

David A. Rockstraw, Ph. D., P. E. (NM, TX)

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EXECUTIVE SUMMARY

I have worked in the chemical processing industries; academia; government research labs; and private practice as consultant, R&D engineer, expert witness, and process forensic analyst. I have a diverse background of experiences that includes commodity chemicals; energy; water; petrochemicals; pharmaceuticals; agricultural chemicals; fluorochemicals; monomers, polymers and plastics; plutonium processing; membrane/electromembrane processes; process safety and chemical hygiene; biofuels; processed foods; academic administration, and historic adobe preservation. I have provided expert testimony in deposition, trial, and arbitrations.

SPECIFIC AREAS OF EXPERTISE

- chemical plant design, simulation, economic evaluation, construction, and operation (including direct exposure to scores of products, processes, and chemical plants)
- chemical process optimization and chemical product development
- intellectual property and trade secrets in chemical processes; IPR and PGR experience
- forensic analysis of chemical plant operations and incidents
- scale-up of laboratory & pilot plant operations; implementation of commercial facilities
- 29 CFR 1910.119 process safety management of highly hazardous chemicals
- kinetics and catalysis, spontaneous combustion, runaway reactions, and explosions
- chemical reactor design, operation, and analysis of operation
- chemical separations and heat/mass transfer phenomena
- activated carbon synthesis and application as an adsorbent
- ethanol and biodiesel from fermentation of biomass and downstream processing
- ultrasonic flash pyrolysis synthesis of metallic nanoparticles
- investigation of fire/explosion cause and origin
- chemical hygiene and material handling
- engineering higher education and program administration & assessment

EDUCATION

The University of Oklahoma, Norman, Oklahoma

Aug 1986 – Sep 1989

Ph.D., Chemical Engineering: *Experimental & Theoretical Electrodialysis Investigations*

Purdue University, West Lafayette, Indiana

Aug 1980 – Jun 1986

B.S., Chemical Engineering

EXPERIENCE

David A. Rockstraw, Ph. D., P. E., Mesilla, New Mexico

CHEMICAL PROCESS DESIGN/REVIEW/FORENSIC ANALYSIS & EXPERT WITNESS since 1997

Expert Witness (chronologically listed) [†] deposition, [‡] trial/arbitration testimony

1. Gibson, Dunn, & Crutcher, Washington, DC. Expert witness for **counter defendant** of anti-trust claim on topic of properties of activated carbon materials used in fuel vapor canisters (Ingevity Corporation et al v. BASF Corporation, Case No: 1:18-cv-01391).[‡]
3. Wilson Elser Moskowitz Edelman & Dicker LLP, Samford, CT. **Defendant** expert witness on matter involving explosion in a municipal waste processing facility (City of Stamford / Synagro-Connecticut v. Maintenance Technologies International, LLC, et al., Superior Court J.D. of Stamford/Norwalk at Stamford, Docket No. FST-CV20-6046431S. 2021 -).
5. Barnes & Thornburg LLP, Dallas, TX. Expert witness for the **plaintiff** on a matter involving trade secret theft of radiant catalytic ionization technology (DBG Group Investments, LLC, et al. v. Allen M. Johnston, Greentech Environmental, LLC, and Ellen Johnston, in the Arbitration administered by the American Arbitration Association, Case No. 01-19-0001-7169. 2021 -).[†]
6. Mangum Ririe LLP, Ladera Ranch, CA. Expert witness for **defendant** of a post grant review of a patent involving activated carbon adsorption of fuel vapors (Case PGR2020-00037, Patent 10,323,553: BASF Corp, Petitioner, v. Ingevity South Carolina, LLC. 2020).[†]
7. Finnegan, Henderson, Farabow, Garrett & Dunner, LLP; Reston, VA. Expert witness for **defendant** on inter partes review involving the validity of U.S. Patent 7,473,685 (IPR2020-01113 Patent 7,473,685 B2: Tide International USA Inc., petitioner v. UPL NA Inc., patent owner. 2020 -).[†]
8. Robins Kaplan LLP; Minneapolis, MN. Expert witness for the **plaintiff** on wrongful (paralyzing) injury and product liability matter involving dust remover product (*Ashen S. Diehl, Plaintiff v. 3M Company, Defendant, Court File No. 69DU-CV-18-2662, in the U.S. District Court State of Minnesota, Sixth Judicial District, County of St. Louis. 2020 -*).
9. Dechert LLP; Philadelphia, PA. Expert witness for the **plaintiff** on patent infringement matter (*Genesis Alkali Wyoming, LP v. Ciner Resources LP, Ciner Ic ve Dis Ticaret A.S., Eti Soda Uretim Pazarlama Nakliyat ve Elektrik Uretim Sanayi ve Ticaret Inc. and Kazan Soda Elektrik Uretim A.S., Case 1:18-cv-01879, United States District Court for the District of Delaware. 2020*).
10. Allen, Dyer, Doppelt + Gilchrist, P.A.; Orlando, FL. Expert witness for the **plaintiff** regarding unfair competition, false designation of origin, and false advertising. (*Pure Pools, Inc. d/b/a API, Plaintiff, vs. Oxygen Pools, LLC, Defendant, Case No. 9:20-cv-80426, in the U.S. District Court, Southern District of Florida, West Palm Division. 2020*).
11. Hinkle Shanor; Roswell, NM. Expert consultant for **plaintiff** concerning material balances and data interpretation of crystallization process. (*State of New Mexico, ex rel., State Engineer and Peco Valley Artesian Conservancy District, Plaintiffs, vs. L. T. Lewis, et al., and United States of America, defendants, and State of New Mexico, ex rel.,*

