

## CURRICULUM VITAE (resumed)

June 2023

**Name:** Marcelo Javier AVENA

**Sex:** Male

### Mail address

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### Personal

Born: July 19, 1964. Córdoba, Argentina.

Marital Status: married.

### Education

- B. S. (Biochemistry), University of Córdoba, Argentina, 1982-1987.

- Ph. D. (Chemistry), Department of Physical Chemistry, Faculty of Chemical Sciences, University of Córdoba, Argentina, 1987-1993.

*Title of Ph. D. Thesis.* "Synthesis and Characterization of Colloidal Systems" (translated)  
*Ph. D. Supervisor.* Prof. Carlos P. De Pauli.

### Current Position

- Full Professor (Universidad Nacional del Sur, Bahía Blanca, Argentina). Full time. Since September 2011

- Principal Researcher (CONICET – Research Council of Argentina). Full time. Since January 2014.

- Vice Director of INQUISUR (Institute of Chemistry in Bahía Blanca, part of CONICET). Since March 2013.

- Director of Postgraduate Studies, Department of Chemistry, Universidad Nacional del Sur. Since September 2020.

### Past Positions (resumed):

- Full-time research and teaching positions since 1987. Universidad Nacional de Córdoba, Argentina (1987-2002); Universidad Nacional del Sur, Bahía Blanca, Argentina (2002-up to date).

- Researcher of CONICET (1999 up to date).

- Visiting professor. Huazhong Agricultural University, Wuhan, China. Ago-Sep 2013, Oct-Nov 2015, Sep-Oct 2018, May-Jun 2023.

- Invited Professor. Department of Physical Chemistry, Faculty of Chemistry, University of Santiago de Compostela, Spain (2002, 2003 and 2004).

- Visiting researcher/professor. LGIT (Laboratoire de Géophysique Interne et Tectonophysique), Université Joseph Fourier, Grenoble, France (2003, 2005).

- Visiting Researcher. a) CABE, Department of Inorganic, Analytical and Applied Chemistry, University of Geneva, Switzerland (2000); b) Laboratory of Physical Chemistry and Colloid Science, Wageningen University, The Netherlands (2000).

- Post doc period. Laboratory of Physical Chemistry and Colloid Science, Wageningen

- University, The Netherlands (1996-1998).
- Short visits: a) Department of Chemical Physics and Electrochemistry, University of the Studies of Milan, Italy (1996); b) Department of Applied Physics, Faculty of Sciences, National University of Granada, Spain (1998); c) Department of Physical Chemistry, Faculty of Chemistry, University of Barcelona, Spain (1998); d) Institute of Natural Resources and Agrobiology, Sevilla, Spain (2007); e) LIFE, University of Agriculture of Copenhagen, Denmark (2008).

### **Languages**

*Spanish* (native language).

*English* (speaks, reads, writes).

*French* (conversation, communication, reads).

### **Memberships**

- Member of the Argentinean Association of Physical Chemistry (President during 2016 and 2017).
- Member of the International Humic Substances Society, IHSS (Coordinator of the Argentinean Chapter, since 2011).
- Member of the International Board of Interfaces Against Pollution (since 2008 up to date).
- Member of the American Chemical Society (until 2019).
- Member of the Argentinean Society of Environmental Science and Technology (in the Directive Board between 2017 and 2019).

### **Expertise**

Colloid and Interfacial Chemistry. Adsorption at solid-liquid interface. Computation and modeling of interfacial properties. Oxide synthesis, dissolution and ageing. Physical chemistry of clay minerals, humic substances. Adsorption of pesticides and pollutants. Phosphate and glyphosate in soils. Adsorption-desorption kinetics. Soil Chemistry. Chemistry of Sediments. Arsenic and fluorine chemistry in groundwater.

