

**Brendy C. Rincon Troconis, Ph.D.**

Assistant Professor  
Mechanical Engineering  
The University of Texas at San Antonio  
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210.458.6773

**EDUCATIONAL BACKGROUND**

- Doctor of Philosophy**, Materials Science and Engineering (GPA 4.00/4.00) 2008-2013  
The Ohio State University (OSU), Columbus, OH.  
Dissertation Title: “Blister Test for Measurements of Adhesion and Adhesion Degradation of Organic Polymers on AA2024-T3”.
- Master of Science**, Materials Science and Engineering (GPA 4.00/4.00) 2008-2010  
The Ohio State University, Columbus, OH.
- Chemical Engineering Degree** (GPA 19.34/20, equivalent to B.S., 5 years degree) 2002-2007  
Universidad del Zulia, Maracaibo-Venezuela.  
Summa Cum Laude honors  
Thesis: “Evaluation of Cathodic Protection in presence of Sulfate Reducing Bacteria mixed cultures”

**PROFESSIONAL EMPLOYMENT HISTORY**

- 2016-present: **Assistant Professor**, Department of Mechanical Engineering, The University of Texas at San Antonio.
- 2018-present: **Technical Advisor**. Twin Hawks, LLC. Schertz TX.
- 2013-2016: **Research Associate**, Department of Materials Science and Engineering, University of Virginia.
- 2008-2013: **Graduate Research Assistant**, Department of Materials Science and Engineering, The Ohio State University.
- 2008, 2010: **Graduate Teaching Assistant** (two quarters in total), Department of Materials Science and Engineering, The Ohio State University.
- 2007-2007: **Intern** (3 months), External Corrosion Direct Assessment, Det Norske Veritas, Dublin, OH.
- 2006-2007: **Undergraduate Research Assistant**, Department of Chemical Engineering, La Universidad del Zulia.
- 2005-2006: **Undergraduate Teaching Assistant**, Department of Chemical Engineering, La Universidad del Zulia.

## AWARDS AND HONORS

- 2019 Most Well-funded Researcher of the Year (Assistant Professor Level). In recognition of her high research expenditure. UTSA Mechanical Engineering Award.
- 2019 Strongest Graduate Student Supporter of the Year (Assistant Professor Level). UTSA Mechanical Engineering Award.
- 2018 Strongest Graduate Student Supporter of the Year (Assistant Professor Level). UTSA Mechanical Engineering Award.
- Recipient of UTSA COE Travel Award 2017.
- Recipient of the NSF ASSIST Travel grant for the Early-Faculty Development Symposium at the 28<sup>th</sup> Annual HENAAC Conference 2016.
- Recognition for completion of *Doctoral degree* in Materials Science and Engineering at the Ohio State University, while maintaining a *perfect 4.00 GPA* 2013.
- *Marcel Pourbaix Poster Award for Corrosion Science, Second Place*. NACE International Conference CORROSION 2013.
- *Richard "Dick" Kinzie Poster Award for Applied Corrosion Technology, Second Place*. DoD Conference 2011.
- Recipient of the “*NACE Foundation Academic Scholarship 2011*”.
- Winner of “*Dr. Andres Bello*”, *The Best Research of the Year* with the thesis “Evaluation of Cathodic Protection in presence of Sulfate Reducing Bacteria mixed cultures”. Universidad del Zulia, Venezuela, 2008.
- *Valedictorian* in class 2007.
- Recipient of the “*NACE/CC Technologies Summer Internship*” in 2005.
- Honor’s List all years during undergraduate studies since 2002 (first semester).

## STUDENT DISTINCTIONS

- Sean Nolen. UTSA Undergraduate Research Scholarship 2017.
- Victor Palos. UTSA Undergraduate Research Spring Scholarship 2018.
- Tasnia Fatima. UTSA ME Competitive Scholarship 2018.
- Theresa Enyeart. UTSA Undergraduate Research Spring Scholarship 2020.
- Sadot Martinez. UTSA Undergraduate Research Spring Scholarship 2020.
- Sophia Nealon. UTSA U-GREAT (Undergraduate Research, Education and Training) program Spring Scholarship 2020 funded by REEU/NIFA through TSERI.
- Theresa Enyeart. SUMMER Undergraduate Research Assistantship awarded through TSERI and the U.S. Department of Agriculture U-Great Program 2020.

## PUBLICATIONS (UTSA students appear with a “\*”, visiting scientist with a “\*\*”)

### **Papers in preparation:**

1. V. Ynciarte Leiva\*, L. Caseres, J. Dante, and **B.C. Rincon Troconis**. “Study of the Cracking Mechanism of Carbon Steel in presence of H<sub>2</sub>S/CO<sub>2</sub> and H<sub>2</sub>S scavenger utilizing In-Situ Surface Enhanced Raman Spectroscopy,” in preparation for submission to Corrosion journal.
2. V. Ynciarte Leiva\*, M. Miller, J. Dante, and **B.C. Rincon Troconis**. “Spectroelectrochemical Evaluation of Carbon Steel in Slightly Sour Environments Under

the Presence of Triazine-Based H<sub>2</sub>S Scavenger Byproducts utilizing In-Situ Confocal Surface Enhanced Raman Spectroscopy,” in preparation for submission to Corrosion journal.

3. H. Habibollahi Najaf Abadi\*, V. Yncierte Leiva\*, and **B.C. Rincon Troconis**. “Effect of Strain on the Corrosion Resistance of Aluminum Alloys for Navy Applications,” in preparation for submission to Corrosion journal.
4. K. Daneshvar\*\*, M. B. Yousefkhani, H. Ghadamian, **B.C. Rincon Troconis**, G. Dotelli, M. Santarelli. “An Optimized Polarization Model for Anode-Supported Solid Oxide Fuel Cells,” in preparation for submission to Environmental Progress & Sustainable Energy journal.
5. T. Fatima\* and **B.C. Rincon Troconis**. “Pitting of Austenitic Stainless Steel 316L under Simulated Atmospheric Exposure of Spent Nuclear Fuel Storage Dry Canister,” in preparation for submission to Corrosion journal.
6. **B.C. Rincon Troconis**, S. Sharp, and J.R. Scully. “Susceptibility of High Strength SS2205 and SS201 to Pitting-Induced Stress Corrosion Cracking,” in preparation for submission to CORROSION journal.
7. R. Nolasco de Carvalho, **B.C. Rincon Troconis**, G.L. Pioszack, J.R. Scully. “Effect of Microstructure on Pitting of a Martensitic-Ferritic Stainless Steel,” in preparation for submission to CORROSION journal.