- State Engineer and Peco Valley Artesian Conservancy District, Plaintiffs, vs. Hagerman Canal Co., et al. defendants*, CV-WH-3-001240, in the State of New Mexico, County of Chaves, Fifth Judicial District Court. 2020 -).
12. Arnold & Itkin LLP; Houston, TX. Expert witness for **plaintiff** on matter involving injury out of negligence at a chemical process facility. (*Jacque Lucas, et al. v. KapStone Paper and Packaging Corp., et al.*, C/A No: 2017-CP-10-838, In the Court of Common Pleas for the Ninth Judicial Circuit, County of Charleston, SC. 2020 -).
 13. Douglas D. Koktavy, P.C.; Denver CO. Expert witness for **plaintiff** on trade secret theft of formulas and processes associated with home material repairs, including porcelain, fiberglass, formica, wood, marble and ceramic tiles. (*Plaintiff: Repairs Unique, Inc., v. Defendants: Michael Manzanares; H&W Creations, LLC; Emmerson Newbill; and Broad Spectrum LLC*, Case 2020CV30148, U. S. District Court for Douglas County, CO. 2020 -).
 14. Alston & Bird, LLP; Atlanta, GA. Expert witness for **plaintiff** on trade secret theft of manufacture methods of calcium carbonate resins. (*Heritage Plastics, Inc., Plaintiff v. Gaston Construction, Inc., Glenn E. Stockdale, Christopher E. Varnado, and Plactical, LLC.*, Case 1:20-cv-00374-CLM. , United States District Court for the Northern District of Alabama. 2020 - 2021).^{†‡}
 15. Stoel Rives; Portland, OR. Expert witness for **plaintiff** on trade secret theft of manufacture methods and formulation of tire inflation additive. (*Fuller Bros., Inc., Plaintiff, v. Griffin Bros., Inc.; Ryan Kelly; Morry Jones; and Matthew Jones, Defendants*, Case No. 19CV41576, Circuit Court of Oregon, County of Clackamas, 2020 -).
 16. Allen, Dyer, Doppelt + Gilchrist, PA; Orlando, FL. Expert witness for **plaintiff** of patent infringement and validity of U.S. Patent 6,350,453 B1 entitled, "Tocotrienols and Geranylgeraniol From Bixa Orellana Byproducts." (*American River Nutrition, LLC v. Beijing Gingko Group Biological Technology Co., Ltd et al.*, Case No.: 8:18-cv-02201-JLS-JDE in the United States District Court for the Central District of California. 2019 -).[†]
 17. Finnegan, Henderson, Farabow, Garrett & Dunner, LLP; Reston, VA. Expert witness for **plaintiff** on patent infringement matter involving the infringement and validity of U.S. Patent 7,473,685 B2 (January 6, 2009) entitled, "Process for preparation of chemically stable, dry-flow, low compact, dust free, soluble granules of phosphoroamidothioates" (UPL NA v. Tide International (USA), Inc., Zhejiang Tide CropScience, Co., Ltd., and Ningbo Tide Imp. & Exp. Co., Ltd., Civ. No. 8:19-cv-01201 C.D. Cal. 2019 -).
 18. Salvi, Schostok, & Pritchard, P.C.; Chicago, IL. Expert witness for the **plaintiff** on the emission of ethylene oxide from a sterilization facility (*Kamuda v. Sterigenics U.S., LLC, et al.*, Case No. 2018 L 010475 in the Circuit Court of Cook County, Illinois. 2019 -).
 19. Cabello Hall Zinda, PLLC; Houston, TX. Expert witness for the **plaintiff** of an inter partes review (*Enercorp Sand Solutions Inc. Petitioner, v. Specialized Desanders Inc., Patent Owner*. Case IPR2019-01582 Patent No. 9,861,921. 2019 - 2020).
 20. Mark Fine, Fine Law Firm and Kallie L. Dixon, Business Law Southwest, LLC, Albuquerque, NM. Expert witness for the **plaintiff** to determine cause and origin of a residential fire (*Chaney, et al., v. Meagher Family Trust, FPI Management, Inc. and Sierra*

Meadows Apartments, LLC., Cause D-202-CV-2019-06097, 2nd Judicial District Court, Bernalillo County, NM. 2019 -).