### **Direction of research projects**

MJA was head of 24 research projects (4 of them are currently being conducted) and co-head of 3 other research projects granted by Argentinean institutions (CONICET, Fundación Antorchas, ANPCyT, University of Córdoba, University of Bahía Blanca, etc.). He was co-head of two cooperation projects between The University of Córdoba (Argentina) and the University of Grenoble (France), and is currently co-head of a joint project between CONICET (Argentina) and the NSFC (China). The topics of the projects deal mainly with the reactivity of mineral surfaces, the reactivity of humic substances, environmental aspects of the mineral-solution interface and reactivity of soil minerals.

During his visits to different Universities and Research Centers, he also participated in many projects related to his expertise.

### **Teaching, supervision of PhD theses and others**

- Teaching either General Chemistry, Physical Chemistry, Inorganic Chemistry, Analytical Chemistry or Experimental Methods in Physical Chemistry, which are subjects for undergraduate students in the Faculty of Chemical Sciences (Universidad Nacional de Córdoba, Argentina). 1986-2002.
- Teaching General Chemistry, Inorganic Chemistry and/or Advanced Inorganic Chemistry,

which are subjects for undergraduate students in the Universidad Nacional del Sur (Bahía Blanca). 2002 up to date.

- Imparting once every two years the course “Reactivity of the solid-water interface”, which is a PhD course in the Universidad Nacional del Sur. 2002 up to date.
- Director of 9 Researchers of CONICET.
- Supervised 9 PhD Theses, Universidad Nacional del Sur.
- Supervised 3 MSc students, Universidad Nacional de Córdoba.
- Supervising actually 4 PhD students, Universidad Nacional del Sur.

### **Fellowships granted.**

- Undergraduate Fellowship, University of Córdoba, 1986.
- Graduate Fellowship, CONICOR (Research Council of Córdoba), 1988-1992. “Synthesis and Characterisation of Colloidal Systems”. Supervisor: Carlos. P. De Pauli.
- Postdoctoral Fellowship, Department of Physical and Colloid Chemistry, Wageningen Agricultural University, 1996-1997. “Binding and adsorption properties of humic and fulvic acids”. Supervisor: Luuk K. Koopal.
- Postdoctoral Fellowship, CONICET (Research Council of Argentina) to perform research in the Department of Physical and Colloid Chemistry, Wageningen Agricultural University, 1998. “Binding and adsorption properties of humic and fulvic acids”. Supervisor: Luuk K. Koopal.

### **Prizes awarded recognizing teaching/research activity**

- *Premio anual docente (Faculty University Prize)*. Twice. Córdoba, 1993 and 1995.
- *Prize Ranwell Caputto (Chemistry)*. National Academy of Sciences, Argentina. 2002.
- Konex, Prize. Diploma al Mérito. Most relevant scientists of the 2012-2023 decade. Argentine Science and Technology in Argentina. Discipline: Physical Chemistry and Inorganic Chemistry. 2023.

### **Reviewing**

- Regular reviewer of *Journal of Colloid and Interface Science*, *Colloids and Surfaces A*;, *Langmuir*, *Journal of Physical Chemistry*, *PCCP*, *Environmental Science and Technology*, *Applied Clay Science*, *Clays & Clay Minerals*, *Geoderma*, *Journal of Hazardous Materials*, *Chemosphere*, *J. Cleaner Production*, etc.

