Cristian E. Botez

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EDUCATION:

Postdoctoral Fellow Materials Physics, Brookhaven National Laboratory (2002-2005)
Ph.D. Physics, University of Missouri – Columbia (2002)
M.S. Physics, University of Missouri – Columbia (1999)
B.S. Engineering Physics, University of Bucharest, Romania (1991)

ACADEMIC EXPERIENCE:

2020-Present	Professor, Department of Physics and Astronomy, The University of Texas at San Antonio
2018-2020	Professor, Department of Physics, Rowan University
2015-2018	Professor, Dr. C. Sharp Cook Endowed Chair, Department of Physics, The University of Texas at El Paso
2010-2015	Associate Professor, Department of Physics, The University of Texas at El Paso
2005-2010	Assistant Professor, Department of Physics, The University of Texas at El Paso

ADMINISTRATIVE EXPERIENCE:

2020-2022 *Assistant Vice President for Research, The University of Texas at San Antonio*

The Setting: The University of Texas at San Antonio (UTSA) is an R1 institution that enrolls ~35,000 students, offers 25 doctoral programs, and has annual research expenditures of $140M. The Division of Research, Economic Development and Knowledge Enterprise (REDKE) employs more than 150 staff members in six units. As AVP, I was charged with leading the division's research support efforts in Proposal Development, Faculty Research Development, and Research Infrastructure Support (Research Core Facilities). During my tenure, we had several major accomplishments. Our faculty secured a record 6 NSF-CAREER grants, two faculty were elected National Academy of Inventors Fellows, other three American Association for the Advancement in Science Fellows, and two secured prestigious Fulbright Scholarships. We directly supported the submission of more than 30 proposals for $47M through our newly developed *Mid-Size Proposal Support Program*. In addition, the four UTSA Research Core Facilities we managed generated ~$400K/year in recharge funds.

Responsibilities:

- Administered a large unit including two departments, four core research laboratories, 20 staff members, and a budget of ~$5M
- Supervised 12 direct reports, including two department directors and four core facility directors
- Coordinated the university-wide grant proposal development efforts aimed at facilitating proposal submissions and increasing external funding

- Designed and implemented strategies to support our faculty with their applications and nominations for prestigious national awards
- Oversaw the internal competitions and selection for limited submission opportunities
- Developed new faculty research training programs and coordinated conferences and other research-related events

Accomplishments:

Proposal Development

- Provided funding and support for grant proposals to highly-competitive programs by early- and mid-career faculty. ***Results:*** our faculty secured 6 NSF-CAREER grants in one year; Research Support also contributed to UTSA's record $240M external funding in FY 21
- Established a new program aimed at providing comprehensive support for preparing and submitting mid-size grant proposals ($0.5M – $4M). ***Results:*** 30 such proposals were submitted for $47M in FY 21 with the participation of PIs from all six UTSA Colleges.
- Promoted interdisciplinarity *and* broad participation in grant proposal development and submission ***Results:*** major external funding secured by non-science/engineering units in FY 21: e.g. College of Health, Community and Policy $9.3M, College of Liberal and Fine Arts $3.3M, College of Education $6.1M, College of Business $4.1M; multi-million-dollar proposals submitted together with extramural collaborators, from the Alamo Community Colleges to the National Institutes of Standards and Technology.

Faculty Development

- Allocated additional resources and prioritized efforts to support the applications of our faculty for prestigious national awards ***Results:*** 2 faculty were elected as National Academy of Inventors Fellows, 4 as National Academy of Inventors Senior Members, 3 as American Association for the Advancement in Science Fellows, and 2 were awarded Fulbright Scholarships
- Developed new programs aimed at faculty development and strengthened existing programs ***Results:*** 7 new programs developed in FY 21, including *"How to find funding opportunities for your research", "Pursuing funding for social science research", How to write successful proposals for instrumentation", "Finding and winning funding for STEM education*
- Enhanced our NSF-CAREER Application Program through the participation of proposal development coordinators and reviews by external consultants and education specialists. ***Results:*** 25 UTSA faculty participated in the program and submitted proposals during the last cycle.

Research Infrastructure Support

- Managed the transition of core facilities from the College of Science to ORS, oversaw budget and business plan development, personnel and asset transfers. ***Results:*** 4 facilities: the Kleberg Advanced Microscopy Center, Genomics, Cell Analysis, and Stem Cell Cores successfully made the transition.
- Secured additional external and internal resources for the UTSA research core laboratories under the Office of Research ***Results:*** More than $1M in new instrumentation was added to the cores in FY 21 (mostly from external instrumentation grants), and the operating budget increased by ~20% to $1.5M/year.
- Designed and implemented marketing strategies to increase usage and revenue generated ***Results:*** number of users and instrument usage increased significantly; for example, the usage in the Kleberg Center increased by 300% and the overall recharge revenue reached ~400K/year in FY 21.