21. McDowell Hetherington LLP; Houston, TX. Expert witness for the **plaintiff** to determine cause and origin of a residential fire (Liberty Insurance Corporation, as subrogee of Vamseedhar Konda, Plaintiff, v. Taylor Morrison Of Texas, Inc.; Hearth & Home Technologies; Parrish & Company, Inc.; Pass & Seymour, Inc.; Powerhouse Electrical Services, Inc.; Custom Electronics, Inc.; And United Subcontractors, Inc.; Cause NO. D-1-GN-005833 District Court of Travis County, TX, 200th Judicial District. 2019 - 2020).
22. McGlinchey Stafford; Houston, TX. Expert witness for **defendant** in a breach of contract matter based on the design and installation of commercial steam boilers (Civil Action No. 4:18-cv-4349 - *Equistar Chemicals, LLC. v. Indeck Power Equipment Company*, in the United States District Court for the Southern District of Texas Houston Div. 2019).[‡]
23. Motley Rice; Mt Pleasant, SC. Expert witness for the **plaintiff** in wrongful death matter occurring in a polyethylene terephthalate production facility (Civil Action No. 5:17-01010-JMC, United States District Court District of South Carolina Orangeburg Division - *Sallie M. Zeigler vs. Eastman Chemical Company, and Mundy Maintenance Service and Operations LLC*. 2019 -).
24. Gibson Dunn; Irvine, CA. Expert witness for the **plaintiff** in a patent infringement matter based on U.S. Patent Number RE38,844E (No. 18-1391 RGA, U.S. District Court for the District of Delaware, C.A. - *Ingevity Corporation and Ingevity South Carolina, LLC, v. BASF Corporation*. 2018-2020).[†]
25. Gibson Dunn & Crutcher; Irvine, CA. Expert witness for the **plaintiff** in a patent infringement matter based on U.S. Patent Number RE38,844E (U.S. International Trade Commission, Washington DC, Investigation No. 337-TA-1140 In the Matter of Certain Multi-Stage Fuel Vapor Canister Systems and Activated Carbon Components Thereof. – *InOlkkevity Corporation and Ingevity South Carolina, LLC, v. Mahle, et al.* 2018-19).[‡]
26. Alston & Bird; Charlotte, NC. Expert witness for the **plaintiff** in lawsuit involving intellectual property of HFC blowing agents and propellants (Civil Action No. 3:17-cv-01390-N in US District Court for Northern District of Texas Dallas Division: *Honeywell International Inc. v. MEK Chemical Corporation*. 2018-2020).[†]
27. Provost & Umphrey Law Firm, LLC, Beaumont, TX – Provided expert opinion for the **plaintiff** on the viability of simulated data in wrongful death case involving a sodium hydrosulfide storage tank explosion (Civil Action No.: 2:16-cv-02944-DCN, In The United States District Court District of South Carolina Charleston Division; *Kristie Allen, et al. v. Axeon Speciality Products, LLC, et al.* 2018-2020).
28. McDermott, Will, & Emery LLP, Chicago, IL – Provided expert opinion for the **defendant** in litigation involving operation of a 30MM gal/yer biodiesel production facility in Dubuque, IA (Case No. 2:16-cv-1038-LRR, In The United States District Court for the Northern District of Iowa Eastern Division, *United States of America v. NGL Crude Logistics, LLC and Western Dubuque Biodiesel*. 2017-18).[†]
29. Stoel Rives, Portland, OR – provided expert opinion for **plaintiff** on formulations for fire resistant treatment chemicals (Case No. 12-2-01604-2 in Superior Court of the State of

Washington for Whatcom County: *Global Building Products LTD et al v. Blue Mountain Log Sales, LTD et al.* 2017-2018).

30. Akin Gump; San Francisco, CA. Expert for **defendant** in litigation concerning design of a 1,000 gpd biodiesel production facility (Case No. 5:16-cv-716-LHK, United States District Court Northern District of California San Jose Division - *R Power Biofuels, Inc., vs. Chemex, LLC.* 2017).
31. Birch Stewart Kolasch & Birch, LLP, Falls Church, VA – Expert opinion for the **plaintiff** on viability of chemical process simulation in IPR proceedings, (Case IPR2017-00165, U.S. Patent No. 9,073,843 - *Celanese International Corp. v. Daicel.* 2017).[†]
32. Vuono & Gray, LLC, Pittsburgh, PA – provided expert opinion for the **plaintiff** and valuation of various nanotechnologies (Case #5978 OF 2012 2012CI05978, *Srikanth Raghunathan, Padmashri Sampathkumar, NGX, Inc. v. JP Morgan Chase, Mortgage Electronic Registration System, Phelan, Hallinan & Schmieg, Safeguard Properties.* 2017).
33. Moyer Law Offices LPA, Columbus, OH - Expert for **plaintiff** on matter of failures in engineering, procurement, construction, and management of mixed feedstock biodiesel production facility (Re-filed Case No. 2014 CV 1575, Common Pleas Court Montgomery County, OH - *Washakie Renewable Energy, LLC. Vs. Jatrodiesel, Inc.* 2016-17).
34. Miller, Maki, LLP, Sudbury, ON, Canada – Provided expert opinion for **plaintiff** on the potential for spontaneous combustion to occur in carbon chars (Ontario Superior Court of Justice; *Helene Carter, et al. v. Placements C. Jolicoeur Limitee, Ontario Inc., Christine Jolicoeur, Isabel Lamarche, Marc Clement, Alain Lamarche, The Clorox Company of Canada, Ltd., and Charbon De Bois Feuille D'erable Inc.* 2015-16).[†]
35. Nossaman Guthner Knox & Elliott, San Francisco, CA – Provided expert opinion for the **plaintiff** on trade secret theft involving a process to manufacture ant insecticide baits (Case No. C13-01158, Superior Court of the State of California County of Contra Costa - *Copper Harbor Co., Inc. vs. Central Garden and Pet Company et al.* 2015-16).[‡]
36. Quarles & Brady LLP, Chicago, IL. Provided expert opinion for the **plaintiff** on novelty of patents associated with oil separation in the corn ethanol process (Case IPR2015-01586 U.S. Patent No. 8,841,469, *Hydrite Chemical Co. v. Solenis Technologies, LP.* 2015-16).[†]
37. Stoel Rives, Salt Lake City, UT – provided expert opinion for **defendant** on viability and economic evaluation of a process to manufacture an antibacterial additive intended for oral care use (Case No. 2:13-cv-01017, United States District Court District of Utah, Central Division - *N8 Medical, Inc. and Brigham Young University; N8 Pharmaceutical, Inc. vs. Colgate-Palmolive Company.* 2015-16).[†]
38. Davis & Associates P.C., Albuquerque, NM – Provided expert opinion on valuation of oil production operations (United States Bankruptcy Court District Of New Mexico, *IN RE: Chuza Oil Company Domestic Profit*, No. 14-12842-t1 EIN: 27-2717292 Debtor. 2015).
39. Sills, Cummis & Gross P.C., Newark, NJ – Provided expert opinion for **plaintiff** on the physical mechanism and operation of suppression systems for a fire involving chlorinated swimming pool chemicals (Superior Court of New Jersey Law Division: Essex County, docket No. ESX-L-5111-13 - *Aiden Leeds, Inc., v. QBE Specialty Insurance Company, and Certain Underwriters at Lloyd's, London.* 2014-15).[†]