### **Invited lectures/seminars.**

- 1.- “H<sup>+</sup> adsorption and electrokinetics of clays with permanent charges”  
*Seminar*. Laboratory of Physical Chemistry and Colloid Chemistry, Agricultural University of Wageningen, The Netherlands. September 30, 1997.
- 2.- “Adsorption-desorption of humic acids on the solid-liquid interface”. *Lecture*. Facultad de Ciencias, Universidad Nacional de Granada, Granada, Spain. España. September 9, 1998.
- 3.- “Desorption of humic acids from iron oxide surfaces”  
*Seminar*. Laboratory of Physical Chemistry and Colloid Chemistry, Agricultural University of Wageningen, The Netherlands. Noviembre 3, 1998.
- 4.- “Adsorption-Desorption of humics on iron oxide plates. Reversibility and kinetic aspects”.  
*Seminar*. CABE. University of Geneva, Geneva, Switzerland. October 26, 2000.
- 5.- “Protonation-deprotonation in metal oxides and humic substances. Effects on the surface-molecule interaction”  
*Lecture*. Department of Chemistry., Facultad de Química, Universidad de Santiago de Compostela, Santiago de Compostela, Spain. December 2000.
- 6.- “Proton adsorption on clay edges. Effects of structural charges”. *Lecture*. University Joseph Fourier, Grenoble, France. February 4, 2002.

- 7.- “Desaggregation of humic substances, mechanism and pH effects”. *Lecture*. Department of Chemistry., Facultad de Química, Universidad de Santiago de Compostela, Santiago de Compostela, Spain. February 22, 2002.
- 8.- “Adsorption-desorption of humic substances. Reversibility and kinetic aspects.” *Lecture*. Departamento de Physical Chemistry and Industrial Engineering, Facultad de Química, Universidad de La Coruña, La Coruña, Spai. Februray 28, 2002.
- 9.- “Interaction of humic substances with iron oxide. Desorption and Reversibility.” *Lecture*. University Joseph Fourier, Grenoble, France. December 2003.
- 10.- “Proton adsorption at clay surfaces”. *Lecture*. University Joseph Fourier, Grenoble, France. December 2004.
- 11.- “The surface of clays and other minerals. Their important activity in the environment.” *Lecture*. Chemistry week, Universidad Nacional del Sur, Bahía Blanca, November 24, 2005.
- 12.- “Mobilization of humic substances in aqueous media. Dissolution kinetics”. *Lecture*. Institute of Natural Resources and Agrobiology of Sevilla (IRNAS-CSIC), Sevilla, Spain. September 2007.
- 13.- “The reactivity of the metal oxide surface”. *Lecture*. I Workshop of physical chemistry of colloidal systems and electrode surfaces. Universidad Nacional de Córdoba, Córdoba, Argentina. December 21, 2007.
- 14.- “The dissolution kinetics of humic acid particles.” *Keynote Lecture*. 5th Internacional Conference Interfaces Against Pollution, Kyoto, Japan, June 1-4, 2008.
- 15.- “The proton adsorption properties of clay particles”. *Seminar*. Seminar on Colloids and Interfaces in Environments. Tsukuba University, Japan. June 7, 2008.
- 16.- “The dissolution kinetics of humic acid particles. Effects of pH, temperature and pollutants.” *Lecture*. Agricultural University of Copenhagen (LIFE), Denmark, November 2008.
- 17.- “The Reactivity of the Surface of Minerals in aqueous media. *Semiplenary Lecture*. 2° Symposium on adsorption, adsorbents and applications (SAASA). San Luis, Argentina. February 20-22, 2013.
- 18.- “Reactivity of the mineral-water interface. Glyphosate and phosphate competing for the surface of goethite.” *Lecture*. Huazhong Agricultural University, Wuhan, China. September 3, 2013.
- 19.- “Dissolution and Aggregation Kinetics of Humic Acids.” *Lecture*. Huazhong Agricultural University, Wuhan, China. September 9, 2013.
- 20.- “Dissolution and Aggregation Kinetics of Humic Acids.” *Lecture*. Institute of Soil and Water Conservation, NSFC, Yangling, China. September 11, 2013.
- 21.- “Effects of humic acids on the adsorption of the herbicide glyphosate on goethite”. *Lecture*. Huazhong Agricultural University, Wuhan, China. November 4, 2015.
- 22.- “The proton adsorption properties of montmorillonite and other clay particles.” *Lecture*. Huazhong Agricultural University, Wuhan, China. November 11, 2015.
- 23.- “Ligand exchange reactions at the metal oxide-water interface. Equilibrium and dynamic conditions.” *Keynote Lecture*. International Conference Interfaces Against Pollution, Lleida, Spain. September 4-6, 2016.
- 24.- “Mechanism of desorption of glyphosate from the mineral Surface. What substance is the best desorbent?” *Plenary Lecture*. 3° Symposium on adsorption, adsorbents and applications (SAASA). Neuquén, Argentina. February 21-23, 2018.
- 25.- “Desorption rate of the herbicide glyphosate from the goethite surface. Hints on the desorption mechanism”. *Lecture*. Huazhong Agricultural University, Wuhan, China. October 2018.
- 26.- “Surface species of phosphate on goethite. Distribution as a function of pH and surface coverage”. *Lecture*. Huazhong Agricultural University, Wuhan, China. October 2018.
- 27.- “Ion adsorption-desorption rates at the mineral-water interface. Linking Inorganic and Surface Chemistry.” *Lecture*. International Symposium on Interfacial Processes and Soil Health, Wuhan, China. November 11, 2020 (on line).
- 28.- “Adsorption-desorption reactions at the mineral-water and metal oxide-water interface. A ‘superficial’ and ‘materialistic’ view.” *Lecture*. Department of Chemistry, Clemson University, USA. February 25, 2021 (on line)

