Basbus Juan Felipe

Curriculum Vitae

Degrees

• Ph.D.inPhysics,"StudyofCeramicOxideswithProtonicConductivity",BalseiroInstitute(IB), National University of Cuyo (UNCu), Argentina, from June 13th 2011 to April 10th 2017.
• Professor of Chemistry, National University of Santiago del Estero (UNSE), Argentina, from August 6th 2007 to February 26th 2010.

• Bachelor in Chemistry, UNSE, Argentina, from March 4th 2002 to November 25th 2010.

Current Positions

• Assistant Researcher at National Scientific and Technical Research Council (CONICET), Argentina.
• Assistant Professor at National University of Comahue (UNCo), Argentina.
• Researcher at National Atomic Energy Commission (CNEA), Bariloche Atomic Center (CAB), promotion list (T.N.G.) 4.2.2, Argentina.

Publications in peer review journals

1) *New J. Chem.*, **44** (2020) 11608-11614, "Structural characterization and electrochemical properties of (La,Sr)(Al,Mg)$O_{4-\delta}$ perovskites", C. Mariño, J. Basbus, J. A. Alonso, L. Troncoso. https://doi.org/10.1039/D0NJ01682A
2) *ACS Applied Energy Materials*, **3** (2020), 2881-2892, "Revisiting the Crystal Structure of $BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$ Proton Conducting Perovskite and its Correlation with Transport Properties" J. Basbus, M. Arce, F. Napolitano, H. Troiani, J. A. Alonso, M. Saleta, M. A. Gonzalez, G. Cuello, M. T, Fernández-Diaz, M. Pardo Sainz, N. Bonanos, Nikolaos, C. Jimenez, L. Giebeler, S. Figueroa, A. Caneiro, A. Serquis, L. Mogni. https://doi.org/10.1021/acsaem.9b02498

3) *Int. J. Hydrogen Energy*, **45** (2020) 5481-5490, "Study of $BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$/$BaCe_{0.8}Pr_{0.2}O_{3-\delta}$ (BCZY/BCP) Bilayer Membrane for Protonic Conductor Solid Oxide Fuel Cells (PC-SOFC)", J. Basbus, M. Arce, H. Troiani, Q. Su, H. Wang, A. Caneiro, L. Mogni. https://doi.org/10.1016/j.ijhydene.2019.06.164

4) *J. Power Sources*, **329** (2016) 262-267, "A high temperature study on thermodynamic, thermal expansion and electrical properties of $BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$ proton conductor", J. Basbus, M. Arce, F. Prado, A. Caneiro, L. Mogni. https://doi.org/10.1016/j.jpowsour.2016.08.083
5) *J. Electrochem. Soc.*, **163** (2016) F516-F522, "A high temperature study on the structure, linear expansion, thermodynamic stability and electrical properties of the $BaCe_{0.8}Pr_{0.2}O_{3-\delta}$ perovskite", J. F. Basbus, M. D. Arce, F. Prado, L. Suescun, A. Caneiro, L. V. Mogni. https://doi.org/10.1149/2.0911606jes

6) *Acta Crystallogr. B* **71**, (2015) 455-462, "Anomalous X-Ray Diffraction Study of Pr-substituted $BaCeO_{3-\delta}$", J. F. Basbus, A. Caneiro, L. Suescun, D. Lamas, L.V. Mogni. https://doi.org/10.1107/S2052520615010203
7) *J. Power Sources*, **274** (2015), 318-323, "Effect of the symmetric cell preparation temperature on

the activity of $Ba_{0.5}Sr_{0.5}Fe_{0.8}Cu_{0.2}O_{3-\delta}$ as cathode for intermediate temperature Solid Oxide Fuel Cells", S. Vázquez, J. Basbus, A. Soldati, F. Napolitano, A. Serquis, L. Suescun. https://doi.org/10.1016/j.jpowsour.2014.10.064

8)*J. Solid State Chem.*, **228** (2015), 208–213, "Synthesis and characterization of $La_{0.6}Sr_{0.4}Fe_{0.8}Cu_{0.2}O_{3-\delta}$ oxide as cathode for Intermediate Temperature Solid Oxide Fuel Cells", S. Vázquez, S. Davyt, J. Basbus, A. Soldati, A. Serquis, R. Faccio, L. Suescun. https://doi.org/10.1016/j.jssc.2015.04.044