40. Stoel Rives, Minneapolis, MN – provided expert opinion for **defendant** on patent infringement matter involving corn stover ethanol production, with emphasis on material handling and process design around the separation of residual corn oil from the stillage of the beer column bottoms (Master Case No.: 1:10-ml-2181-LJM-DML in the United States District Court for the Southern District of Indiana - *GS CleanTech Corp. v. Bushmills Ethanol, Inc., Chippewa Valley Ethanol Co., LLLP, Heartland Corn Products and Al-Corn Clean Fuel*. 2013-2014).[†]
41. Dongell Lawrence Finney LLP, Las Vegas, NV – Provided expert opinion for **defendant** in litigation involving the failure of a tank designed to store HCl at a rural water treatment facility (Case No. 37339, Tenth Judicial District Court, Churchill County, NV – *City of Fallon et al v. Sierra Chemical Co., et al.* 2013).
42. Quinn Emanuel Urquhart & Sullivan, LLP, New York, NY – Provided expert opinion for **plaintiff** on chemical process design for manufacture of adiponitrile (International Court of Arbitration of the International Chamber of Commerce, Paris, France. 2013).[†]
43. Levin & Associates, Cleveland, OH – Expert opinion for **plaintiff** in litigation involving failures in engineering, procurement, construction, and management of a biodiesel production facility from a beef tallow feedstock (American Arbitration Association, *Western Biodiesel, Inc. v. Jatrodiesel, Inc.* 2013).
44. Mitchell, Lang & Smith, Portland, OR – Provided expert opinion for **defendant** in litigation involving bioethanol contamination and remediation for company in U.S. Bankruptcy Court on matters of causation, negligence, and mitigation of damage (USDC No. 3 : 10-cv-01441-BR, United States Bankruptcy Court for the District of Oregon – *In RE Cascade Grain Products, LLC*. 2012).
45. Ratiner, Lagos & Mirabal, P.A., Miami, FL – Providing expert opinion for **plaintiff** on batch process development methods in fungicide manufacture (Case No. 92-18377 CA 23, Circuit Court of the Eleventh Judicial Circuit in and for Miami-Dade County, Florida; *Claire J. Sidran, et al. v. E. I. DuPont de Nemours & Co., Inc.* 2012).[†]
46. Alston & Bird; Atlanta, GA. Expert witness for **plaintiff** in lawsuit involving theft of trade secret and intellectual property (Cause No. 2008-0673, In the District Court of Harris Co., TX, 71st Judicial District - *Norit Americas, Inc. v. ADA-ES, Inc., et al.* 2009).[‡]
47. Travelers' Insurance Boiler & Machinery Claim Service, Naperville, IL – provided consultation and expert opinion for **plaintiff** on the mechanisms that led to the explosion of a graphite refining furnace (2009).
48. Haynes & Boone, LLC; Dallas, TX. Expert witness for **plaintiff** in lawsuit involving theft of trade secret and intellectual property (Cause No. 2008-0673, In the District Court of Harris Co., TX, 71st Judicial District - *Norit Americas, Inc. v. ADA-ES, Inc., et al.* 2008-09).[†]
49. McClaugherty & Silver PC, Santa Fe, NM – provide expert statement on the risk potential of using polybutylene pipe in radiant heating systems (2007).
50. Miller Stratvert PA, Albuquerque, NM – Expert consultation for **plaintiff** on litigation involving a potentially contaminated feedstock of a food processing company (2006).

51. Cronin & Howe, Phoenix, AZ – Provided expert testimony for **defendant** on litigation of residential fire purportedly attributed to spontaneous combustion (Case No. CV2005-0553 Superior Court for the State of AZ for the County of Yavapai, *Prudential Property and Casual Ins., v. PVO Construction, LLC and Arizona Paint Works, Inc.* 2005-06).[‡]
52. Seaton & Husk, L.P., Vienna, VA – Provided expert opinion for **defendant** on the operability of a gas processing unit (Civil No. WDQ-05-CV-657 United States District Court For The District Of Maryland Northern Division - *Ramar Moving Systems, Inc. v. eSCRUB Systems, Inc., et al.* 2005-06).[†]
53. Christesen & Jensen, Salt Lake City, UT - Expert opinion on litigation for the **plaintiff** of residential fire attributed to spontaneous combustion (2005).
54. Cronin & Howe, Phoenix, AZ - Provided expert testimony for **defendant** on residential fire attributed to spontaneous combustion (Classic Coatings Corp. 2004-05).[‡]
55. Klecan & Childress, Albuquerque, NM - Expert opinion for **defendant** on corrosion of residential construction materials (Byers v. Smith Building, et al. 2004).
56. Winston & Strawn LLP; Washington, DC– provided technical and economic analysis of potassium permanganate processes for the **plaintiff** in federal antitrust matter (Inv. No. 731-TA-125 Potassium Permanganate from China; Carus Chemical Co., Peru, IL. 2004).
57. Paul M. Hood Law Offices, Dallas, TX - Provided expert opinion for **defendant** on litigation involving injury incident liability from operation of a commercial molding machine (Falcon Plastics, Inc. 2003).
58. McDonald (Bruce S.) Law Offices, Albuquerque, NM - Provided expert opinion for **defendant** on litigation involving a residential fire purportedly attributed to spontaneous combustion (2002).
59. Clausen Miller, New York, NY - Provided expert opinion for **plaintiff** in litigation involving explosion of a chemical reactor producing sodium dihydrobis (2-methoxyethoxy) aluminate (Travelers Property Casualty 2001).
60. Mound, Cotton, & Wollan, New York, NY - Provided expert testimony for **plaintiff** in arbitration involving a thermal explosion at a commercial chemical facility in Grants, NM involving a scrubbing tower that removes traces of hydrofluoric acid from propane (Travelers Property Casualty 1997-1998).[†]