- 29.- “Adsorption-desorption reactions at the mineral-water interface”. *Lecture*. Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Córdoba, Argentina. June 15 2021 (on line).
- 30.- “The reactivity of the metal oxide- and mineral-water interfaces. An inorganic viewpoint. *Lecture*. University of Sao Paulo, Brazil. September 8, 2021 (on line).
- 31.- “Regulation of the arsenic concentration in groundwaters of Bahía Blanca.” *Lecture*. Argentinean Society of Environmental Science and Technology. Argentina. September 17, 2021 (on line).
- 32.- Reacciones en la superficie de óxidos metálicos, materiales y minerales (...o cómo ser, a la vez, superficial y materialista). Seminario. Instituto de Fisicoquímica de Córdoba. Septiembre 2022 (on line).
- 33.- Sustancias húmicas en el ambiente. Estructura, propiedades químicas y reactividad. Conferencia Plenaria (on line). VI Reunión Argentina de Geoquímica de la Superficie (VI RAGSU). San Carlos de Bariloche, 23-25 febrero 2022.
- 34.- Cinética de adsorción en la interfaz sólido-agua. Iones y polímeros de interés ambiental. Conferencia Plenaria. Congreso Nacional de Ciencia y Tecnología Ambiental, Argentina y Ambiente 2023 (AA2023) y 4º Simposio Iberoamericano de Adsorción (IBA-4). Potrero de los Funes, 3-5 mayo 2023.
- 35.- “Humic Substances in the Environment. Structure, chemical properties and reactivity”. *Plenary Lecture*. VI Argentinean Reunion of Geochemistry of the Surface. San Carlos de Bariloche, Argentina. February 23-25, 2022 (on line).
- 36.- “Adsorption kinetics at the solid-water interface. Ions and polymers of environmental relevance” *Lecture*. Huazhong Agricultural University, Wuhan. China. May 26, 2023.
- 37.- “A chat with students from HZAU...” *Seminar*. Huazhong Agricultural University, Wuhan. China. June 2, 2023.
- 38.- “Clay–Magnetite Co-Aggregates for Efficient Removal of Organic and Inorganic Pollutants”. *Lecture*. Huazhong Agricultural University, Wuhan. China. June 6, 2023.
- 39.- “How dissolved carbonate controls arsenic and fluoride contents in groundwater from an Argentina region”. *Lecture*. China Three Gorges University (CTGU), Yichang, China. June 7, 2023
- 40.- “Phosphate at the surface of goethite. Adsorption- desorption kinetics and competition with organic matter”. *Seminar*. Tropical Crops Genetic Resources Institute, Chinese Academy of Tropical Agricultural Sciences, Haikou. China. June 16, 2023.
- 41.- “Dissolution and aggregation kinetics of humic acids as a tool to understand interactions with cations and other substances”. *Seminar*. Huazhong Agricultural University, Wuhan. China. June 20, 2023.

