

# Andres E. Nunez

2520 Mable Ln, Lexington, KY 40511 • (859) 539-7103 • andres.nunez1408@gmail.com

## EDUCATION

### **PhD, Soil Science, University of Kentucky (2008)**

Dissertation Topic: Microbial Community Structure Dynamics in Ohio River Sediments during Reductive Dechlorination of PCBs

### **Master of Science, Chemistry, Universidad Simón Bolívar (2000)**

Thesis Topic: Stereoelectronic Control on the Acid Hydrolysis of Cyclic Phosphoramides.

### **Bachelor of Science, Chemistry, Universidad Simón Bolívar (1996)**

Thesis Topic: Kinetic Study of Hexakis(amino)cyclotriphosphazenes Phenolysis

## EXPERIENCE

### **January 2018 – current**

**Adjunct Chemistry Instructor.** Bluegrass Technical and Community College, Lexington.

Taught first and second semester general chemistry classes. Supervised and instructed students in general chemistry laboratory classes.

### **August 2018 – May 2021**

**General Chemistry Instructor.** University of Kentucky, Lexington

Taught first and second semester core general chemistry classes in large classroom settings (200+ students).

Organized and taught first a second semester general chemistry classes in flipped-classroom settings (100+ students).

Created 100+ videos to deliver online lecture content for flipped-classroom classes.

Coordinated, instructed, and mentored undergraduate interns for peer tutoring help in flipped-classroom settings.

### **September 2009 – August 2017**

**Postdoctoral Scholar,** University of Kentucky, Lexington

Conducted field research on corn, wheat and soybean crop establishment, growth, and harvest.

Studied effects of soil management practices on transport of nutrients and contaminants through soil profile.

### **January 2004 – December 2008**

**Graduate Research Assistant,** University of Kentucky, Lexington

Conducted research on bioremediation of polychlorinated biphenyls in river sediments, including DNA analysis for characterization of microbial communities associated with the process.

Supervised and instructed students in Soil Science laboratory and including field trips to experimental research stations.

### **September 2000 – December 2003**

**Assistant Professor.** Universidad Simón Bolívar, Caracas, Venezuela

Instructed students from chemistry and chemical engineering majors in elective courses such as Industrial Chemistry, Physical and Chemical Treatment of Wastewater, Atmospheric Chemistry, and Catalysis in Biochemical Processes.

Conducted research in chemical oxidation processes for wastewater treatment.

### **September 1996-May 2000**

**Graduate Research Assistant** Universidad Simón Bolívar, Caracas, Venezuela

Conducted research on chemical treatment of wastewater containing phenols.

Conducted research on acid hydrolysis of cyclic organophosphorus compounds.

### **May 1999 – May 2000**

**Research Analyst,** Environmental Management Unit, Universidad Simón Bolívar, Caracas, Venezuela.

Conducted physical and chemical analysis of water, soil, and sediment samples.

Conducted sampling and physical/chemical characterization of industrial solid waste and wastewater.

### **September 1996- May 1997**

**Field Specialist,** Environmental Management Unit, Universidad Simón Bolívar, Caracas, Venezuela.

Conducted sampling and physical/chemical characterization of oil waste lagoons.

### **September 1993 – July 1995**

**Teaching Assistant,** Universidad Simón Bolívar, Caracas, Venezuela

Assisted and instructed students in general chemistry laboratory classes.