Consultant/Design/Research Experience (alphabetical by client)

1. Analytical Systems International Keco R&D Inc., Tomball, TX. Assisted with application of Henry's Law to sensor applications (2006).
2. Automation Correct, LLC; Syracuse, NY. Performed analysis of computer code written to simulate operation and control of coal stove (2004).
3. BDO USA, Jacksonville, FL. Consultant in dispute involving True-Up of chemical process requiring interpretation of material balances involving a process with shared capital between the companies *Dow* and *Dupont*. (2021 -)
4. Colbeck Capital Management, LLC., Los Angeles, CA. Consultant on viability of biodiesel process and related analytical standards (2021).
5. Clean Can Technology, Bloomfield, NM. Advised company in the development of an adhesive foam for applications in trash can cleaning (2003).
6. Entegris, Inc., Round Rock, TX. Provided consultation on redesign of company's MegaVap metallic vapor feed system (2015).
7. Environmental Remediation Services, LLC., Seattle WA. Performed material & energy balances in support of design & construction of a mineral processing pilot plant (1996).
8. Fluxtron Holdings, Inc., Houston, TX. Served as chair of the Technical Advisory Board; performed numerous calculations and experimental work in support of design and commercial installation of electrocoagulation cell (2001).
9. JatroRenewables, Miamisburg, OH. Performed technology evaluation and rating of a supercritical biodiesel manufacture process (2018).
10. King Abdulaziz City for Science & Technology, Daharan, Saudia Arabia. Consultant on "Development of Selective Catalyst for conversion of CO to Formic acid." (2015)
11. LaSys, Inc., Las Cruces, NM. Consultant on self-assembly; designed and operated flash pyrolysis reactor to synthesize nanoparticles for optical applications (2004).
12. Los Alamos National Laboratory, Los Alamos, NM. Provided expert opinion on transport phenomena calculations in support of the design of Plutonium-238 aqueous scrap processing units (2000).
13. Modular Process Technology Corporation, San Jose, CA. Design and economic evaluation of a 10⁴ mtpy silicon production facility. Presentation of the design in Wuhai City and Hohhot in the Chinese province of Inner Mongolia, Chengdu in the Sichuan province, and in Taipei, Taiwan (2006).
14. Northern Biodiesel, Ontario, NY. Performed distillation column design and rating calculations for biodiesel process (2007).
15. On Spec, LLC, Brooklyn, NY. Technical consultation on topic of nanotechnology and nanoscience (2020).
16. OZONELite™, Boca Raton, FL. Performed literature review and testimonial in support of a light bulb that employs a photocatalytic surface to disinfect the air. Served as technical expert in infomercial. Designed, constructed and operated a photocatalysis reactor to quantify the reaction kinetics of the Ozonelite™ bulb (2005-06).
17. Peduzzi & Company; Houston, TX. Provided technical advice on the synthesis of tetraethyl lead and bismuth derivatives (2005).

18. Potter Industries Inc., Potsdam, NY. Assisted to analyze feasibility of using a non-ideal feedstock to a glass recycling facility (2006).
19. ProTech Systems, Albany, NY. Developed heat transfer models of a wall mounted vent kit for boilers and water heaters (2004).
20. Rio Valley Biofuels, Anthony, NM. Third party engineering review for RFS2 certification of a waste vegetable oil feedstock biodiesel production facility (2010).
21. Sets Systems, Inc.; Miami, FL. Reviewed heat transfer calculations for furnace (2006).
22. SolAqua, LLC, Las Cruces, NM. Operated solar distillation prototype with spiked feed of organic contaminants (2006).
23. Sound Earth, LLC, Fishkill, NY. Assisted with processing of a homemade cleaning product ("The Velvet Hammer") to eliminate phase separation of the product (2007).
24. Southwest Bio Fuels, Albuquerque, NM. Third party engineering review for RFS2 certification of a waste vegetable oil feedstock biodiesel production facility (2011).
25. T-P Domestic Bio-Fuels, Rincon, NM. Performed sizing calculations for elements of a biodiesel and bioethanol production facility (2007).
26. Tri-State Biodiesel, New York, NY. Provided expertise in the design of an ultrasonic transesterification reactor system for biodiesel conversion (2007).
27. Waste2Fuel, Brownsburg, IN. Provided pro bono consulting on an as-requested basis relative to plant operability and economic analysis. (2011 - present).
28. Winslow Life Rafts, Lake Suzy, FL. Designed prototype chemical-based, commercial life raft inflation system (2003).