## Scientific Publications

### Book Chapters

- 1.- “Acid-Base behavior of clay surfaces in aqueous media”  
Marcelo J. Avena  
*Encyclopedia of Surface and Colloid Science*. Arthur Hubbard (Editor). Marcel Dekker, New York, 37-63, 2002.
- 2.- “Effect of structural charges on proton adsorption at clay surfaces”  
Marcelo J. Avena and Carlos P. De Pauli. *Geochemical and Hydrological Reactivity of Heavy Metals in Soils*. H. Magdi Selim and William L. Kingery (Editores). CRC Press. Boca Raton. Capítulo 4. 79-112, 2003.
- 3.- “Acid–Base Behavior of Clay Surfaces in Aqueous Media”  
Marcelo J. Avena  
*Encyclopedia of Surface and Colloid Science*, Second Edition (updated); Taylor & Francis: New York, 1, pp. 17 – 46, 2006.
4. “Efecto del catión de intercambio en la retención de tetraciclina sobre montmorillonita”

M.E. Parolo, M.J. Avena, G.R. Pettinari, J.M. Vallés, M.T. Baschini.  
*La contaminación en Iberoamérica, Xenobióticos y Metales Pesados*. E. Iglesias, R.M. Torres, M. I. González, A. F. de Iorio (Editores). Sociedad Iberoamericana de Física y Química Ambiental. Salamanca, pp. 159-173, 2008.

### **Statistics of regular papers published in international journals.**

**Source:** SCOPUS, June 28, 2023.

**Papers Count:** 96 (excluding 2 in Argentinean journals).

**h-index:** 40 (excluding self-citations: 38).

**Total citations:** 5291 (excluding self-citations: 5095).

**Source:** Google Scholar, June 28, 2023.

Total citations: 7016.

h-index: 42.

i10 index: 78.

### **Published Papers:**

- 1.- "Study of some physicochemical properties of pillared montmorillonites: Acid-base potentiometric titrations and electrophoretic measurements."  
M. J. Avena, R. A. Cabrol y C. P. De Pauli. *Clays & Clay Minerals*. 38 (4), 356-362 (1990).
- 2.- "Correlation between the electrochemical properties of colloidal oxides and supported oxides on metallic substrates."  
M. J. Avena, R. A. Cabrol, O. R. Cámara y C. P. De Pauli. *J. Applied Electrochem*. 22 (10), 959-965 (1992).
- 3.- "Open circuit potential measurements with Ti/TiO<sub>2</sub> electrodes."  
M. J. Avena, O. R. Cámara y C. P. De Pauli. *Colloids and Surfaces*. 69, 217-228 (1993).
- 4.- "A simple and novel method for preparing Ni(OH)<sub>2</sub>. I. Structural Studies and Voltammetric Response."  
M. J. Avena, M. V. Vázquez, R. E. Carbonio, C. P. De Pauli y V. A. Macagno. *J. Applied Electrochem*. 24 (3), 256-260 (1994).
- 5.- "Some physicochemical properties of the chromium(III) hydrous oxide-aqueous solution interface."  
C. E. Giacomelli, M. J. Avena, O. R. Cámara y C. P. De Pauli. *J. Colloids Interface Sci*. 169, 149-160 (1995).
- 6.- "Dehydration process on niquel hydroxide. Its influence on the electrochemical behavior of Pt/Ni(OH)<sub>2</sub> electrodes".  
M. J. Avena, M. V. Vázquez y C. P. De Pauli. *Electrochim. Acta*. 40 (7), 907-912 (1995).
- 7.- "Aspartic acid adsorption onto TiO<sub>2</sub> particles surface: Experimental data and model calculations."  
C. E. Giacomelli, M. J. Avena y C. P. De Pauli. *Langmuir*. 11 (9), 3483-3490 (1995).
- 8.- "H<sup>+</sup>-promoted dissolution of Ni(OH)<sub>2</sub>. A turbidimetric study."  
Marcelo J. Avena y Carlos P. De Pauli. *Colloids and Surfaces*, A. 108, 181-189 (1996).
- 9.- "Formation of Cr(III) hydroxides from chrome alum solutions. 1. Precipitation of active chromium hydroxide."  
Marcelo J. Avena, Carla E. Giacomelli y Carlos P. De Pauli. *J. Colloid Interface Sci*. 180, 428-435 (1996).
- 10.- "Modeling the interfacial properties of an amorphous aluminosilicate dispersed in aqueous