#### **Papers under review:**

1. M. Baghban Yousefkhani, H. Ghadamian, K. Daneshvar\*\*, N. Alizadeh, and **B.C. Rincon Troconis**. “Investigation of fuel utilization factor in PEM fuel cell with the effects of experimental analysis contributed to relative humidity at the cathode”, submitted to *Korean Journal of Chemical Engineering* on July 7<sup>th</sup>, 2019.

#### **Peer Reviewed Papers since joining UTSA:**

1. Y. Zhang, O. Addison, F. Yu, **B.C. Rincon Troconis**, J.R. Scully, A.J. Davenport. “Time-dependent Enhanced Corrosion of Ti6Al4V in the Presence of H<sub>2</sub>O<sub>2</sub> and Albumin”, *Scientific Reports*, Vol. 8, 2018, No 1, page 3185. **Q1** journal in Multidisciplinary field. IF: 4.011. Citations: 14.  
DOI:10.1038/s41598-018-21332-x.
2. **B.C. Rincon Troconis**, H. Ha, Z.D. Harris, J.T. Burns, J.R. Scully. “Effects of Heat to Heat Hydrogen Interaction Variations on Monel K-500 Hydrogen Embrittlement,” *Materials Science & Engineering: A*, Vol. 703, 2017, pages 533-550. **Q1** journal in Materials Science and Mechanical Engineering. IF: 4.081. Citations: 6.  
DOI: <https://doi.org/10.1016/j.msea.2017.07.019>

#### **Peer Reviewed Papers before joining UTSA:**

1. L. Bland, **B.C. Rincon Troconis**, R. Santucci, J. Fitz-Gerald, and J. Scully, “Metallurgical and electrochemical characterization of the corrosion of a Mg-Al-Zn alloy AZ31B-H24 tungsten inert gas weld: Galvanic corrosion between weld zones,” *Corrosion*, Vol. 72, No 10, 2016, pages 1226-1242. **Q1** journal in Materials Science. IF: 1.927. Citations: 12. DOI: <http://dx.doi.org/10.5006/2078>
2. Z.D. Harris, J.D. Dolph, G.L. Pioszak, **B.C. Rincon Troconis**, J.R. Scully, J.T. Burns, The Effect of Microstructure Variation on the Hydrogen Environment-Assisted Cracking of

Monel K-500, *Metallurgical and Materials Transactions A*, Vol. 47, No. 7, 2016, pages 3488-3510. **Q1** journal in Mechanics of Materials and Metals and Alloys. IF: 1.985. Citations: 14. DOI: <https://link.springer.com/article/10.1007/s11661-016-3486-7>

3. **B.C. Rincon Troconis** and G.S. Frankel. "Effect of Pretreatments on the Adhesion of Acetoacetate to AA2024-T3 using the Blister Test," *Corrosion*, Vol. 70, No 5, 2014, pages 483-495. **Q1** journal in Materials Science. IF: 1.927. Citations: 11. DOI: <http://dx.doi.org/10.5006/1178>
4. N.W. Khun, **B.C. Rincon Troconis** and G.S. Frankel. "Effects of carbon filler content on adhesion strength and wear and corrosion resistance of epoxy composite coatings on AA2024-T3," *Progress in Organic Coatings*, Vol. 77, No. 1, 2014, pages 72-80. **Q1** journal in Surface, Coatings, and Films. IF: 3.334. Citations: **77**. DOI: <http://dx.doi.org/10.1016/j.porgcoat.2013.08.003>
5. **B.C. Rincon Troconis** and G.S. Frankel. "Effect of Roughness and Surface Topography on Adhesion of PVB to AA2024-T3 using the Blister Test," *Surface and Coatings Technology*, Vol. 236, 2013, pages 531-539. **Q1** journal in Surface, Coatings, and Films. IF: 3.192. Citations: 20. DOI: <http://dx.doi.org/10.1016/j.surfcoat.2013.10.046>
6. C.A. Matzdorf, W.C. Nickerson, **B.C. Rincon Troconis**, G.S. Frankel, L. Li, and R.G. Buchheit. "Galvanic Samples for Accelerated Corrosion Testing of Coated Al Alloys, Part I: Concept," *Corrosion*, Vol. 69, No 12, 2013, pages 1240-1246. **Q1** journal in Materials Science. IF: 1.927. Citations: 23. DOI: <http://dx.doi.org/10.5006/0905>

**Conference Papers since joining UTSA (refereed by abstract, presenter underlined):**

1. Leonardo Caseres, James Dante, Florent Bocher, **Brendy Rincon Troconis**, and Vinicio Ynciarte\*, "Effects of Triazine-Based H<sub>2</sub>S Scavengers Byproducts on the Film Composition and Cracking of Carbon Steel in Oilfield Applications," Paper No. 13401, CORROSION 2019 Conference & Expo, NACE International, Nashville, Tennessee, 2019.

**Conference Papers before joining UTSA (refereed by abstract, presenter underlined):**

1. M.F. de Romero, O.T. de Rincon, M. Sanz, **B. Rincon**, L. Ocando, W. Campos, and M. Bracho. "Evaluation of Cathodic Protection in presence of Sulfate Reducing Bacteria mixed cultures," Paper No. 08504, CORROSION 2008 Conference & Expo, NACE International, New Orleans, 2008.