New Mexico State University, Las Cruces, New Mexico

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| ACADEMIC DEPARTMENT HEAD, CHEMICAL & MATERIALS ENGINEERING | JUL 2012 – AUG 2021 |
| ROBERT DAVIS DISTINGUISHED PROFESSOR | SEP 2013 – AUG 2021 |
| NMSU DISTINGUISHED ACHIEVEMENT PROFESSOR | AUG 2012 – AUG 2021 |
| INTERIM ACADEMIC DEPARTMENT HEAD, MECHANICAL & AEROSPACE ENGINEERING | AUG 2018 – AUG 2019 |
| DIRECTOR & CREATOR, NMSBREW BREWERY ENGINEERING PROGRAM | JAN 2016 – APR 2019 |
| PROFESSOR, CHEMICAL & MATERIALS ENGINEERING | AUG 2004 – AUG 2012 |
| ASSOCIATE PROFESSOR, CHEMICAL ENGINEERING | MAY 1998 – AUG 2004 |
| ASSISTANT PROFESSOR, CHEMICAL ENGINEERING | AUG 1995 – MAY 1998 |

Department Head Administrative Highlights:

- Developed outreach/recruitment programs that increased undergraduate enrollment from 91 students in 2006 to 204 students in 2017 (125% gain), despite a greater than 20% loss in enrollment across the institution. Direct recruitment of girls resulted in the number of females enrolled in the program exceeded male enrollment in 2019.
- Actions taken as Interim Head of Department of Mechanical & Aerospace Engineering led in research expenditure and grant award gains in the subsequent year representing a greater than 50% increase in each of the subsequent two fiscal years. Support of Atomic Aggies led team to become globally competitive in rocket competitions.

- Installed Adobe Connect capability in CHME (prior to the covid-19 pandemic) and leveraged the ability to broadcast classes to increase undergraduate enrollment across the state and Masters of Engineering program enrollment across the country
- Designed and implemented *NMSBrew*, a program in Brewery Engineering that included design and installation of a 1-barrel pilot brewery in Jett Hall on the NMSU campus. The program first appeared in the catalog in 2017, and the program was awarded a National Championship in the 2019 AIChE Brewing Competition.
- Highlighted need for upgrades to program infrastructure leading NMSU administration to declare Chem Eng the 2014 capital outlay priority. Began \$20 million renovation to in 2015 with completion 2Q 2018, greatly expanding program's lab research capability.
- Led 2000, 2012, and 2018 Accreditation Board for Engineering & Technology (ABET) accreditation reviews of the BSChE program at NMSU.
- Established safety program/culture that requires rigorous documentation and review of all experimental procedures; continuous training on chemical safety; an internal audit program; regular safety meetings for faculty, staff, grad students, and researchers; and an awards program to reward outstanding leadership in laboratory safety.
- Integrated simulation science with Aspen Plus® across the BSChE curriculum.
- Began (in 1997) and maintained department website with integrated form-driven data collection. Developed protocol and online form that permits a single advisor to advise 200+ undergraduate chemical engineering students in a couple of days.
- Led effort to completely restaff the faculty during my tenure, resulting in an increase in research expenditures of 1400% over a fourteen-year period, and one of the highest per full-time equivalent research expenditure levels on the campus.

Current and Former Research Areas:

- lithium isotope separation by high-speed countercurrent chromatography (funded by the National Science Foundation SBIR program in 2021)
- catalytic plastic pyrolysis to liquid fuels
- additive manufacture of mechanoluminescent materials
- core & shell nanoparticle synthesis by ultrasonic aerosol formation
- activated carbon synthesis, characterization, and application
- ethanol from transgenic alfalfa

*Comprehensive list of subject matter taught at NMSU (**significant efforts in bold**):*

- Fundamentals of Chemical Engineering
- Computer applications (Matlab, Excel, Mathcad, C++, Fortran)
- **Material and Energy Balances**
- Engineering Data Analysis
- **Transport Operations II: Heat and Mass Transfer**
- **Transport Operations III: Staged Operations**
- Process Instrumentation Systems Laboratory
- **Simulation of Unit Operations (with Aspen Plus®)**

- Transport Processes Laboratory and Unit Operations Laboratory
- Novel Industrial Separation Processes (adsorption, crystallization, membranes)
- **Chemical Kinetics and Reactor Engineering**
- Engineering Economics
- **Chemical Process Design and Economic Evaluation and Simulation (with Aspen Plus®)**
- **Chemical Plant Design and Simulation (with Aspen Plus®)**
- Advanced Process Simulation (with Aspen Plus®)
- Senior Seminar (Fundamentals of Engineering Exam preparation)
- Graduate Chemical Engineering Calculations (analytical methods)
- Graduate Chemical Engineering Calculations (numerical methods)
- Graduate Chemical Reactor Analysis & Design
- Chemical Complexation Analysis
- Fundamentals of Inline Hockey and Beginning Racquetball

Los Alamos National Laboratory, Los Alamos, New Mexico

VISITING SCIENTIST- NUCLEAR MATERIALS TECHNOLOGY DIVISION 1997 - 2000

- Measurement and prediction of stability constants in complex systems.
- Fundamental studies of crystal habit and specific cake resistance for hydroxide neutralization precipitates from actinide process.