## **PUBLICATIONS**

- D'Angelo, E.M., and **A. Nunez**. 2010. Effect of environmental conditions on polychlorinated biphenyl transformations and bacterial communities in a river sediment. *J. Soils Sediments* 10:1186-1199.
- **Núñez, A.**, G. Pardo, and O. Núñez. 2004. Tratamiento de desechos líquidos de la industria petrolera. Nuestra experiencia en laboratorio. Degradación fotoquímica de compuestos orgánicos de origen industrial. In: Nudelman N. Editor. *Química Sustentable*. Ediciones UNL, Santa Fé, Argentina. pp177 – 204.
- **Nunez, A.**; D. Berroteran, and O. Nunez, 2003. Hydrolysis of cyclic phosphoramides. Evidence for syn lone pair catalysis, *Org. Biomol. Chem.* 1:2283-2289.
- Guedez, T.; **A. Nunez**; E. Tineo, and O. Nunez, 2002. Ring size configuration effect and the transannular intrinsic rates in bislactam macrocycles. *J. Chem. Soc., Perkin Trans. 2*, 2078-2082.
- Martinez, M.; **A. Nunez**, R. Lopez, F. Morales, and O. Nunez, 1999. Phenols degradation using TiO<sub>2</sub> and UV light. Kinetic measurements in an ample pH range. *Acta Científica Venezolana*, 50(Supl. 1), 81-86.
- **Nunez, A.**, and O. Nunez, 1996. Bell-shaped pH-rate profile in a reaction involving a pentacoordinated phosphorus intermediate. *J. Org. Chem.* 61:8386-8390.

## MEETINGS

- E.M. D'Angelo and **A. Nunez**. 2008. Microbial Population Dynamics during PCB Bioremediation in Soils and Sediments. ASA-CSSA-SSSA International Annual Meetings, Houston, TX.
- **Nunez, A.**, and E.M. D'Angelo. 2007. Responses of a Bacterial Community to Temperature, Ferrous Sulfate, and Organic Carbon in PCB-Amended River Sediments. ASA-CSSA-SSSA International Annual Meetings, New Orleans, LA.
- **Nunez, A.**, and E.M. D'Angelo. 2006. Phylogenetic characterization of apolychlorinated-biphenyl-dechlorinating microbial community under different anaerobic treatments. 18th World Congress of Soil Science. Philadelphia, PA.
- **Nunez, A.**, and E.M. D'Angelo. 2005. Microbial population dynamics during anaerobic polychlorinated biphenyls bioremediation in Ohio River sediments. ASA-CSSA-SSSA International Annual Meetings, Salt Lake City, UT.
- **Nuñez, A.**, D. Berroterán, and O. Nuñez. 2002. Phospholidines Acid Hydrolysis. Evidence for Syn Lone pair Catalysis. 16th IUPAC Conference on Physical Organic Chemistry, San Diego, CA.
- Nuñez, O.; **A. Nuñez**, and D. Berroterán 2001. Hydrolysis of five and six membered cyclic phosphoramides. Kinetics and product formation ratio. Sixth Latin-American Conference on Physical Organic Chemistry. Porlamar, Venezuela.
- **Nunez, A.**, and O. Nunez 1999. Kinetic study of the acid hydrolysis of 5-membered cyclic phosphoramides. XLIX AsoVAC annual meeting. Maracay, Venezuela.
- Martinez, M.; **A. Nunez**, R. Lopez, F. Morales, and O. Nunez, 1999. Phenols degradation using TiO<sub>2</sub> and UV light. Kinetic measurements in an ample pH range. XLIX AsoVAC annual meeting. Maracay, Venezuela.
- **Nunez, A.**, and O. Nunez 1996. Reaction mechanism of p-nitrophenol and hexakis(imidazolyl)cyclotriphosphazine in aqueous THF. XLVI AsoVAC annual meeting. Barquisimeto, Venezuela.
- **Nunez, A.**, and O. Nunez 1995. Kinetic study of the reaction between p- nitrophenol and hexakis(amino)cyclotriphosphazine in aqueous THF. XLV AsoVAC annual meeting. Caracas. Venezuela.