2018-2020 *Dean, College of Science & Mathematics and School of Health Professions, Rowan University*

The Setting: Classified by the Carnegie Foundation as a High Research Activity Doctoral Institution (R2), Rowan University enrolls ~20,000 students, offers 11 doctoral programs, and has annual research expenditures of ~$43M. The College of Science & Mathematics (CSM) and the School of Health Professions (SHP) include 9 departments: Physics, Chemistry, Biology, Mathematics, Computer Science, Psychology, Molecular & Cellular Biology, Health & Exercise Science, and Nursing. CSM and SHP enroll ~6000 students, employ more than 500 faculty and staff (125 tenured and tenure track), and have an annual budget of ~$25M. I was primarily charged with raising the profile of the College and School, supporting faculty development and productivity, and fostering student success. During my tenure, CSM and SHP had several major accomplishments: NSF CAREER, NIH R01 and NIH K23 grants, publications in high-profile journals such as *Nature Communications*, new Ph.D. and M.S. programs receiving preliminary authorization, 18 tenure-track faculty hired, new collaborations with prominent industrial partners, and ~$3M in new external funding.

Responsibilities:

- Administered the largest academic unit in the University, including 6000 students, 500 faculty and staff, 9 departments in four buildings; and an annual budget of $25M
- Supervised a staff of 21 direct reports, including Department Heads, Associate and Assistant Deans
- Designed and implement strategies to enhance research and instruction activities
- Oversaw faculty hiring, evaluation, and tenure and promotion processes
- Developed strategies to improve student recruitment, retention, and success upon graduation
- Advocated for the College within the University and the community

Accomplishments:

Research

- Prioritized external funding as an indicator of research quality and sustainability, provided support for grant proposal writing. *Results:* highly competitive NSF CAREER, NIH R01 and NIH K23 grants were secured by CSM faculty. New research awards totaled $3M during AY 2018-19, and proposals for more than $25M were submitted (a 100% increase from the previous academic year)
- Increased startup funds for new faculty by ~40%. *Results:* all searches for tenure-track Assistant Professors have been successful in AY 2018-19. The newly hired faculty and their students were able to tackle a broader range of research projects
- Rewarded publication quality and impact. *Results:* CSM faculty published in high-profile journals such as *Nature Communications, Journal of Medicinal Chemistry, Journal of Virology*. Many of these articles include Rowan students as co-authors
- Provided support for undergraduate research: established the College Office for Undergraduate Research Initiatives and allocated $75K in seed funding *Results:* 75 student–faculty teams became actively involved in undergraduate research, $100K external funding was secured, and ~$1M in grant proposals summited in AY 2018-19

Faculty development

- Coordinated all tenure and re-contracting processes in the College: *Results:* 20 faculty were evaluated in AY 2019-20; new documents on tenure and re-contracting criteria and standards were generated in all departments
- Negotiated adjusted teaching loads for new faculty *Results:* all newly hired tenure-track Assistant Professors will have a significantly reduced (60%) teaching load in their first two

years to focus on establishing their laboratories and research programs
- Developed the first internal funding program in the College. *Results:* eight multidisciplinary teams were awarded a total of $160,000 to support pilot projects aimed at enhancing scholarship and research resources

Capacity building
- Coordinated efforts to increase the number of faculty: *Results:* 18 tenure-track Assistant Professors and 15 full time lecturers have been hired and on-boarded during my tenure.
- Supported the development of new interdisciplinary research infrastructure. *Results:* new facilities that include major instrumentation were established in Science, Chemistry, Physics, and Health and Exercise Science.
- Prioritized partnerships with industry and government laboratories as alternative sources of external funding and student opportunities. *Results:* contracts and internships with prominent partners (Lockheed Martin, Inspira Health, New Jersey Space Consortium) were established/expanded during AY 2018-2019.

Academic programs and accreditation
- Advocated for new research-based graduate programs. *Results:* a Ph.D. in Chemistry and a M.S. in Biology received preliminary authorization.
- Supported initiatives to create professional degrees and certificates. *Results:* Professional Masters degrees and Certificates of Graduate Studies aimed at enhancing the employability of our graduates and generating opportunities for non-traditional students have been developed throughout the College and School.
- Enhanced collaborations and joint programs with area colleges. *Results:* 3+1 programs in Psychology with partner Community Colleges have been expanded.
- Oversaw reporting activities from the CSM|SHP for the campus visit by the Middle States Commission on Higher Education related to Rowan University's ten-year accreditation. Coordinated accreditation of undergraduate and graduate programs in Computer Science, Psychology, and Nursing, by the Accreditation Board for Engineering and Technology, the American Psychological Association, and the Commission on the Collegiate Nursing Education, respectively *Results:* all programs received positive reports and recommendations for accreditation.
- Developed strategies for international collaborations. *Results:* curriculum developed and approved for undergraduate 2+2 programs in Biology, Chemistry and Computer Science with universities in China and India.