**Refereed Conference Proceedings and Abstracts (refereed by abstract, speaker is underlined):**

1. V. Ynciarte\*, L. Caseres, J.F. Dante, and **B.C. Rincon Troconis**. "In-Situ Study to Unravel the Relationship between Chemistry and Cracking of Carbon Steel in the Presence of Triazine-Based H<sub>2</sub>S Scavenger" 2019 Central Area Conference. NACE International. San Antonio, TX, August 13th, 2019.
2. Zachary Harris, Charles Demarest, **Brendy Rincon Troconis**, John Scully, James Burns, "Evaluating the hydrogen environment-assisted cracking susceptibility of a next-generation Co-Ni alloy for marine fastener applications" Advancing Current and State-of-the-Art Application of Ni- and Co-based Superalloys Symposium, 2020 TMS Annual Meeting & Exhibition, San Diego, CA, February 23-27, 2020 (Accepted).

3. V. Yniciarte\*, L. Caseres, J.F. Dante, and **B.C. Rincon Troconis**. “Effects of Triazine-Based H<sub>2</sub>S Scavenger Byproducts on the Film Composition and Cracking of Carbon Steel utilizing In – Situ Surface Enhanced Raman Spectroscopy,” CORROSION 2019 Conference & Expo, NACE International, Nashville, TN, March 24-28, 2019.
4. H. Millwater, David Wagner, Daniel Ramirez-Tamayo, Andres Aguirre, Arturo Montoya, Manuel Garcia, **B.C. Rincon Troconis**, “Two and Three Dimensional Progressive Fracture under Thermal Loading: Computational Modelling and Experimental Validation,” International Conference on Fatigue Damage of Structural Materials XII. Hyannis, MA, September 16-21, 2018.
5. Davenport, Y. Zhang, O. Addison, J. Scully and **B.C. Rincon Troconis**. “Effect of albumin and peroxide on corrosion of Zr and Ti alloys in physiological saline,” EUROCORR 2017, Prague, Czech Republic, September 3-7, 2017.
6. Z.D. Harris, **B.C. Rincon Troconis**, J.R. Scully, and J.T. Burns, “The Influence of Microstructural Variation on the Hydrogen Environment-Assisted Cracking Susceptibility of Monel K-500”, TMS 2017 146<sup>th</sup> Annual Meeting and Exhibition, February 26<sup>th</sup> – March 2<sup>nd</sup>, 2017, San Diego, CA.
7. J.R. Scully, R.F. Schaller, and **B.C. Rincon Troconis**,“(Henry B. Linford Award for Distinguished Teaching) Determination of Local Hydrogen Concentrations in High Performance Alloys Using Local Probe Methods”, PRiME 2016, October 2-7, 2016. Honolulu, Hawaii.
8. **B.C. Rincon Troconis**, H. Ha, Z.D. Harris, J.T. Burns, J.R. Scully. “Effects of Heat to Heat Hydrogen Interaction Variations on Monel K-500 Hydrogen Embrittlement,” LATINCORR 2016, NACE International, October 25-28, 2016. Mexico DF, Mexico.
9. L. Bland, **B.C. Rincon Troconis**, R. Schaller, K. Gusieva and J.R. Scully. “Spatial Mapping of the Localized Corrosion Behavior of Magnesium Alloy AZ31 Tungsten Inert Gas Welds,” CORROSION 2016 Conference & Expo, NACE International, March 6-10, 2016. Vancouver-Canada.
10. J.R. Scully, **B.C. Rincon Troconis**, and R. Schaller. “Determination of Local Hydrogen Concentrations in High Performance Alloys Using Scanning Probe Methods,” CORROSION 2016 Conference & Expo, NACE International, March 6-10, 2016. Vancouver-Canada.
11. **B.C. Rincon Troconis**, A. Wilson, D. Harrington and J.R. Scully. “Effects of Wet/Dry Cycles on the Local Corrosion Inhibition of AA2024-T3 by Vanadates compared to Chromates,” CORROSION 2016 Conference & Expo, NACE International, March 6-10, 2016. Vancouver-Canada.
12. **B.C. Rincon Troconis**, S. Sharp and J.R. Scully. “Susceptibility of High Strength SS2205 and SS201 to Pitting-Induced Stress Corrosion Cracking,” CORROSION 2016 Conference & Expo, NACE International, March 6-10, 2016. Vancouver-Canada.
13. P. Reinke, G. Ramalingam, K. Lutton, K. Gusieva, **B.C. Rincon Troconis** and J.R. Scully. “Unraveling the role of Mo in the aqueous corrosion of Ni-Cr-Mo alloys by combining electrochemical passivation studies with nanoscale characterization,” TMS 2016 145<sup>th</sup> TMS Annual Meeting & Exhibition; The Minerals, Metals & Materials Society, February 14-18 2016. Nashville, TN.

14. **B.C. Rincon Troconis** and J.R. Scully. “Pitting and Stress Corrosion Cracking Behavior of Cold-Worked SS2205 and SS201 in Simulated Marine Atmospheric Environments,” CORROSION 2014 Conference & Expo, NACE International, San Antonio, TX, 2014.
15. **B.C. Rincon Troconis** and G.S. Frankel. “Effect of Surface Topography, Cleaning, and Conversion Coatings in the Adhesion Strength of Organic Polymers to AA2024-T3”, CORROSION 2013 Conference & Expo, NACE International, Orlando, FL, 2013.
16. **B.C. Rincon Troconis** and G.S. Frankel. “Effect of Surface Topography, Cleaning, and Conversion Coatings in the Adhesion Strength of Organic Polymers to AA2024-T3 using the Blister Test,” 222<sup>nd</sup> ECS Meeting, The Electrochemical Society, Honolulu, Hawaii, 2012.
17. **B.C. Rincon Troconis** and G.S. Frankel. “Blister Test for Measurements of Coating Adhesion and Degradation,” DoD Conference 2011, La Quinta, California, 2011.
18. S. Adhikari, **B.C. Rincon Troconis**, J. Seong, and G.S. Frankel. “New Methods for Determination of Coating Adhesion and Adhesion Degradation,” CORROSION 2011 Conference & Expo, NACE International, Houston, 2011.
19. **B.C. Rincon Troconis** and G.S. Frankel. “Effects of Surface Treatments on Adhesion Strength of Epoxy Coated AA2024-T3 Using the Blister Test,” 8<sup>th</sup> ISE Spring Meeting, Columbus, 2010.
20. S. Adhikari, Y. Guo, **B.C. Rincon Troconis**, K. Unocic, and G.S. Frankel. “Cr-Free and Phosphate-Free Surface Treatments for Steel and Al Alloys,” The Electrochemical Society, Vienna, 2009.