## PEER REVIEW WORK

- Manuscript reviewed for *Soil & Tillage Research*. (1)

## HONORS AND AWARDS

- Kentucky Opportunity Fellowship (2005-2007).
- Honorable mention for the MSc. thesis "Stereolectronic Control on the Acid Hydrolysis of Cyclic Phosphoramides" (2000)
- Honorable mention for the undergraduate thesis "Kinetic study of hexakis(amino)cyclotriphosphazenes" (1996).
- Earned first place graduating class in chemistry and fourth place overall (May, 1996)
- "5<sup>th</sup> Regional Olympiad of Physics", UNEXPO (National Experimental Polytechnic University). 1990. First Place. Puerto Ordaz, Venezuela
- "1<sup>st</sup> Regional Olympiad of Chemistry", UNEXPO (National Experimental Polytechnic University). 1990. First Place. Puerto Ordaz, Venezuela
- INTEVEP Scholarship (Instituto Tecnológico Venezolano del Petróleo). 1990-1996.

- “7<sup>th</sup> National Olympiad of Chemistry”, CENAMEC (National Center for Improvement of Education). 1989. Third Place. Caracas, Venezuela.

## MENTORING ACTIVITIES

- Mitchum Whitaker. 2015. Soil and plant tissue sampling protocols in corn and soybean production. (Summer internship in Plant and Soil Sciences).
- Lucas Costa. 2014. Cation exchange capacity in fragipan soils by the compulsive exchange method. (Summer internship in Plant and Soil Sciences).
- Bradley Hagan. 2013. Soil and plant tissue sampling protocols in wheat production. (fall/winter internship in Plant and Soil Sciences).
- Carlos Polanco. 2003. “Adapting method ASTM D-5769 to determine olefins in reformulated gasoline as an alternative to method ASTM D-1319 in “El Palito” refinery”. (Thesis in chemistry).
- Jose Rangel. 2003. “Technical and economical evaluation of aluminum polychloride as flocculant for drinking water treatment.” (Internship in chemical engineering)
- Natalie Thomas. 2002. “Optimization of Bold 2in1 as fabric softener in the Latin-American market.” (Internship in chemical engineering)
- Jesus Zerpa. 2002. “Adhesive behavior of iron ore in FINMET direct reduction reactors.” (Internship in Chemistry)
- Jose Luis Marco. 2002. “Dissolved-Air Flotation Units for recovery of TiO<sub>2</sub> in aqueous organic pollutant destruction units.” (Summer project in chemistry)
- Amaya Gonzalez. 2002. “Coprecipitation for recovery of TiO<sub>2</sub> in aqueous organic pollutant destruction units.” (Summer project in chemistry)
- Edwin Fajardo, Natalie Thomas and Natali Sanchis. 2001. “Photocatalytic destruction of organic contaminants in water.” (Summer project in chemical engineering)

## TECHNICAL REPORTS

- Grove, J.H, W.P. Bruening, A. Nunez. 2015. PEP-NBT Product Evaluation Protocol and the Next Big Thing in Wheat Production. University of Kentucky.
- Grove, J.H, A. Nunez. 2015. Field Research with N Stabilizers Added to UAN and Urea for Winter Wheat. Dow Agrosiences.
- Grove, J.H, E.L. Ritchey, A. Nunez. 2014. Raising Soybean Yield Potential in Dry Seasons: Increased Rooting Depth and Greater Soil Water Extraction with Deeper Depth to the Fragipan. University of Kentucky.
- Grove, J.H, A. Nunez. 2014. Field Research with Nu-Trax P+ on a high P Kentucky Soil. Wolf Trax Inc.
- Grove, J.H, A. Nunez. 2014. Field Research with N Stabilizers added to UAN. Dow Agrosiences.
- Grove, J.H, A. Nunez. 2013. Field Research with Hybrix Liquid Soil Supplement. Raeburn & Associates, LTD.
- Grove, J.H, A. Nunez. 2013. Field Research with N Stabilizers added to UAN. Dow Agrosiences.
- Grove, J.H, A. Nunez. 2012. Field Research with SoilBuilder AF. Agricen Sciences.
- Grove, J.H, A. Nunez. 2012. Nitrogen Fertilizer Additive Study. Koch Agronomic Services, LLC.