2014-2018 *Chair, Department of Physics, The University of Texas at El Paso*

The Setting: The University of Texas at El Paso (UTEP) is classified by the Carnegie Foundation as a Very High Research Activity Doctoral Institution (R1). UTEP enrolls ~ 25,000 students, offers 22 doctoral programs, and has annual research expenditures of ~$95M. UTEP's student body is 78% Hispanic, and more than half of the students are the first in their families to attend College. The UTEP College of Science includes five departments (Chemistry, Biology, Geology, Mathematics and Physics), houses 6 Ph.D. programs, and employs over 100 tenured and tenure-track faculty. During my tenure as Department Chair, the Physics department has undergone an unprecedented growth in terms of undergraduate and graduate enrollment, degree production, semester credit hours, and, particularly, research funding. In AY 2017, UTEP Physics enrolled more than 170 undergraduate and graduate students, had an annual budget of over $2M, and a new-research-award average of more than $190,000/faculty/year (calculated over a three-year period). Physics participated in three interdisciplinary Ph.D. programs: Materials Science and Engineering, Computational Science, and Environmental Science and Engineering.

Responsibilities:

- Administered a research-active department with $2.5M/year in new research funding and an annual budget of ~ $2M.
- Designed and implemented strategies for a sustainable overall growth of the unit
- Oversaw faculty hiring and evaluation, as well as tenure and promotion processes
- Secured resources for research and instruction infrastructure enhancement
- Developed strategies for improving student recruitment, retention, and graduation rates
- Advocated for the department within the College of Science, University, and community

Accomplishments:

Academic Programs

Undergraduate Program

- Implemented new student recruitment and retention strategies, created Undergraduate Studies Director position. ***Results:*** the number of Physics majors increased by more than 50% in two years, reached 150 in the Fall of 2017
- Restructured undergraduate advising, included peer-advising component. ***Results:*** the number of degrees awarded increased by 100% in three years, ranking UTEP Physics #2 in Texas in B.S. degree production (among non-Ph.D. granting departments)
- Tripled funding allocated to co-sponsor participation of undergraduate students to conferences and included student supervision in undergraduate research in faculty merit evaluations. ***Results:*** all research groups actively involved Physics majors in their projects
- Encouraged and rewarded grant-proposal submissions aimed at undergraduate curriculum development and/or student fellowships. ***Results:*** more than $1.5M of such grants were active in Physics during my tenure as Chair.
- Oversaw annual curriculum evaluation and updates, coordinated with the Colleges of Engineering, Education, and Health Sciences on student instruction needs. ***Results:*** semester credit hour (SCH) production at the undergraduate level increased by more than 20% in two years

Graduate Program

- Restructured Graduate Program administration and admission process. Created the position of Graduate Studies Director. ***Results:*** enrollment increased by 30% in two years to 25 M.S. students, and the percentage of underrepresented minorities and women in the program increased to more than 50%
- Developed strategies to increase graduation rates and reduce graduation time. ***Results:*** 11 M.S. degrees were awarded in AY 2017, which ranked UTEP Physics #1 in Texas in M.S. degree production for a third consecutive year
- Incentivized participation of Physics faculty in multidisciplinary Ph.D. programs: Materials Science and Engineering, Computational Science, and Environmental Science. ***Results:*** 12 Ph.D. students and 10 Postdoctoral Associates mentored by Physics faculty in AY 2016 (all carrying out multidisciplinary research supported by Physics grants)
- Took active steps to enhance the quality of the program in order to increase the value of a M.S. degree in Physics from UTEP. ***Results:*** all graduates either secured admission to prestigious Ph.D. programs (e.g. Cambridge, University of Chicago, Arizona State) or joined the STEM workforce

Research

- Prioritized external funding as a key driver of research quality and competitiveness. ***Results:*** Physics faculty secured $7.3M in new research funding in three years, an average of more than $190,000/faculty/year

- Developed a new departmental research focus on functional materials, including design, synthesis, and characterization components. ***Results:*** all faculty were involved in materials research, and a new biomaterials thrust was developed (two tenure-track positions in biomaterials have been filled in AY 2017)
- Identified new opportunities for grant proposals to agencies previously "untapped" by Physics faculty (e.g. DoE, DoD, NIH). ***Results:*** new research funding form DoD, DoE, and NIH currently exceeded $4M
- Promoted interdisciplinary collaborations and cross-departmental research with Physics faculty in the lead. ***Results:*** five new core research laboratories have been built in the department in two years
- Incentivized the active and results-oriented participation of students of all levels in research. ***Results:*** more than 90% of the peer reviewed journal publications included student co- authors