9) *J. Electroceram.*, **32** (2014) 311-318, "A Comparative study of high temperature properties of cobalt-free perovskites", J. F. Basbus, F. P Prado, L.V. Mogni, A. Caneiro. https://doi.org/10.1007/s10832-014-9901-9
10) *J. Electrochem. Soc.* **161** (2014), F969-F976, "Effect of Pr-doping on structural, electrical, thermodynamic, and mechanical properties of $BaCeO_{3-\delta}$ as proton conductor", J. F. Basbus, M. Moreno, A. Caneiro, L. V. Mogni. https://doi.org/10.1149/2.0181410jes

11) *ECS Trans.*, **58** (2013),173-181, "Increasing Conductivity in Proton Conductors $BaCeO_{3-\delta}$ doped with Pr", J. F. Basbus, A. Caneiro, L. V. Mogni. https://doi.org/10.1149/05802.0173ecst 12) *React. Funct. Polym.*, **72** (2012), 807-813, "Synthesis of macroporous polymers with radical scavenging properties by immobilization of polyphenolic compounds", R. D. Arrua, J. F. Basbus, M. C. Strumia, C. I. Alvarez Igarzabal, M. A. Nazareno. https://doi.org/10.1016/j.reactfunctpolym.2012.07.017

Work experience

2018 to date
Assistant Researcher at CONICET since November 1st 2018, Argentina, permanent position.

2016 to date
Assistant Professor at UNCo since March 1st 2016, Argentina, contract.

2015 to date
Researcher at CNEA since October 1st 2015, Argentina, contract.

2014-2016
Assistant Professor at National University of Rio Negro (UNRN) from August 1st 2014 to January 31st 2015, and August 1st 2015 to January 31st 2016, Argentina.

2009-2010
Second Category Auxiliary Professor at UNSE since August 19th 2009 to December 31st 2010, Argentina.

Polimodal Professor at Absalón Rojas School from September 6th to December 31st 2010, Argentina

Fellowships

2018
Fellowship granted by Bec.Ar Program of Argentina for training on neutron techniques at Institut Laue-Langevin (ILL), Grenoble, France, long term visitor (LTV), from June 1st to August 31st 2018.

2014-2015
Type II Doctoral fellowship granted by CONICET, from April 1st 2014 to September 31st 2015, Argentina.

2011-2014
Doctoral fellowship granted between CNEA and National Agency for Scientific and Technological Promotion (ANPCyT), from January 1st 2011 to March 31st 2014, Argentina.

2009
Research fellowship for UNSE students, Argentina.

Participation in postgraduate course

2019
Invited Professor in the Structural and Magnetic Refinement by the Rietveld Method of the XI Argentinean Association of Crystallography (AACr) School with a duration of 40 hours, from November 18th to 22nd 2019, San Carlos de Bariloche, Argentina.

Schools

2020
School of Applied Neutron Techniques (ETNA2020), from September 14th to October 2nd 2020, Buenos Aires, Argentina.

2015
São Paulo School of Advanced Sciences (ESPCA) on Recent Developments in Synchrotron Radiation, from July 13th to 24th 2015, Campinas, Brazil.

2014
• 6th School of the AACr: Techniques of Synchrotron Radiation Applied to Materials, Mar del Plata, Buenos Aires, Argentina, from November 3rd to 8th 2014, Argentina
• Quality Management in Research Groups, Development and Innovation Projects Using the IRAM 30800 Standard Guide, CAB-CNEA, from March 17th to 21st 2014, Argentina.

2013
Summer School of Materials in 3D: Modeling and Imaging at Multiple Length Scales International Center for Materials Research (ICMR), from August 18th to 23rd 2013, University of California Santa Barbara (UCSB), California, U.S.A.

Most relevant congresses, conferences and seminars from the last five years

2020
• 71st Annual Meeting of the International Society of Electrochemistry (ISE), “In situ X-ray Analytics and Electrochemical Characterization Illuminate SOFC Perovskite Materials”, M. Arce, C. Jiménez, J. Basbús, M. Santaya, E. A. Carbonio, R. Garcia-Diez, K. Nie, G. J. Cuello, M. T. Fernández-Díaz, J. A. Alonso, H. Troiani, A. Serquis, F. Napolitano, R. G. Wilks, A. Knop-Gericke, M. Bär, L. Mogni, from August 3th to September 4th 2020, Belgrade, Serbia.
• Annual Meeting 2020 of Nanoscience and Nanotechnology Institute (INN), “In-situ neutron diffraction study of $BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$ proton conducting perovskite” J. Basbus, M. Arce, J.