E.I. DuPont de Nemours Co., Inc. / Conoco, Inc., Ponca City, Oklahoma

RESEARCH ENGINEER - CORPORATE PROCESS DEVELOPMENT Aug 1990 Jul 1995

- Managed research program for pilot plant production of Suva® HFC-134a by both catalytic and non-catalytic reaction technologies.
- Commercialized methyl 3-hydroxy-2-thiophenecarboxylate process (intermediate in the sugar beet herbicide of trade name Harmony®).
- Designed and piloted process for the continuous depolymerization of polyether glycols (trade name Terethane®). Supervised construction & start-up of the commercial facility.
- Designed, constructed, operated pilot systems simulating modifications to the commercial operations of spunbound polyethylene process (tradename Tyvek®) and a polyester-polyurethane copolymer (tradename Lycra®) depolymerization facility.
- Safety & Occupational Health Excellence Team Leader
- Sulfonyl Urea Process Engineering Creativity Team
- Hydrodechlorination Technology Committee

Ethyl Corporation, Orangeburg, South Carolina

SENIOR R&D ENGINEER, RESEARCH & DEVELOPMENT Sep 1989 – Jul 1990

- Developed, patented, commercialized novel Na/K catalyst and catalytic process for production of an Ibuprofen® pharmaceutical intermediate.

Kraft, Inc., Glenview, Illinois

ENGINEER I / CO-OP STUDENT- R & D DIVISION

Aug 1981 – Aug 1986

- Performed material and energy balances on fuel-grade ethanol process in Melrose, MN (ultrafiltration, reverse osmosis, fermentation, and azeotropic distillation).
- Supported R&D processes at the R&D facility in Glenview: extrusion, ultrafiltration, evaporation, emulsification, spray drying, and other food processing technologies.

PEER-REVIEWED PUBLICATIONS

1. Use of ¹⁴C-labeled N-nitrosodimethylamine and liquid scintillation counting to enable lab-scale adsorption studies. D. A. Amidei, K. D. Sanchez, P. K. Andersen, D. A. Rockstraw, G. Sun, A. Y. Yau, C. E. Brewer, *MethodsX* (in review).
2. Corrected rate law for sulfite oxidation mechanism with ethanol-inhibition, D. A. Rockstraw, *Industrial & Engineering Chemistry Research*, **51**(35), p. 11587 (2012).
3. Old Dead Guy Trading Cards, D. A. Rockstraw, *Chemical Engineering Education*, **46**(1), Winter 2012.
4. Synthesis of Nanowires by Spray Pyrolysis, K. C. Pingali, S. Deng, and D. A. Rockstraw, *Journal of Sensors*, Article ID 683280, 2009, doi: 10.1155/2009/683280.
5. Synthesis of Ru-Ni Core-Shell Nanoparticles for Potential Sensor Applications, S. Deng, K. C. Pingali, D. A. Rockstraw, *Institute of Electrical and Electronics Engineers Sensors Journal: Nanosensors for Defense and Security*, **8**(5-6), pp. 730-734 (2008).
6. Synthesis and Thermal Stability of Carbon Supported and Carbon Coated Ru-Ni Core-and-Shell Nanoparticles, K. C. Pingali, S. Deng, D. A. Rockstraw; *Powder Tech.*, **187** (2008) 19–26.
7. Effect of Ammonium Nitrate on Nanoparticle Size Reduction, K. C. Pingali, S. Deng, D. A. Rockstraw; *Research Letters in Nanotechnology*, Volume 2008, Article ID 756843, doi:10.1155/2008/756843.
8. Direct Synthesis of Ru-Ni Core-Shell Nanoparticles by Spray-Pyrolysis: Effects of Temperature and Precursor Constituent Ratio, K. C. Pingali, S. Deng, D. A. Rockstraw; *Powder Technology*, **183**(2), p.282-289 (2008).
9. Deposition of Ru-Ni-S Nanoparticles on Carbon by Spray-Pyrolysis: Effects of Solvent, K. C. Pingali, S. Deng, D. A. Rockstraw; *Current Nanoscience*, 2007, **3**, 215-221.
10. Physicochemical properties of carbons prepared from pecan shell by phosphoric acid activation, Y. Guo and D. A. Rockstraw, *Bioresource Tech.*; 98(8), 1513-1521. (May 2007).
11. Direct synthesis of Ru-Ni nanoparticles with core-and-shell structure, K. C. Pingali, S. Deng, D. A. Rockstraw; *Chemical Engineering Communications*, **194**(6), 780-786 (2007).
12. Activated carbons prepared from rice hull by one-step phosphoric acid activation, Y. Guo and D. A. Rockstraw, *Microporous & Mesoporous Matls*, **100**(1-3); 12-19, March 23, 2007.
13. Synthesis of carbon nanoparticle thin film with spray pyrolysis, K. C. Pingali, S. Deng, D. A. Rockstraw; *New Mexico Journal of Science*, **44**, 149-163, August 2006.