### **SCHOLARLY PRESENTATIONS**

**Conference Presentations** (Please see “Refereed Conference Proceedings and Abstracts” section)

**Invited presentations:**

1. **B.C. Rincon Troconis**. “A fruitful Long Journey,” Invited talk for High School students at STEM Early College High School in Harlandale ISD, November 14<sup>th</sup>, San Antonio, TX.
2. V. Yniciarte\*, L. Caseres, J.F. Dante, and **B.C. Rincon Troconis**. “Understanding of Triazine-Based H<sub>2</sub>S Scavenger Performance Utilizing In-Situ Raman Spectroscopy, Electrochemical Techniques, and Slow Strain Rate Testing” invited speaker at the 2019 ASTM G01.05.12 Workshop on "Standards for Laboratory Evaluation of Corrosion Inhibitors for Oil and Gas Industry: Where are we and Where we go from here?", Houston, TX, November 5<sup>th</sup>, 2019.
3. V. Yniciarte\*, L. Caseres, J.F. Dante, and **B.C. Rincon Troconis**. “Using In – Situ Surface Enhanced Raman Spectroscopy to Study the Effect of Triazine-Based H<sub>2</sub>S Scavenger on the Film Composition and Cracking of Carbon Steel” invited speaker at the Canadian Materials Science Conference 2019, June 2019, Vancouver, Canada.
4. **B.C. Rincon Troconis**. “Corrosion, Forms of Corrosion, and the Effect of Welds on Corrosion” invited speaker at Alamo College for the Chinese Welding Association. San Antonio, TX, January 2019.

5. **B.C. Rincon Troconis**. “Zramic, a Novel Corrosion Protective Nanostructured Coating” invited speaker at the Encountering Innovation 2018, Kansas City, KS.
6. **B.C. Rincon Troconis**. “Sustainable Engineering Applied to Reinforced Concrete Structures” invited speaker at the Infrastructure Advancement Institute - Summit 2017 in the Innovation and Transportation session, San Antonio, TX.
7. **B.C. Rincon Troconis**. “NACE Impact in my Professional Life.” invited speaker at CORROSION 2017 Conference & Expo for the NACE U Student Meeting, NACE International, New Orleans.
8. **B.C. Rincon Troconis**. “Corrosion and Women in Engineering” invited speaker at the STEMInism Conference 2016, The University of Texas at San Antonio, San Antonio, TX.
9. **B.C. Rincon Troconis**, S. Sharp and J.R. Scully. “Susceptibility of High Strength SS2205 and SS201 to Pitting-Induced Stress Corrosion Cracking,” invited speaker at CORROSION 2016 Conference & Expo for TEG-053 Committee Meeting NACE International, Vancouver-Canada, 2016.
10. **B.C. Rincon Troconis** and G.S. Frankel. “Blister Test for Measurements of Adhesion and Adhesion Degradation of Organic Polymers on AA2024-T3,” invited speaker at University of Virginia, Charlottesville, Virginia, 2013.
11. **B.C. Rincon Troconis** and G.S. Frankel. “El Blister Test, una Herramienta Novedosa en la Evaluación de Recubrimientos (The Blister Test, a Novel Technique for Coating Evaluation),” invited speaker at Universidad del Zulia, Maracaibo-Venezuela, 2011.

**Poster Presentations** (refereed by abstract, speaker is underlined):

1. Y. R. Quijada-Noriega, T. Fatima\* and **B.C. Rincon Troconis** “Atmospheric Corrosion of Stainless Steel 316-L for Spent Nuclear Fuel Dry Canisters,” UNISON Summer Research Program Showcase, San Antonio, TX, July 2019.
2. **V. Palos\***, **V. Yniciarte\*** and **B.C. Rincon Troconis**. “Gold Electrodeposition Optimization for In-situ SERS on Corrosion Applications,” UTSA 2019 Undergraduate Research & Creative Inquiry Showcase, San Antonio, TX, April 2019.
3. **V. Yniciarte\***, L. Caseres, J.F. Dante, and **B.C. Rincon Troconis**. “Effects of Triazine-Based H<sub>2</sub>S Scavenger Byproducts on the Film Composition and Cracking of Carbon Steel utilizing In – Situ Surface Enhanced Raman Spectroscopy,” CORROSION 2019 Conference & Expo, NACE International, Nashville, TN, March 2019.
4. **T. Fatima\*** and **B.C. Rincon Troconis**. “Stress Corrosion Cracking of Austenitic SS 316 for Spent Nuclear Fuel Storage in Chloride Containing Atmosphere,” CORROSION 2019 Conference & Expo, NACE International, Nashville, TN, March 2019.
5. **H. Habibollahi Najaf Abadi\*** and **B.C. Rincon Troconis**. “Investigating the Effect of Deformation on the Corrosion Behavior of AA 7075-T6,” CORROSION 2019 Conference & Expo, NACE International, Nashville, TN, March 2019.
6. **H. Habibollahi Najaf Abadi\*** and **B.C. Rincon Troconis**. “Effect of Elastic/Plastic Strain on the Corrosion Behavior of AA7075-T6,” TMS 2019 Annual Meeting and Exhibition, San Antonio, TX, March 2019.