- NaCl solutions."
- Marcelo J. Avena y Carlos P. De Pauli. *Colloids and Surfaces, A*. 118 (1-2), 75-87, (1996).
- 11.- "Dissolution of chromium hydroxides monitored by turbidimetry."  
Marcelo J. Avena, Carla E. Giacomelli, Carlos D. García y Carlos P. De Pauli. *Langmuir*. 12, 6659-6664, (1996)
- 12.- "Adsorption of bovine serum albumine on TiO<sub>2</sub> particles."  
Carla E. Giacomelli, Marcelo J. Avena y Carlos P. De Pauli. *J. Colloid Interface Sci.* 188, 387-395, (1997)
- 13.- "Proton adsorption and electrokinetics of an Argentinean montmorillonite."  
Marcelo J. Avena y Carlos P. De Pauli. *J. Colloid Interface Sci.* 202, 195-204, (1998).
- 14.- "Desorption of humic acids from an iron oxide surface"  
Marcelo J. Avena y L. K. Koopal. *Environ. Sci. & Technol.* 32, 2572-2777, (1998).
- 15.- "Volume and structure of humic acids studied by viscometry. pH and electrolyte concentration effects".  
M. J. Avena, A. W. P. Vermeer y L. K. Koopal. *Colloids and Surfaces, A*. 151 (1-2), 213-224, (1999).
- 16.- "Ion binding to natural organic matter: competition, heterogeneity, stoichiometry and thermodynamic consistency"  
D. G. Kinniburgh, W. H. van Riemsdijk, L. K. Koopal, M. Borkovec, M. H. Benedetti y M. J. Avena. *Colloids and Surfaces, A*. 151 (1-2), 147-166, (1999).
- 17.- "Ellipsometric study of bovine serum albumin adsorbed onto Ti/TiO<sub>2</sub> electrodes"  
C. E. Giacomelli, M. J. Esplandiú, P. I. Ortiz, M. J. Avena y C. P. De Pauli. *J. Colloid Interface Sci.* 218, 404-411 (1999).
- 18.- "Proton binding to humic acids. Electrostatic and specific interactions"  
Marcelo J. Avena, Luuk K. Koopal y Willem H. van Riemsdijk. *J. Colloid Interface Sci.* 217, 37-48 (1999).
- 19.- "Kinetics of humic acid adsorption at the solid-water interface"  
Marcelo J. Avena y Luuk K. Koopal. *Environm. Sci. & Technol.* 33, 2739-2744 (1999)
- 20.- "Weak polyacid brushes: Preparation by LB deposition and optically detected titrations"  
E.P.K. Currie, A.B Sieval, M. Avena, H. Zuilhof, E.J.R. Sudholter, M.A. Cohen Stuart. *Langmuir*. 15, 7116-7118 (1999).
- 21.- "Methylene blue dimerization does not interfere in the estimation of the surface area of kaolinite samples"  
Marcelo J. Avena, Laura Valenti, Valeria Pfaffen and Carlos P. De Pauli. *Clays & Clay Minerals*. 49, 168-173 (2001).
- 22.- "A simple model for adsorption kinetics at charged solid-liquid interfaces".  
Luuk K. Koopal, Marcelo Avena. *Colloids and Surfaces, A*. 192, 93-107 (2001).
- 23.- "Estimación de Aportes de Nutrientes de P a los Embalses San Roque y Los Molinos e Implicancias en su Gestión."  
Rodríguez, A., Avena, M., Rodríguez, M. I., Cossavella, A., Oroná, C., del Olmo, S., Larossa, N., Bazán, R. y Corral, M. *Ingeniería Sanitaria y Ambiental*. Nro. 60, 45-51. Enero/Febrero 2002.
- 24.- "Disaggregation kinetics of a peat humic acid: mechanism and pH effects"  
Marcelo J. Avena and Kevin Wilkinson. *Environmental Science and Technology*. 36 (23), 5100-5105, 2002
- 25.- "Proton binding at clay surfaces in water."  
Marcelo M. Mariscal, Marcelo J. Avena and Carlos P. De Pauli. *Applied Clay Science*. 24, 3-9, 2003.
- 26.- "Surface charging behavior of Zn-Cr layered double hydroxide."