Faculty development

- Formalized the individual mentoring of newly hired Assistant Professors by senior Physics faculty members. ***Results:*** six newly hired tenure-track faculty established their labs and wrote grant proposals for more than $4.5M in less than two years
- Coordinated the departmental review process for two faculty members who applied for tenure and promotion to Associate Professor and two faculty members who applied for promotion to Professor. ***Results:*** all were awarded tenure and/or promoted
- Established effort-based criteria for annual faculty evaluations that take into consideration the diversity of individual faculty contributions; ***Results:*** 92% of Physics faculty hold active research grants as PIs and 80% have student evaluations of teaching above the College average

Capacity building

- Developed strategies to increase the number of faculty. ***Results:*** received approval for seven new tenure-track positions following unprecedented surge in external funding. Coordinated searches and made seven Assistant Professor hires in AYs 2015-2018
- Secured funding and coordinated major renovations / rebuilding of 8000 sq. ft. of research and instruction laboratories. ***Results:*** active research space in Physics doubled in two years
- Provided support and rewarded grant proposal writing for new major research instrumentation. ***Results:*** $4M in new major research instruments installed and commissioned in Physics during my tenure as Chair
- Supported the development of facilities aimed at enhancing interdisciplinary research. ***Results:*** new core laboratories in X-ray Diffraction, Ultrafast Microscopy, Low-Temperature Nanomagnetism, Small Angle X-ray Scattering, and Surface Science have been developed
- Implemented new technology in the classroom and instructional laboratories. ***Results:*** more than $100,000 invested in upgrades of introductory physics laboratories and smart classrooms
- Led departmental development activities, engaged private and corporate donors. ***Results:*** initiated a program and received first donations to fund new $100,000/unit undergraduate instruction laboratories where students learn skills needed by industrial employers. Also received donations to establish graduate scholarships, and upgrade the Society of Physics Students Center

Curriculum and accreditation

- Carried out annual reviews/updates of the graduate and undergraduate curriculum and four year plans. ***Results:*** Graduation time was reduced to two years for all our M.S. students and significant progress (~75%) was made towards a five-year target for B.S. student graduation.
- Coordinated all reporting activities from the Physics Department for the accreditation of UTEP by the Southern Association of Colleges and Schools – Commission on Colleges (SACS-

COC), and participated in the accreditation of the Civil Engineering program by the Accreditation Board of Engineering and Technology (ABET). *Results:* all programs were accredited
- Developed new programs at the graduate level aimed at enhancing the job prospects of our students. *Results:* a "four-plus-one" fast-track in conjunction with the College of Business and a Certificate in Physics have been developed

2013-2014 *Associate Dean for Research, College of Science, The University of Texas at El Paso*

Responsibilities:
- Advised the CoS Dean on strategic research planning and development
- Advocated for the College's research programs to the Office of the VP for Research
- new research initiatives, foster interdisciplinary collaborations, administer funds allocated for research support
- Coordinated efforts to connect research interests of CoS faculty clusters and funding agency priorities and trends
- Planed and coordinated activities to maximize the efficiency of research infrastructure utilization

Accomplishments:
- Designed and implemented the first CoS internal funding program. *Results:* a $140,000/year effort to support seed multidisciplinary pilot projects and collaborations aimed at enhancing our scholarship and research resources
- Coordinated the CoS internal competition for limited submission proposals to NSF, NIH and DoD, and introduced a new selection system based on external reviews. *Results:* all selected pre-proposals during the 2014-15 AY resulted in successful grant submissions
- Coordinated the application process for the highly-competitive Texas Higher Education Coordinating Board "Norman Hackerman" Advanced Research Program for early-career faculty. *Results:* tripled the number of submitted proposals with respect to 2011
- Promoted collaborative activities and joint grant proposal writing with DoE, DoD and National Labs. *Results:* CoS funding from DoE and DoD has doubled in three years
- Developed (together with Department Chairs, CoS Dean, and Facilities leadership) a plan to enhance the research infrastructure utilization and research support in the CoS. *Results:* major instrumentation downtime and the time to establish research laboratories for new hires have been significantly reduced (the latter is now less than six months)
- Negotiated with the Office of the Vice-President for Research and coordinated the allocation of funds for service contracts for major research instrumentation within the College of Science. *Results:* 80% of all CoS major instruments were covered during the 2013-2014 AY

AWARDS AND HONORS:

- Dr. C. Sharp Cook Chair in Physics Endowed Professor – University of Texas at El Paso (2015-2018)
- Miguel Izquierdo Award for Outstanding Teaching - College of Science – University of Texas at El Paso (2017)
- College of Science Student Choice Award for Outstanding Teaching - College of Science – University of Texas at El Paso (2015)
- ORSP Award for Outstanding Efforts in Securing Extramural Funding – Office of Research and Sponsored Projects - College of Science – University of Texas at El Paso (2015)
- ORSP Award for Outstanding Efforts in Securing Extramural Funding – Office of Research and Sponsored Projects - College of Science – University of Texas at El Paso (2014)
- Distinguished Achievement Award for Research – College of Science – University of Texas at El Paso (2009)
- "Norman Hackerman" Advanced Research Award – Texas Higher Education Coordinating Board (2008)
- Cottrell College Science Award – Research Corporation for Advancement of Science (2007)
- Soros Mobility Grant – The Soros Foundation for an Open Society (1997)
- Regione Piemonte Fellowship – Polytechnic Institute of Turin (1994, 1996)

RESEARCH SUPPORT:

EXTERNAL RESEARCH SUPPORT

Title	Agency	Role	Period	Amount
Structural and proton-dynamics studies of the superprotonic phase stability in phosphate solid acids	DoD-ARO	PI	2015-2018	$593,405
Acquisition of an X-ray Diffraction System with Solid-Gas reaction Chamber and Ultrafast Detection Capabilities	DoD-ARO	PI	2013-2015	$395,000
X-ray and neutron scattering studies of proton conduction pathways and dynamics in doped pyrophosphates	ACS-PRF	PI	2012-2015	$65,000
Novel Research-Teaching Integration Strategies for Undergraduate Student Participation in STEM disciplines	NSF	PI	2012-2015	$200,000
Acquisition of an Electron Paramagnetic Resonance Spectrometer (EPR) for Research and Education in Chemistry and Physics	NSF	Co-PI	2012-2014	$225,035
Effect of deuteration on heating induced phase transitions in KH2PO4	DoE/ Sandia Labs	PI	2012	$16,481
High-pressure spectroscopy studies of phosphate-based solid acids	THECB NHARP	PI	2009-2011	$150,000
Proton Conduction Mechanisms in Phosphate-Based Solid Acids	ACS/PRF	PI	2008-2011	$45,000

High-pressure neutron spectroscopy studies of superprotonic phases of CsH2PO4 and RbH2PO4	Research Corp.	PI	2008-2011	$45,000
Removal of Silica from RO Concentrates	DoE/ Sandia Labs	Co-PI	2006-2010	$125,000
Acquisition of an X-ray diffractometer with MBraun position sensitive detector and high-T Paar TTK chamber	Eli-Lilly &Co.	PI	2005-2006	$65,000

INTERNAL SUPPORT

Title	**Period**	**Amount**
Dean Start-up	2018-2020	$550,000
Chair Start-up	2014-2017	$343,722
Single Crystal X-ray Diffractometer	2014	$270,000
Renovation of research laboratory	2013	$3,500
Installation of a position sensitive detector on diffraction equipment	2007	$3,000
Start-up funds	2005-2007	$263,000
Match for postdoctoral associate	2006	$11,000
Infrastructure for Structure – Physical Property laboratory	2005	$10,000

PEER-REVIEWED PUBLICATIONS: *(*undergraduate student, **graduate student).* **h-***index* **27**

1. C. E. Botez, I. Martinez**, and A. D. Price**, *"Stability of superprotonic CsH_2PO_4 hermetically sealed in different environments",* Materials 15, 4969 (2022)
2. A. Galindo**, J. L. Reyes-Rodriguez, C. E. Botez, M. Moreno, and A. Ponce*, "Towards three-dimensional nanoarchitectures: highly ordered bi-layer assembly of tailored magnetic nanowire arrays via template-assisted electrodeposition",* Materials Advances 3, 4548 (2022)
3. A. D. Price**, A. C. Aguilar**, C. E. Botez, and C. Q. Li*, "Optical second harmonic generation imaging and x-ray diffraction of $Cs_{1-x}Rb_xH_2PO_2$ proton conductor series",* J. Appl. Phys. 127, 348 (2020).
4. B. P. Meneses-Brassea, C. M. Cyr, I. Martinez, C. E. Botez, and A. A. El-Gendy*, "Facile synthesis of superparamagnetic Fe3O4 nanoparticles at therapeutic temperature range for magnetic hyperthermia therapy",* J. Nanoparticle. Res. 22, 348 (2020).
5. J. L. Hidalgo Gonzalez, C. Botez, J. T. Elizalde Galindo, and J. A. Matutes-Aquino*, "Isothermal Remanent Magnetization (IRM) and Direct Current Demagnetization (DCD) curves for nanocrystalline Sm-Y-Co alloys",* J. Superconductivity and Novel Magnetism 33, 1543 (2020).
6. J. L. Hidalgo, C. Botez, J. T. Elizalde, and J. A. Matutes*, "Interaction field in nanocrystalline exchange-coupled Sm-Y-Co alloys",* Results in Physics 16, 102965 (2020).
7. S. V. Trukhanov, V. A. Khomchenko, D. V. Karpinsky, M. V. Silibin, A. V. Trukhanov, L. S. Lobanovsky, H. Szymczak, C. E. Botez, and I. O. Troyanchuk*, "A-site ordered state in*