Alonso, M. González, G. Cuello, M. T. Fernández-Díaz, A. Serquis, L. Mogni, July 21st to 23rd 2020, CNEA-CONICET, Argentina.

2019

• II Argentine Congress of Neutron Techniques (TN), "Revealing the Crystal Structure of $BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$ Proton Conducting Perovskite and its Correlation with transport Properties" J. F. Basbus, M. D. Arce, F. R. Napolitano, H. E. Troiani, M. E. Saleta, N. Bonanos, J. A. Alonso, M. A. González, G. J. Cuello, M. T. Fernández-Díaz, L. Giebeler, A. Caneiro, M. Pardo Sainz, S. Figueroa, C. E. Jimenez, A. C. Serquis, L. V. Mogni, from May 8th to 10th 2019, Buenos Aires, Argentina.

• 22nd International Conference on Solid State Ionics (SSI-22), "Study of Structural,

Thermodynamic and Electrical Properties of the $BaCe_{0.4}Zr_{0.4}Pr_{0.2}O_{3-\delta}$ (BCZP) Perovskite for

Electrochemical Applications" J. Basbus, M. Arce, F. Prado, H. Troiani, A. Serquis, L. Mogni,

2018

• 22nd World Hydrogen Energy Conference (WHEC), "Study of $BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$/$BaCe_{0.8}Pr_{0.2}O_{3-\delta}$ (BCZY/BCP) Bilayer Membrane", J. Basbus, M. Arce, A Caneiro, L. Mogni, from June 17th to 22nd 2018, Rio de Janeiro, Brazil.
• Materials Science and Engineering (MSE 2018), "Characterization of BaCe0.4Zr0.4Y0.2O3-δ Protonic Conductor in-operando conditions" J. Basbus, M. Arcea, F. Napolitano, M. Saleta, N. Bonanos, J. A. Alonso, M. T. Fernández Díaz, L. Giebeler, A. Caneiro, A. Serquis, L. Mogni, from September 26th to 28th 2018, Darmstadt, Germany.
• XXIII Latin American Symposium on Solid State Physics (SLAFES), "Electronic and Structural Properties of Solid Oxide Fuel Cells Compounds In-Operando Conditions", F. Napolitano, L. Baqué, M. Arce, J. Basbús, L. Mogni, Y. Mansilla, H. Troiani, A. Serquis, from April 10th to 13rd 2018, San Carlos de Bariloche, Argentina.

2017

• 24th Congress and General Assembly of the International Union of Crystallography (IUCr), "Metal Oxides: Crystallographic characterizations for high temperature electrochemistry applications" A. Serquis, F. Napolitano, A. Soldati, A. Fernandez Zuvich, L. Baque, M. Arce, L. Mogni, J. Basbús, H.Troiani, M. Saleta, from August 21st to 28th 2017, Hyderabad, India.
• 20th Topical Meeting of the ISE, "Study of $BaCe_{0.8}Pr_{0.2}O_{3-\delta}$/$BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$ Bilayer Proton Conductor Electrolytes" J. Basbus, M. Arce, H. Wang, Q. Su, A. Caneiro, H. Troiani, L. Mogni, from March 19th to 22nd 2017, Buenos Aires, Argentina.

2016

• 229th Electrochemical Society (ECS) Meeting, "Correlation Studies of Electrochemical and Crystallographic Properties on SOFC and SOEC Related Materials by Simultaneous EIS and XRD in-operando Measurements" F. Napolitano, A. Montenegro-Hernández, J. F. Basbus, M. D. Arce, L. V. Mogni, A. Serquis, from May 29th to June 2nd 2016, San Diego, California, USA.
• XIV Materia Symposium, "A high temperature study of $BaCe_{0.4}Zr_{0.4}Y_{0.2}O_{3-\delta}$ proton conductor" J. Basbus, M. Arce, F. Prado, M. Saleta, A. Soldati, A. Caneiro, A. Serquis, L. Mogni, F. Napolitano, from November 30th to December 2nd 2016, Rio de Janeiro, Brazil.