7. Z.D. Harris, **B.C. Rincon-Troconis**, J.R. Scully, and J.T. Burns. “The Effect of Microstructural Variation on Hydrogen Environment-Assisted Cracking in Monel K-500”, *2016 International Hydrogen Conference*, Moran, WY, September 2016.
8. G. Ramalingam, K. Lutton, K. Gusieva, **B.C. Rincon Troconis** and J.R. Scully P. Reinke. “Unraveling the role of Mo in the aqueous corrosion of Ni-Cr-Mo alloys by combining electrochemical passivation studies with nanoscale characterization,” 2016 145<sup>th</sup> TMS Annual Meeting & Exhibition; The Minerals, Metals & Materials Society, Nashville, TN, 2016.
9. **B.C. Rincon Troconis**, “Effects of Pretreatments on the Adhesion Strength of Polymers to AA2024-T3 using the Blister Test,” NACE International, Orlando, FL, 2013. Poster that was the winner of the Marcel Pourbaix Poster Award for Corrosion Science, Second Place. NACE International Conference CORROSION 2013.
10. **B.C. Rincon Troconis**, “The Blister and the Galvanic Blister Tests, Novel Techniques in the Study of Adhesion of Organic Polymers to AA 2024-T3,” NACE International, Salt Lake City, UT, 2012.
11. **B.C. Rincon Troconis**, “Effects of Surface Treatments on Adhesion Strength of coated AA2024-T3 using the Blister Test,” The Materials Science & Technology Conference 2011, ASM International, Columbus, OH, 2011.
12. **B.C. Rincon Troconis**, “Effects of Surface Treatments on Adhesion Strength of Organic Coatings on AA 2024-T3 Using the Blister Test,” DoD Conference, La Quinta, CA, 2011. Poster that was the winner of the Richard "Dick" Kinzie Poster Award for Applied Corrosion Technology, Second Place. DoD Conference 2011.
13. **B.C. Rincon Troconis**, “Effects of Surface Treatments on Adhesion Strength of Organic Coatings on AA 2024-T3 Using the Blister Test,” NACE International, Houston, TX, 2011.
14. **B.C. Rincon Troconis**, “Effects of Surface Treatments on Adhesion Strength of Organic Coatings on AA 2024-T3 Using the Blister Test,” NACE International, San Antonio, TX, 2010.
15. **B.C. Rincon Troconis**, “Effects of Surface Treatments on Adhesion Strength of Organic Coatings on AA 2024-T3 Using the Blister Test,” 8<sup>th</sup> ISE Spring Meeting, Columbus, 2010.
16. **B.C. Rincon Troconis**, “Adhesion strength of non-chromate pretreatments on AA 2024-T3 Using the Blister Test,” NACE International, Atlanta, GA, 2009.
17. **B.C. Rincon Troconis**. “Evaluation of Cathodic Protection in Presence of Sulfate Reducing Bacteria mixed cultures,” NACE International, New Orleans, LA, 2008.

### GRANTING ACTIVITIES

#### Funded Awards:

1. **Agency: Tran-SET (Transportation Consortium of South-Central States)**  
 Project: Multifunctional corrosion control system as a sustainable approach for reinforced concrete elements.  
 P.I. for UTSA: B.C. Rincon Troconis.  
 August 1<sup>st</sup> 2020 to January 31<sup>st</sup> 2022.
2. **Agency: USAFA (sub-award from Southwest Research Institute)**



Project: Mechanisms of Accelerated Cracking under Cyclic Relative Humidity Conditions.  
P.I. for UTSA: B.C. Rincon Troconis.  
January 1<sup>st</sup> 2020 to December 31<sup>st</sup> 2021.

3. **Agency: Office of the Vice President for Research (VPR) at the University of Texas at San Antonio (UTSA) and the Southwest Research Institute (SwRI)**

Grant: Connecting through Research Partnerships (Connect) Program 2019.

P.I. for UTSA: B.C. Rincon Troconis.

Project: Effect of Additive Manufacturing on the Hydrogen Embrittlement of Alloy 718.  
September 1<sup>st</sup> 2019 to February 28<sup>th</sup> 2021.

4. **Company: Twin Hawks LLC**

Grant: Sponsored Research Agreement.

P.I. for UTSA: B.C. Rincon Troconis.

Project: Zramic Coating Corrosion Protection in Relevant Coating Applications.  
February 22<sup>th</sup> 2019 to July 30<sup>th</sup> 2020.

5. **Agency: UTSA OIT**

Project: Development of Technological Corrosion and Materials Test Site for Student Advancement.

PI: B.C. Rincon Troconis.

November 1<sup>st</sup> 2017 to April 1<sup>st</sup> 2018.

6. **Company: Twin Hawks LLC**

Grant: Sponsored Research Agreement.

P.I.: B.C. Rincon Troconis.

Project: Corrosion Resistant of Corrosion Protective Zramic Coating.  
August 17<sup>th</sup> 2018 to December 10<sup>th</sup> 2018.

7. **Agency: Office of the Vice President for Research (VPR) at the University of Texas at San Antonio (UTSA) and the Southwest Research Institute (SwRI)**

Grant: Connecting through Research Partnerships (Connect) Program 2017.

P.I. for UTSA: B.C. Rincon Troconis.

Project: Effects of Triazine-Based H<sub>2</sub>S Scavenger Byproducts on the Film Composition and Cracking of Carbon Steel in Oilfield Applications.  
September 1<sup>st</sup> 2017 to August 31<sup>st</sup> 2018.

8. **Agency: NACE International**

Grant: NACE Research Seed Grant 2017.

P.I.: B.C. Rincon Troconis.

Project: Effect of Passive Film Composition on the Electrochemical Behavior and Cracking of Corrosion Resistant Alloys Utilizing Surface Enhanced Raman Spectroscopy.  
July 1<sup>st</sup> 2017 to June 30<sup>th</sup> 2018.

9. **Agency: US Nuclear Regulatory Commission**

Grant: Faculty Development Program.

Co-P.I.: B.C. Rincon Troconis.

Project: Faculty Development Program at the University of Texas at San Antonio: Probabilistic Risk Assessment of Stress Corrosion Cracking in Nuclear Facilities.

Award No.: NRC-HQ-60-17-G-0024.

June 30<sup>th</sup>, 2017 to June 29<sup>th</sup> 2021.

10. **Agency: NACE International**

Grant: NACE Research Seed Grant 2016.

P.I.: B.C. Rincon Troconis.

Project: Effect of Passive Film Composition on the Electrochemical Behavior and Cracking of Corrosion Resistant Alloys Utilizing Surface Enhanced Raman Spectroscopy.

July 1<sup>st</sup> 2016 to June 30<sup>th</sup> 2017.

11. **Agency: US Department of Defense**

P.I.: Harry Millwater (Key personnel: B.C. Rincon Troconis).

Project: Three Dimensional Fracture Mechanics Capability for Structures operating in High Temperature Thermal Environments

August 21<sup>st</sup> 2015 to August 20<sup>th</sup> 2018.