manganites with perovskite-like structure based on optimally doped compounds Ln0.7Ba0.3MnO3 (Ln=Pr, Nd)", J. Rare Earths 37, 1242 (2019).

8. A. C. Aguilar, C. A. Diaz-Moreno, A. D. Price, R. K. Goutam, C. E. Botez, Y. R. Lin, R. B. Wicker and C. Q. Li, *"Non-destructive optical second harmonic generation aluminum nitride ceramics imaging of 3D printed aluminum nitride ceramics"*, Ceramics International 14, 18871 (2019)

9. C. E. Botez, I. Martinez**, A. D. Price**, H. Martinez**, and J. H. Leal, *"Superprotonic CsH_2PO_4 in dry air",* J. Phys. Chem. Solids 129, 324 (2019).
10. A. Harchani, A. D. Price**, C. E. Botez, and A. Haddad, *"Structure, Hirshfeld Surface, semi-empirical calculations and molecular dynamics studies of new organo-chlorocadmate compound $(C_7H_{10}NO)_3(CdC_{15})$ H_2O"*, J. Mol. Struct. 1179, 33 (2019).
11. M. T. Islam, H. K. Jing, T Yang, E. Zubia, A. G. Goos, R. A. Bernal, C. E. Botez, M. Narayan, C. K. Chan and J. C. Noveron, *"Fullerene stabilized gold nanoparticles supported on titanium dioxide for enhanced photocatalytic degradation of methyl orange and catalytic reduction of 4-nitrophenol"*, J. Environ. Chem. Eng. 6, 3827 (2018).
12. Y. Wu, J. M. Veleta, D. Y. Tang, A. D. Price**, C. E. Botez, and D. Villagran, *"Efficient electrocatalytic hydrogen gas evolution by a cobalt-porphyrin-based crystalline polymer"*, Dalton Transactions 47, 8801 (2018).
13. A. G. Goos, A. J. Encerrado Martinez**, H. Martinez**, A. D. Price**, and C. E. Botez, *"Single-crystal x-ray diffraction and impedance spectroscopy investigations of the $Rb_xCs_{1-x}H_2PO_4$ (0≤x≤1) proton conductor series"*, J. Phys. Chem. Solids 118, 200 (2018).
14. J. H. Leal, H. Martinez**, I. Martinez**, A. D. Price**, A. G. Goos, and C. E. Botez, *"Stability of the superprotonic conduction of $(1-x)CsH_2PO_4/xSiO_2$ (0≤x≤0.3) composites under dry and humid environments"*, Mater. Today Commun. 15, 11 (2018).
15. C. E. Botez, H. Martinez**, and J. L. Morris*, "*X-ray diffraction investigations of structural modifications in In-doped tin pyrophosphates*", Mater. Chem. Phys. 196, 137 (2017).
16. S. Fortier, J. R. Aguilar-Calderon, B. Vlaisavljevich, A. J. Metta-Magana, A. G. Goos, and C. E. Botez, "*An N-tethered uranium (III) arene complex and the synthesis of an unsupported U-Fe bond*", Organometallics, 36, 4521 (2017).
17. E. M. Deemer**, P. K. Paul, F. S. Manciu, C. E. Botez, D. R. Hodges, Z. Landis, T. Akter, E. Castro, and R. R. Chianelli, "*Consequence of oxidation method on graphene oxide produced with different size graphite precursors*", Mater. Sci. Eng. B 224, 150 (2017).
18. C. E. Botez and J. L. Morris*, "*Ac-susceptibility investigations of superspin blocking and freezing in interacting magnetic nanoparticle ensembles*", Nanotechnology 27, 115706 (2016)
19. C. E. Botez, A. H. Adair** and R. J. Tackett, *"Evidence of superspin-glass behavior in $Zn_{0.5}Ni_{0.5}Fe_2O_4$ nanoparticles"*, J. Phys: Condens. Matter 27, 076005 (2015).
20. C. E. Botez, M. Mollaee**, A.J.E. Manriquez*, and M. P. Eastman, *"Monoclinic RbD_2PO_4 : Room temperature synthesis, chemical and structural stability upon heating"*, Mater. Chem. Phys. 143, 605 (2014).
21. *C. Amaya*, V. Kurisetty, J. Stiles, A. M. Nyakeriga, A. Arumugam, R. Lakshmanaswamy, C. E. Botez, D.C. Mitchel and B.A. Brian, *"A genomic approach to identifying susceptibilities of breast cancer to fever-range hyperthermia"*, BMC Cancer 14, 81 (2014).
22. J. Trujillo-Reyes**, J. R. Peralta-Videa, S. Majumdar, C. E. Botez and J. L. Gardea-Torresday, *"Exposure studies of core-shell Fe/Fe_3O_4 and Cu/CuO NPs to lettuce (Lactuca sativa) plants: Are they a potential physiological and nutritional hazard?"*, J. Hazard. Mater. 14, 81 (2014).
23. . E. Botez, J. L. Morris*, A.J.E. Manriquez*, and A. Anchondo*, *"Heating induced structural and chemical behavior of KD2PO4 in the 25C – 215C degree range"*, Materials Characterization 83, 74 (2013).