Measurements in large instrumental facilities

2019
ILL, from October 10th to 14th 2019, Proposal 5-25-269, D2B and D20 instruments.

2018
ILL, France, from June 1st to August 31st 2018, Proposal 7-03-168, IN16B instrument.

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to 21 , Pyeong Chang, Korea.

from June 16
• XXVIII International Materials Research Congress (IMRC-2019), "In-situ studies of energy materials for SOFC using neutrons & synchrotron radiation", C. E. Jimenez, L. Mogni, J. F. Basbus, M. D. Arce, F. R. Napolitano, M. E. Saleta, N. Bonanos, M. Gonzalez, G. Cuello, J. A. Alonso, M. T. Fernández Díaz, Serquis, L. Giebeler, A. Caneiro, M. Santaya, R.García-Diez, E. A. Carbonio, A. Knop-Gericke, R. Wilks, M. Bär, from August 18th to 23rd 2019, Cancún, México

2017
Brazilian Synchrotron Light Laboratory (LNLS), Campinas, Brazil, from August 22nd to 26th 2017, Proposal 20170278, XAFS2 beamline.

2016
LNLS, Brazil, from May 16th to 20th 2016, Proposal 20150099, XPD-D10B beamline.

2013
LNLS, Brazil, from April 8th to 12th 2013, Proposal XRD1-14294, XPD-D10B beamline.

Technical reports

2019
Experimental report of Proposal 7-03-168 to ILL, France.

2018
ILL internship report.

2017
Scientific case - High Resolution Diffractometer - Argentinean Laboratory of Neutron Beams (LAHN), CAB-CNEA, from November 11th to February 20th 2017.

2013, 2016 and 2017
Experimental report of the three proposals on LNLS.

Responsibility in experimental facilities

2017 to date
Maintenance, assembly and operation of X-Ray Diffractometers (XRD) Philips PW1710 and PANalytical Empyrean with Cu Kα radiation, graphite monochromator and multiple accessories for users, services and scientific collaborations, since February 1st 2017, CAB-CNEA, Argentina.

Congress organization

2019
Participation in the organizing committee of the XV Meeting of the AACr, November 13th to 16th 2019, San Carlos de Bariloche, Argentina.

Human resources formation

2019
Co-tutor of the one month internship of a Ph.D. student at CAB-CNEA, Argentina.

2018
Supervisor during two months of an undergraduate student at ILL, France.

Diffusion of Science and Technology

2011 to 2014
National Science and Technology Week, CAB IB Show, San Carlos de Bariloche, Argentina.

Participation in research projects

2011 to date
Group member in several projects: CONICET, UNCu and ANPCyT.

Reviewer of research projects

2020
ANPCyT, Scientific and Technological Research Projects (PICT-2019-I-B), Open Topics, Young Researchers.

Reviewer of international journals

2017-2020
• International Journal of Hydrogen Energy • Electrochimica Acta
• Electrochemistry Communications
• SN Applied Sciences

Awards

2017
Award from Y-TEC company in the Energy Technology Area and the 2nd award of the IB50K 2017 for the "SOFC" project. The project is based on Solid Oxide Fuel Cell technology. "SOFC" search to generate electric power with high efficiency and low emissions in remote installations outside the electrical interconnection system. M. Arce, L. Baque, A. Serquis, Y. Mansilla, M. Santaya, F. Aristimuño, J. Basbus, L. Mogni, IB-CAB-CNEA, November 17th 2017.

Language skills

English, intermediate. Italian, Basic.

References

• Prof. Dr. Liliana V. Mogni, Independent Researcher of CAB-CNEA/CONICET and Assistant Professor at IB, UNCu, e-mail: mogni@cab.cnea.gov.ar, lilianamogni@gmail.com, phone: +54 9 0294 444 5100 Ext. 5389.
• Prof. Dr. Adriana C. Serquis, Head of the Department, Principal Researcher of CAB-CNEA/CONICET and Titular Professor at UNRN, e-mail: aserquis@cab.cnea.gov.ar, aserquis@gmail.com, phone: +54 9 0294 444 5100 Ext. 5389.

• Prof. Dr. Gabriel Cuello, Instrument Scientist of D4 and D20 instruments of ILL, France, e-mail: cuello@ill.fr, phone: +33 (0)4 76 20 7697.
• Prof. Dr. Alberto Caneiro, Senior Researcher of CAB-CNEA/CONICET and Titular Professor at IB, UNCu, e-mail: caneiro@cab.cnea.gov.ar, albertocaneiro@gmail.com.

• Prof. Dr. Nikolaos Bonanos, Senior Researcher at DTU Energy Conversion, Denmark, e-mail: bonanos@cosmotemail.gr.