Lara-Curzio, vol. 27, No. 2, pp. 387-397, 2007.

32. J. Pineda-Piñón, J. T. Vega-Durán, A. Manzano-Ramírez, J.F. Pérez-Robles, H. Balmori-Ramírez, M. A. Hernández-Landaverde, "Enhancement of Mechanical and Hydrophobic Properties of Adobes for Building Industry by the Addition of Polymeric Agents", *Building and Environment*, vol. 42, No. 2, 887-883, 2007.
33. J. Orea-Lara, H. Balmori-Ramírez; Synthesis and characterization of nanocrystalline TiN powder by reactive milling, *Technical Proceedings of the 2008 NSTI Nanotechnology Conference and Trade Show, NSTI-Nanotech, Nanotechnology 2008* 2008; 1, 955-958.
34. J. Orea-Lara, E. Orea-Lara, H. Balmori-Ramírez, "Obtaining and characterizing of TiN powder by reactive milling", *Nanotechnology 2009: Fabrication, Particles, Characterization, MEMS, Electronics and Photonics - Technical Proceedings of the 2009 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2009*, 2009; 1, 349-351.
35. G. Zacahua-Tlacuatl, J. Pérez-González, J. J. Castro-Arellano, H. Balmori-Ramírez, "Rheological Characterization and extrusión of suspensions of natural zeolites, *Applied Rheology* 2010, 20(3)1-10.
36. F. J. Jiménez, L. Téllez, M. A., Valenzuela, S. Wohn Lee, H. Balmori, "Effect of waste polyethylene addition on the properties of white Portland cement", *Journal of Ceramic Processing Research*, 2010; 11(2):281-285.
37. J. Orea-Lara, H. Balmori-Ramírez, F. J. de Anda-Salazar, H. Yee-Madeira, "Preparation and characterization of TiN powder by reactive milling in air", *Journal of Ceramic Processing Research*, 2012; 13(1):86-88.
38. J. R. Avendaño-Gómez, H. Balmori-Ramírez, E. Durán-Párramo, "Fractional crystallization of oil droplets in O/W emulsions dispersed by Synperonic F127", *Journal of Colloid and Interface Science*, 2012;380(1):75-82.

#### EDITOR DE MEMORIAS DE CONGRESOS INTERNACIONALES

- H. Balmori-Ramírez, M. Brito, J. G. Cabañas-Moreno, H. Calderón-Benavides, K. Ishizaki, and A. Salinas-Rodríguez, *Materials Science Forum, Materials Science Forum*, "Advanced Structural Materials II", vol. 509, 2006.
- H. Balmori-Ramírez, J. G. Cabañas-Moreno, H. Calderón-Benavides, K. Ishizaki, and A. Salinas-Rodríguez, *Materials Science Forum, Materials Science Forum*, "Advanced Structural Materials III", vol. 560, 2007.
- H. A. Calderón, A. Salinas, H. Balmori, K. Ishizaki, (Editores) "Advanced Structural Materials-2010, *MRS Proceedings*, vol.1243, 2010.
- H. A. Calderón, A. Salinas-Rodríguez, H. Balmori-Ramírez, K. Ishizaki, (Editores) "Advanced Structural Materials-2010, *MRS Proceedings*, vol.1276, 2010.
- Heberto Balmori-Ramírez; Hector A. Calderon-Benavides; Armando Salinas-Rodríguez, "Advanced Structural Materials-2011, *MRS Proceedings*, vol. 13713, 2012

#### ACTIVIDADES PROFESIONALES RECIENTES

- Co-Organidor, *Advanced Structural Materials Symposium*, International Materials Research Congress de la Academia Mexicana de Materiales (Cancun, Q.R., Mexico) desde 1999.