- R. Rojas Delgado, M. Arandigoyen Vidaurre, C. P. De Pauli, M. A. Ulibarri and M. J. Avena. *J. Colloid Interface Sci.* 280, 431-441, 2004.
- 27.- “Effects of pH and ionic strength on the adsorption of phosphate and arsenate at the goethite-water interface.”  
Juan Antelo, Marcelo Avena, Sarah Fiol, Rocío López, Florencio Arce. *J. Colloid Interface Sci.* 285, 476-486 (2005).
- 28.- “Phosphate concentration and association as revealed by sequential extraction and microprobe analysis. The case of sediments from two argentinean reservoirs.”  
L. Borgnino, C. Oroná, M. Avena, M. A. Maine, A. Rodríguez and C. P. De Pauli. *Water Resources Research.* Vol 42, doi 10.1029/2005WR004031 (2006).
- 29.- “Effects of pH and electrolyte concentration on the binding between a humic acid and an oxazine dye.”  
Graciela P. Zanini, Marcelo J. Avena, Sarah Fiol and Florencio Arce. *Chemosphere*, 63, 430-439 (2006).
- 30.- “On the mechanisms of dissolution of montroydite [HgO(s)]: Dependence on pH, temperature and stirring rate of the dissolution rate.”  
Ana Hocsman, Susana Di Nezio, Laurent Charlet, and Marcelo Avena. *J. Colloid Interface Sci.* 297, 696-704 (2006).
- 31.- “Kinetics of phosphate adsorption on goethite. Comparing batch adsorption and ATR-IR measurements.”  
C. Luengo, M. Brigante, J. Antelo, M. Avena. *J. Colloid Interface Sci.* 300, 511-518 (2006).
- 32.- “Surface properties of sediments from two argentinean reservoirs and the rate of phosphate release.”  
L. Borgnino, M. Avena, and C. De Pauli. *Water Research.* 40, 2659-2666 (2006).
- 33.- “On the dissolution kinetics of humic acid particles. Effects of pH, temperature and Ca<sup>2+</sup> concentration.”  
M. Brigante, G. Zanini, and M. Avena. *Colloids and Surfaces A.* 294, 64-70 (2007).
- 34.- “Adsorption of a soil humic acid at the surface of goethite and its competitive adsorption with phosphate.”  
J. Antelo, F. Arce, M. Avena, S. Fiol, R. López and F. Macías. *Geoderma.* 138, 12-19 (2007).
- 35.- “Adsorption kinetics of phosphate and arsenate on goethite. A comparative study.”  
Carina Luengo, Maximiliano Brigante and Marcelo Avena. *J. Colloid Interface Science.* 311, 354-360 (2007).
- 36.- “Caracterización de sedimentos provenientes del embalse San Roque y Los Molinos Córdoba, Argentina): propiedades superficiales y su relación con las velocidades de liberación de fosfato.”  
L. Borgnino, M. Avena, and C. P. De Pauli. *Ingeniería Sanitaria y Ambiental* N° 92, 80-89 (2007).
- 37.- “On the dissolution kinetics of humic acid particles. Effect of monocarboxylic acids.”  
M. Brigante, G. Zanini, M. Avena. *Chemosphere.* 71, 2076-2081 (2008).
- 38.- “Influence of M<sup>II</sup>/M<sup>III</sup> ratio in surface-charging behavior of Zn-Al layered double hydroxides.”  
R. Rojas Delgado, C. P. De Pauli, C. Barriga Carrasco, M. J. Avena. *Applied Clay Science.* 40, 27-37 (2008)
- 39.- “An ATR-FTIR study of different phosphonic acids in aqueous solutions.”  
María C. Zenobi, Carina V. Luengo, Marcelo J. Avena, Elsa H. Rueda. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy.* 70, 270-276 (2008).