24. G. de la Rosa**, M.L. Lopez-Moreno, D. de Haro, C. E. Botez, J. R. Peralta-Videa, and J. L. Gardea-Torresday, *"Effects of ZnO nanoparticles in alfalfa, tomato, and cucumber at the germination stage: Root development and x-ray absorption studies"*, Pure and Applied Chemistry 85, 2161 (2013).
25. . E. Botez, K. Chattrakun**, A. J. Metta-Magana, K. H. Pannell, and J. A. Mattutes- Aquino, *"Magnetic property enhancement and crystal structures in bulk and nanosized $Zn_xNi_{1-x}Fe_2O_4$ (0<x<1)"* , Phys. Lett. A 376, 2730 (2012).
26. C. E. Botez, J. L. Morris*, and M. P. Eastman *"Superspin relaxation in Fe_3O_4/hexane magnetic fluids: A dynamic susceptibility study"*, Chemical Physics 403, 89(2012).
27. C. E. Botez, R. J. Tackett, Juan D. Hermosillo**, J. Zhang, Y. Zhao, and L. Wang *"High-pressure synchrotron x-ray diffraction studies of superprotonic transitions in phosphate-based solid acids"*, Solid State Ionics 213, 58(2012).
28. C. M. Gonzalez**, J. Fernandez, J. R. Peralta-Videa, C. E. Botez, J. G. Parsons, and J. L. Gardea-Torresdey, *"Sorption kinetic study of selenite and selenate onto a high and low pressure aged iron oxide nanomaterial",* J. Hazard. Mater. 211, 138(2012).
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STUDENT THESES AND POSTDOCTORAL PROJECTS SUPERVISED (4 Postdocs, 5 Ph.D., 13 M.S., 3 B.S.):

Students	**Degree**	**Thesis Title**	**Date**
Juan Hermosillo	M.S. Physics	High Temperature Phase Transitions in CsH2PO4 under Ambient and High-Pressure Conditions: A Synchrotron-x-ray Diffraction Study	December 2006 awarded
Michael Chen	M.S. Physics	Magnetic Phase Transitions in Praseodymium-Barium Doped Manganites	December 2007 awarded
Jitin Arora	M.S. Physics	Relaxation Mechanisms Related to Heat Dissipation in Magnetic Ferrofluids	May 2007 awarded
Antony Adair	B.S. Physics (MARC Fellow)	Zn-Doping Effect on the Magnetic Properties of Nickel Ferrite Nanoparticles	Summer 2008 awarded
Heber Martinez	M.S. Physics	X-ray Diffraction Studies of High Temperature Phase Transitions in RbH_2PO_4	Spring 2009 awarded
Antony Adair	M.S. Physics	Comparative Study of Structural Phase Transitions in Potassium and Rubidium Dihydrogen Phosphate	Summer 2009 awarded
Abdul Bhuiya	Ph.D. Materials	Temperature-Induced Phenomena in Magnetic Nanosystems: Spring Magnets and Ensembles of Magnetic Nanoparticles.	Fall 2009 awarded
Kanokporn Chattrakun	M.S. Physics	Magnetic and structural properties of zinc doped nickel ferrite	Summer 2011 awarded
Kiran Vajrapu	M.S. Physics	X-ray diffraction studies of room and intermediate temperature phases of phosphate solid acids	Fall 2011 awarded
Juan Hermosillo	Ph.D. Materials	High pressure investigations of superprotonic phases of phosphate based solid acids	Summer 2012 awarded
Masoud Mollaee	M.S. Physics	RbD_2PO_4 : Room temperature synthesis, chemical and structural stability upon heating	Spring 2013 awarded