### **INTELLECTUAL PROPERTY FILING**

- Troconis de Rincon, O.M., Salas Alvarez, O.d.J., Romero, N., **Rincon Troconis, B.C.**, Maldonado, L.Hood, G.D., *Thermosprayed dual coating for Corrosion Protection*, Disclosure ID: 2018-034.

### **TEACHING EXPERIENCE**

**The University of Texas at San Antonio**

*San Antonio, TX*

**Department of Mechanical Engineering**

- Instructor: *ME 3243 002 Materials Engineering* (Undergraduate Level, 43 students) - Fall 2019
  - Course Evaluation: 4.19/5
  - Instructor Evaluation: 4.36/5
- Instructor: *ME 3243 001 Materials Engineering* (Undergraduate Level, 79 students) - Fall 2019
  - Course Evaluation: 4.28/5
  - Instructor Evaluation: 4.38/5
- Instructor: *ME 6973 001 Advanced Corrosion* (Graduate Level, 5 students) - Fall 2018
  - Course Evaluation: 5/5

- Instructor Evaluation: 5/5
- Instructor: *ME 3243 002 Materials Engineering* (Undergraduate Level, 49 students) - Fall 2018
  - Course Evaluation: 3.86/5
  - Instructor Evaluation: 3.86/5
- Instructor: *ME 3244 0C1 Materials Engineering and Laboratory* (Undergraduate Level, 68 students) - Fall 2017
  - Course Evaluation: 4.35/5
  - Instructor Evaluation: 4.5/5
- Instructor: *ME 4683 001 Corrosion Engineering* (Undergraduate Level, 57 students) - Spring 2017
  - Course Evaluation: 4.21/5
  - Instructor Evaluation: 4.44/5
- Instructor: *ME 3293 Thermodynamics I* (Undergraduate Level, 53 students) - Fall 2016
  - Course Evaluation: 4.33/5
  - Instructor Evaluation: 4.47/5

Note: Dr. Rincon did not teach during Spring 2018 nor Spring 2019 as result from delivering two babies during those semesters. This work load modification was previously approved by UTSA.

**University of Virginia**

*Charlottesville, VA*

**Department of Materials Science and Engineering**

- Volunteer (lectured one class): *MSE 3080 Corrosion, Batteries and Fuel Cells* (Undergraduate Level, 50+ students) - Spring 2016

**The Ohio State University**

*Columbus, OH*

**Department of Materials Science and Engineering**

- Volunteer (lectured one class): *MSE 205 Introduction to Materials Science and Engineering* (Undergraduate Level, 200+ students) - Spring 2012
- Volunteer (lectured two classes): *MSE 735 Corrosion* (Undergraduate Level, 50+ students) - Fall 2010
- Teaching Assistant: *MSE 525 Phase Diagrams* (Undergraduate Level, 70+ students) - Winter 2012. Graded homeworks, exams and also volunteered to provide extra lecture sessions to help students improve their grades.
- Teaching Assistant: *MSE 205 Introduction to Materials Science and Engineering* (Undergraduate Level, 200+ students) - Spring 2012. Assisted the instructor during recitation sessions.

**La Universidad del Zulia**

*Maracaibo, Zulia - Venezuela*

**Department of Chemical Engineering**

- Teaching Assistant: *Analytical Chemistry* (Undergraduate Level, 30+ students) - January 2006 to April 2007. Organized problem sessions for the students and updated the homework problem list.

### GRADUATE STUDENT ADVISING

- 01/17 – **Vinicio Ynciarde Leiva**, Ph.D., Mechanical Engineering. Dissertation Title: *Effect of Additive Manufacturing on the Hydrogen Embrittlement of Alloy 718*. Support by the Office of the Vice President for Research (VPR) at the University of Texas at San Antonio (UTSA), the Southwest Research Institute (SwRI), and Startup.
- 01/18 – **Tasnia Fatima**, Ph.D., Mechanical Engineering. Dissertation Title: *Stress Corrosion Cracking of Austenitic SS 316 for Spent Nuclear Fuel Storage in Chloride Containing Atmosphere*. Support by US Nuclear Regulatory Commission and Startup.
- 10/19 – **Vangelina Osteguín**, M.S., Mechanical Engineering. Thesis Title: *Mechanisms of Accelerated Cracking under Cyclic Relative Humidity Conditions*. Support by SwRI.
- 01/18 – 05/11 **Asfia Totini**, M.S., Mechanical Engineering. Thesis Title: *Modeling of Corrosion and Hydrogen Embrittlement of Zn-Ni Coated High Strength Steel under Atmospheric and Immersion Conditions*. Supported by Startup.
- 01/17 – 08/19 **Vinicio Ynciarde Leiva**, M.S., Mechanical Engineering. Thesis Title: *Effects of Triazine-based H<sub>2</sub>S Scavenger Byproducts on the Film Composition and Cracking of Carbon Steel Utilizing In-situ Surface Enhanced Raman Spectroscopy*. Support by NACE International, Office of the Vice President for Research (VPR) at the University of Texas at San Antonio (UTSA), the Southwest Research Institute (SwRI), and Startup.
- 01/18 – 07/19 **Hamidreza Habibollahi Najaf**, M.S., Mechanical Engineering. Thesis Title: *Investigating the Effect of Deformation on the Corrosion Behavior of Aluminum Alloy 7075-T6*. Support by Startup.
- 08/17 – 05/18 **Zach Huber**, M.S., Mechanical Engineering. Thesis Title: *Full-Field Experimental Analysis of Ductile and Fatigue Fracture and the Accompanying Thermal Effects*. Support by US Department of Defense grant W911NF-15-1-0456.

### GRADUATE COMMITTEE SERVICE

- **Nicholas Goodwin**, M.S., UTSA Mechanical Engineering, Spring 2018. Title: “*Accurately Correlating the Charpy Fracture Toughness Value ‘K’ with Predicted and Modeled Failure Modes of Fatigue-based Fracture Mechanics Anomalies and Features*.” Advisor: Madhavrao Govindaraju.
- **Charles Garcia**, M.S., UTSA Mechanical Engineering, Fall 2018. Expected graduation: not known. “The Effect of Laminar Film Condensation on an Inclined Cylinder undergoing Steady State Rotation.” Advisor: Amir Karimi.