- 40.- “Tetracycline adsorption on montmorillonite: effects of pH and ionic strength.”  
M.E. Parolo, M. Baschini, M. Avena. *Applied Clay Science*. 40, 179-186 (2008).
- 41.- “Synthesis and characterization of Fe(III)-montmorillonites for phosphate adsorption.”  
L. Borgnino, M.J. Avena, C.P. De Pauli. *Colloids and Surfaces*, 341, 46-52 (2009).
- 42.- “Effects of pH, anions and cations on the dissolution kinetics of humic acid particles.”  
M. Brigante, G. Zanini, M. Avena. *Colloids and Surfaces A*. 347, 180-186 (2009).
43. “Phosphate desorption kinetics from goethite as induced by arsenate.”  
V. Puccia, C. Luengo, M.J. Avena. *Colloids Surfaces A*. 348, 221-227 (2009).
44. “Influence of carbonate intercalation in the surface-charging behaviour of Zn-Cr layered double hydroxides.”  
R. Rojas, C. Barriga, M.J. Avena, C.P. De Pauli. *Mater. Chem. Phys.*. 119, 303-308 (2010).
45. “Modelling the acid-base surface properties of aquatic sediments.”  
L. Borgnino, M.G. García, M. del V. Hidalgo, M. Avena, C.P. De Pauli, M.A. Blesa, P.J. Depetritz. *Aquatic Geochemistry*. 16, 279-291 (2010)
46. “Phosphate adsorbed on Fe(III) modified montmorillonite: Surface complexation studied by ATR-FTIR spectroscopy.”  
Laura Borgnino, Carla E. Giacomelli, Marcelo J. Avena, Carlos P. De Pauli. *Colloids and Surfaces A*. 353, 238-244 (2010).
47. “An ATR-FTIR study of different phosphonic acids adsorbed onto boehmite.”  
María C. Zenobi, Carina V. Luengo, Marcelo J. Avena, Elsa H. Rueda. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*. 75, 1283-1288 (2010).
48. “Antimicrobial properties of tetracycline and minocycline- montmorillonites.”  
M.E. Parolo, M.J. Avena, G. Pettinari, I. Zajonkovsky, J.M. Valles, M.T. Baschini. *Appl. Clay Sci*. 49, 194-199 (2010).
49. “Effect of humic acids on the adsorption of paraquat by goethite.”  
M. Brigante, G. Zanini, M. Avena. *J. Hazard. Mat*. 184, 241-247 (2010).
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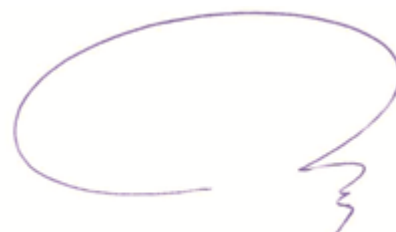
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