David Carbajal	B.S. Physics (MARC Fellow	X-ray and neutron scattering studies of proton conduction pathways and mechanisms in doped tin pyrophosphates	Summer 2013 awarded
Joshua Morris	B.S. Physics (MARC Fellow)	Superspin Relaxation Times in Fe_3O_4 / Hexane Magnetic Fluids Measure by Frequency-Resolved AC Susceptibility	Spring 2014 awarded
Alex Price	M.S. Physics	Electron Paramagnetic Resonance studies of superspin blocking and freezing in magnetic nanoparticle ensembles.	Summer 2015 awarded

Joshua Morris	M.S. Physics	Effect of dipolar interactions on the superspin relaxation in magnetic ferrofluids	Summer 2015 awarded
Heber Martinez	Ph.D. Materials	X-ray diffraction studies of polymorphic phase transitions and chemical modifications in K, Na, and Li di-hydrogen phosphates	Summer 2017 awarded
Andres Encerrado	M.S. Physics	Crystal structures and proton conduction mechanisms in indium doped tin pyrophosphates	Summer 2017 awarded
Koirala Mahesh	M.S. Physics	Phase transitions vs. superparamagnetic behavior of ultrafine nickel ferrite nanoparticles	Summer 2017 awarded
Andrea Montgomery	M.S. Physics	Structural and proton conductivity investigations of the ionic conductor $Rb_{0.8}Cs_{0.2}H_2PO_4$	Spring 2018 awarded
Israel Martinez	Ph.D. Materials	Effects of air and other gasses on the stabilization process of the superprotonic phase of cesium dihydrogen phosphate	Summer 2018 awarded
Alex Price	Ph.D. Materials	Structural and optical investigations of $Rb_xCs_{1-x}H_2PO_4$	Fall 2018 awarded
Postdocs			
Dr. Jose Elizalde	currently Asst. Prof. UACJ, Mexico)	Worked on structure and properties of magnetic materials, contributed to the improvement my laboratory's research infrastructure.	2006 – 2008
Dr. Ronald Tackett	currently Asst. Prof. Kettering Univ.)	Worked on proton conduction mechanisms in the high-temperature phases of phosphate-based solid acids	2008 – 2010
Dr. Alan Goos	currently Lecturer Minnesota State Tech College	Worked on crystal structure determination from single-crystal x-ray diffraction. Managed x-ray scattering facility	2015-2017
Dr. Juan Leal	currently staff at Los Alamos Nat'l Lab)	Worked on structural and electrical characterization of proton conductors under controlled atmospheres	2016-2018

STUDENT MENTEE AWARDS:

- Outstanding UTEP Physics Undergraduate Academic and Research Achievement – Sonam Lhamo, undergraduate student (2018)
- Outstanding Presentation Student Award – American Physical Society Texas Meeting - Sonam Lhamo, undergraduate student (2017)
- Outstanding Poster Presentation - American Physical Society Texas and Four Corners Meeting - Mahesh Koirala, M.S. student (2016)
- Outstanding UTEP Physics Undergraduate Academic and Research Achievement - Adan Anchondo, undergraduate student (2014)
- Consejo National de Ciencia y Tecnologia (CONACyT), Mexico, Doctoral Fellowship - Israel Martinez, Ph.D. student (2014)
- UTEP College of Science Student Marshall - Joshua Morris, undergraduate student (2014)
- Outstanding UTEP Physics Undergraduate student – Joshua Morris, undergraduate student (2014)
- Consejo National de Ciencia y Tecnologia (CONACyT), Mexico, Doctoral Fellowship, Heber Martinez, Ph.D. student (2013)
- Miner Hero Award for Research Excellence in Advancing the Name and Prestige of the University – Joshua Morris, undergraduate student (2013)
- SIP Technical Fellowship at Sandia National Laboratory - Joshua Morris, undergraduate student (2013)
- Best UTEP Physics Graduate Student Award – Masoud Mollaee, M.S. student (2013)
- UTEP Physics All Around Excellence Award – Joshua Morris, undergraduate student (2013)
- UTEP Physics All Around Excellence Award – Kanokporn Chattakun, M.S. student (2011)
- Campus Office for Undergraduate Research Initiatives (COURI) Award – Andres Encerrado, undergraduate student (2011)
- Minority Access to Research Careers (MARC) Fellowship – Joshua Morris, undergraduate student (2011)
- College of Science Best Teaching Assistant - Kanokporn Chattakun, M.S. student (2011)
- Campus Office for Undergraduate Research Initiatives (COURI) Best Poster Award – Joshua Morris, undergraduate student (2010)
- Minority Access to Research Careers (MARC) Fellowship – David Carbajal, undergraduate student (2008)
- Minority Access to Research Careers (MARC) Fellowship – Antony Adair, undergraduate student (2006)