- **Qing Cao**, Ph.D., Monash University (Australia), Fall 2019. Dissertation title: “*On the mechanism, detection and mitigation studies of corrosion under insulation of mild Steel.*” Advisor: Nick Birbilis.

### **UTSA SENIOR DESIGN TEAM MENTORING**

- 2017        **DTBK Innovations**, UTSA Mechanical Engineering. Members: Tori Walker, Kyle Fernandez, Brandon Mecker.
- 2018        **OTTRS**, UTSA Mechanical Engineering. Members: Nick Ballesteros, Antonio Terrazas, Jesus Almanza, Alex Groves (Won the first place in the Tech Symposium Fall 2018).
- 2018        **JKM<sup>2</sup>**, UTSA Mechanical Engineering. Members: Moshe Lasky, Kristen Reynolds, Josh Orth, Maria Medrano.
- 2019        **Salty Solutions**, UTSA Mechanical Engineering. Members: Francisco Medina, Nicholas Perez, Brenton Clark, Jacob Thurnbury.
- 2019        **Bug Off**, UTSA Mechanical Engineering. Members: Victoria Wahlen, Jordan Traxler, Sabrina Hamdan Shepard, and Karen Arradillaz. This team started working on a project related to solar energy and needed materials related mentorship.
- 2019        **SuperbPosition**, UTSA Mechanical Engineering. Members: Andrew Knippa, Adam Ranquillo, Sean Lynch, Daniel Badillo.

### **OTHER STUDENT MENTORING**

As **Assistant Professor**, Department of Mechanical Engineering, UTSA

- Undergraduate Student Mentoring:
  - Theresa Enyeart, ME undergrad (Fall 2019).
  - Javier Rodriguez, ME undergrad (Fall 2019).
  - Ivan Fuenmayor, ME undergrad (Fall 2019).
  - Victor Palos, ME undergrad (Summer 2018, Fall 2018, Spring 2019).
  - Anthony Abundis, ME undergrad (Summer 2017, Fall 2017). Now working at ProAutomated as a Field Services Engineer II.
  - Sean Nolen, ME undergrad (Summer 2017). Now working at Commercial Metals Company as Mechanical Reliability Specialist.
  - Stephanie Garcia, ME undergrad (Summer 2017, Fall 2017, Fall 2018, Spring 2019). Now working at Johnson Controls as R&D Mechanical Engineer.
  - Tori Walker, ME undergrad (Summer 2017). Now working at Midcoast Energy as Pipeline Integrity Engineer.
  - Kyle Fernandez (Summer 2017, Fall 2017, Spring 2018, Summer 2018). Now working at Southwest Research Institute as Engineer in the Fire Technology Department.
- Visiting Researcher:
  - Yesica Raquel Quijada Noriega, ChemE MS. Immersion Research Program, UTSA-UNISON Summer Special Program (Summer 2019).
  - Eduardo Lodato. Chemical Engineering student at Universidad Rafael Urdaneta at Venezuela (August-September 2019).
  - Vinicio Ynciarte Leiva (August 2019 - December 2019).

- Visiting Scientists:
  - Dr. Keyvan Daneshvar (January 2018-present).

As **Postdoctoral Research Associate**, Department of Material Science and Engineering, The University of Virginia

Mentoring (beyond expected mentoring of Dr. Scully’s graduate students since July 2013):

- Ricardo Nolasco De Carvalho – Ph.D. visiting from Steel Company Vallourec at Brazil (1 year 2014-2015).
- Yue Zhang – Ph.D. Graduate student visitor from University of Birmingham at U.K. (1 month, Summer 2015).
- Marcelo Giancoman – Undergraduate Intern. Fall 2014, Fall 2015.
- Dolan Harrington - Undergraduate Intern. Summer 2014, Winter 2015, Summer 2015, Fall 2015.
- Mackenzie Jones – Undergraduate Intern. Summer 2014, Winter 2015, Summer 2015. Recipient of the 2018 NSF Graduate Research Fellowship Program (GRFP) Fellowship.
- Cary Wingo – Undergraduate Intern. Summer 2014, Summer 2015.

As **Graduate Research Assistant**, Department of Material Science and Engineering, The Ohio State University

Student Mentoring: Ali Garrity – High School Intern

### **SERVICE ACTIVITIES**

#### **UTSA Committee service.**

- Mechanical Engineering Competitive Scholarship Committee. Fall 2016 - Summer 2018.
- Mechanical Engineering Graduate Study Committee. Fall 2017 - present.
- Mechanical Engineering. Faculty Search Committee on Additive Manufacturing. Fall 2019 - Spring 2020.
- Mechanical Engineering Graduate Outreach Committee. Spring 2019 – present.
- College of Engineering. Unitary Operations and Chemical Engineering Research Laboratories Design Committee. Fall 2016 - Fall 2017.
- College of Engineering. Faculty Search Committee for the Chemical Engineering Program (3 faculties were hired through this effort). Fall 2016 - Spring 2017.
- College of Engineering. Chemical Engineering Curriculum Committee. Fall 2016 - Fall 2017.
- College of Engineering. Shape the Future – Astute Finance Group. Fall 2018 - present.
- College of Engineering. College Executive Advisory Committee. Fall 2019 - present.

#### **Other UTSA related service.**

- Participated in the E-Week Spring 2020 lab exhibit tour for 142 students from 6 local high schools from San Antonio by helping prepare the Exhibit titled “What is corrosion and how this knowledge can be used to avoid catastrophes?”.
- Participated in the E-Week Spring 2019 lab exhibit tour for 107 students from 6 local high schools from San Antonio by helping prepare the Exhibit titled “The Importance of Materials Knowledge in Engineering Design to avoid catastrophic failures”.

- I was invited to be part of the panel of the New Faculty Forum Fall 2018.
- Volunteered for the Engineering Pre-view days/recruitment in June 2018.
- Volunteer for the event “Meet your mentor” in Fall 2018.
- Volunteer to provide a lab tour to visitors from the Naval Research Laboratories in 2018.
- Volunteered for the UTSA day during Fall 2016 and Summer 2018.
- Co-Chaired the Doctoral Student Research Evaluation Seminar Fall 2017.
- Volunteered to the UTSA Graduate Fair Fall 2017.
- COE recruitment event during the HENAAC Conference 2016.
- Attendant to the ChemE Advisory Board Meetings. Spring 2017-Fall 2018.
- Mentored 4 undergraduate students for a Project related to Corrosion called “Effect of Pipe Corrosion on Pump Efficiency” for the class ME 4733 (Melvin Ayuso, Whitney Matthews, Joshua Weber, Edward Young, for a project in corrosion for ME 4733).
- Judge of the Tech Symposium Fall 2016 and Fall 2018 for the ME Department.
- Co-chaired of ME Annual Graduate Seminar Fall 2016.
- Volunteered for the STEMInism Conference 2016. Made a presentation about Women in Engineering and a demo of the lemon battery to inspire female students from middle- and high-school.

**Professional service - Scholarly Peer Review.**

- Reviewed of a Book Chapter for ASTM (2019).
- Reviewer for the Nature journal Materials Degradation since Fall 2018.
- Reviewer for the Journal of Materials (2019-present).
- Revista Tecnica Journal Reviewer (2018-present).
- Materials Research Journal Reviewer (2017-present).
- Reviewer for the proceedings of the 2016 International Hydrogen Conference Jackson Hole, WY (technical Committee member seeking for reviewers: Dr. Jenifer S. Locke).
- CORROSION Journal Reviewer (2013 – present).
- Journal of the Electrochemical Society Reviewer (2015 – present).

**Professional service - Chaired Sessions.**

- Co-organizer of the Honorary Symposium titled “Celebration of the 80th Birthday of C.M. Hansson” at TMS Annual Meeting 2021.
- Co-organizer of the Environmental Degradation of Additively Manufactured Alloys Symposium for TMS 2021.
- Chair for the Research in Progress Symposium titled Environmentally Assisted Cracking at the NACE Conference CORROSION 2019.
- Chair for the Research in Progress Symposium titled Pits, Crevices, and Cracks at the NACE Conference CORROSION 2018.
- Vice-chair for the Research in Progress Symposium titled Environmentally Assisted Cracking at the NACE Conference CORROSION 2017.

### **Professional service - other activities.**

- Member of the Corrosion and Environmental Effects Committee within the TMS (2020-present).
- Discussion Leader for Effect of Hydrogen on Corrosion Symposium for the 2020 Gordon Research Conference titled Aqueous Corrosion (canceled).
- Volunteered to talk to high school students from the STEM Early College High School in Harlandale ISD, November 14th, 2019. San Antonio, TX to talk about my professional life and success in life and work. Talk titled “A fruitful long journey.”
- Member of the Materials & Fabrication (M&F) Committee within the ASME PVP Division (2019- present).
- Faculty mentor, Expand your network with active listening (Workshop at HENAAC Conference 2016).
- Faculty mentor, Prepare for your job search with behavioral interviewing (Workshop at HENAAC Conference 2016).
- Member of NACE Research Committee (2016-present).
- Judge for the student poster session at CORROSION 2016 Conference and Expo, Vancouver, Canada.
- Volunteered for Boy Scouts’ Laboratory Visit with the ECS Chapter at UVa (2015).
- Volunteered for Elementary Student Laboratory Visit through the UVa (2015).
- Organized laboratory lectures for CESE summer interns at UVA (2014).
- Volunteered for “Nano days” outreach event at UVA for children and high school students (2014).
- Organized/performed laboratory tours for the Graduate Open House in the Materials Science and Engineering Department at OSU 2011-2013.
- Organized laboratory tour and presentations in the Fontana Corrosion Center at OSU for a visitor in the absence of Center Director and Co-Director 2011.
- Vice President of American Society for Education in Engineering (ASEE), OSU Student Chapter 2010-11 (First Term of the ASEE, OSU Chapter). Co-author of the Chapter Constitution.
- President of NACE International, OSU Student Chapter 2010-11.
- Vice President of NACE International, OSU Student Chapter 2009-10.
- Guided laboratory tour for high and elementary school girls to introduce them into Materials Science and Engineering 2009 and 2012.
- Treasurer of NACE International, OSU Student Chapter 2008-09.
- Secretary of NACE International, Chapter Venezuela, Student Section 2005-2007.
- Pioneer and Coordinator of visits to companies programmed by I GITEIQ 2006 (I Technical Tour of Chemical Engineering Students) in Venezuela.

### **RELEVANT TECHNICAL TRAINING**

- Extensive knowledge of *surface science and spectroscopy techniques* such as: Contact Angle Measurement, Scanning Electron Microscopy, Atomic Force Microscopy, Scanning Kelvin Probe, X-ray Photoelectron Spectroscopy, X-ray Diffraction, thermal desorption spectroscopy and Electrochemical Impedance Spectroscopy, as well as other electrochemical and



characterization techniques, including and not limited to: Potentiodynamic Polarization, Potentiostatic Polarization, Galvanostatic Polarization, Hydrogen Permeation using Devanathan and Starchursky cell, Barnacle Cell, Optical Microscopy, Profilometry, Epifluorescence Microscopy, and Serial dilution, among others.

- Completion of the online course “STEM-Corrosion™ in the Oil and Gas Industry” by Sankara Papavinasam 2016.
- Techniques to Control and Evaluate Microbiologically Induced Corrosion. ASVENCOR, EDU – CEC.LUZ. Maracaibo, Venezuela 2007.
- Coating selection in the Industry. Universidad del Zulia. Maracaibo, Venezuela 2005.
- Cathodic Protection Basics. ASVENCOR, EDU – CEC.LUZ. Maracaibo, Venezuela 2005.
- Tutorial on the Basics of Internal Corrosion Technology. New Orleans, Louisiana. NACE International Conference CORROSION 2004.

### **PROFESSIONAL AFFILIATIONS**

- NACE International member (2005 – present).
- ECS member (2009 - present).
- ASME member (2019-).
- ASEE member (2010 – 2013, 2017).
- ISE member (2009 - 2010).