14. Physical and chemical properties of carbons synthesized from xylan, cellulose, and Kraft lignin by H₃PO₄ activation, Y. Guo, D. A. Rockstraw, *Carbon*, **44**(8); 1464-1475 (July 2006).
15. Silver nanoparticles from ultrasonic spray pyrolysis of aqueous silver nitrate, K. C. Pingali, D. A. Rockstraw, S. Deng; *Aerosol Science & Technology*, **39**:1010–1014, 2005.
16. ASPEN Plus® in the Chemical Engineering Curriculum: Suitable Course Content and Teaching Methodology, D. Rockstraw, *Chemical Engineering Education*, **39**(1), Winter 2004.
17. A Generating Equation for Mixing Rules and Two New Mixing Rules for Interatomic Potential Energy Parameters, A. K. Al-Matar, D. A. Rockstraw, *Journal of Computational Chemistry*; **25**(5), p.660-668 (April 2004).
18. Rapid oxidation of sulfide mine tailings by reaction with potassium ferrate, M. Murshed, D.A. Rockstraw, A.T. Hanson, M.D. Johnson, *Environ. Pollution*, **125**(2), 245-253 (Sep 2003).
19. A model for adsorption of multiple metal ion solutes in aqueous solution onto carbon produced from pecan shells, S.A. Dastgheib, D.A. Rockstraw, *Carbon*, **40**(11), 1853-61 (2002).
20. Copper and strontium adsorption by a novel carbon material manufactured from pecan shells; RA Shawabkeh, DA Rockstraw, RK Bhada, *Carbon*, **40**(5), 781-786 (2002).
21. Rare Earths and Actinides: Science, Technology and Applications IV, (ISBN: 0-87339-470-4), Bautista and Mishra, editors, "Vitrified Magnesite Dissolution and Its Impact on Plutonium Residue Processing," K.W. Fife, J.L. Alwin and D.A. Rockstraw, pp. 123-135.
22. Pecan shell activated carbon: synthesis, characterization, & application for removal of Cu from aqueous solution, S. A. Dastgheib, D.A. Rockstraw, *Carbon*, **39**(12), 1849-55 (2001).
23. Modeling Substrate Particle Degradation by Bacillus Coagulans Biofilm, S. Rajagopalan, D. Rockstraw, S. M. McGee, *Bioresource Tech.*, **61**, (1997).
24. An Integrated Course/Project in Chemical Process Design, D.A. Rockstraw, S. Bellner, J.A. Eakman, N. Nabours, *Chemical Engineering Education*, **31**(1), Spring 1997.
25. Use of Electrodialysis to Remove Acid, Salt, & Heavy Metal Mixtures from Aqueous Solutions, D.A. Rockstraw, J.F. Scamehorn, *Separation Science. & Tech.*, **32**(11), (1997).
26. An Integrated Electrodialysis/Evaporation Process for the Treatment of Aqueous Process Streams Containing Electrolytes, D.A. Rockstraw, J.F. Scamehorn, E.A. O'Rear III, *J. of Membrane Science*, **52** (1990) 43-56.

OTHER PUBLICATIONS AND/OR PRESENTATIONS

1. *With a Grain of Salt: Crystallization and Dissolution in Salt Attack*. E. Liefeld, D. A. Rockstraw, P. Taylor, G. Figeroua, D. Ellis, Earth USA 2019 Conference, Santa Fe, NM Oct. 25-27, 2019.
2. *Brewing Education & Training* (Topical Conference: Food Innovation & Engineering). Chairs: Catherine E. Brewer, David A. Rockstraw, American Institute of Chemical Engineers National Meeting, October 29-31, 2018, Pittsburgh, PA.
3. *Designing a Brewery Engineering Minor within Chemical Engineering to Meet MBAA Specifications*; David Rockstraw, Catherine E. Brewer, and Stephen Taylor, American Institute of Chemical Engineers National Meeting, October 29-31, 2018, Pittsburgh, PA.

4. *Development of the New Mexico State University Brewery Engineering program of study in Chemical Engineering*, David A. Rockstraw, Oklahoma University Department of Chemical & Biological Engineering Graduate Seminar, Norman, OK, October 16, 2018 (invited).
5. *Teaching Safety in Research through a Rigorous Experimental Safety Program*, J. Miller and D.A. Rockstraw, 2018 Am. Society of Engineering Educ., June 24-27, 2018, Salt Lake City, UT.
6. *Industrial Safety Curriculum for Chemical Engineering Education*, J. Miller & D.A. Rockstraw, Am. Institute of Chemical Engineers Natl Meeting, Oct. 30, 2017, Minneapolis, MN.
7. *Experimental Safety Plan (ESP) for Safety Management in Chemical Engineering Research*, Juanita Miller, David Rockstraw, Martha Mitchell, and Derrick Wootton, Institute of Chemical Engineers National Meeting, October 30, 2017, Minneapolis, MN.
8. *A Field Kit and Methodology for Detecting and Measuring Salts in Adobe*, Eric Liefeld and David Rockstraw, Earth USA 2017; Santa Fe, NM, Sept. 29 – Oct. 1, 2017
9. *Salt Migration Rates in Adobe Walls Constructed of Mesilla Valley Soils*, David Rockstraw, Pat Taylor, Eric Liefeld, Earth USA 2017; Santa Fe, NM, Sept. 29 – Oct. 1, 2017
10. *Additive Manufacturing of Mechanoluminescent Materials* (LA-UR- 17-26157), Matthew Martinez and David Rockstraw, 2nd Annual Ultrascale Systems Research Center, Los Alamos National Laboratory, August 3, 2017.
11. *Alliance of Faculty and EHS towards Safety Goals*, D. Wootton and D.A. Rockstraw, Campus Safety, Health, & Environmental Management Assoc. (CSHEMA), July 15, 2017, Tucson, AZ.
12. *Electrochemical Conversion of CO₂ to Formic Acid Using Rotating Lead Electrode*, David Rockstraw, Reyad Shawabkeh, Aban Sakheta, American Institute of Chemical Engineers National Meeting, November 16, 2016, San Francisco, CA.
13. Panel: What You Need to Know about Being an Expert Witness (invited panelist), Chemical Engineering & the Law Forum, American Institute of Chemical Engineers National Meeting, November 14, 2016, San Francisco, CA.
14. Panel: Ethics and Expert Witnessing for Scientists & Engineers (invited panelist), Daniel B. Jett Chapter of the American Society of Civil Engineers, November 4, 2016, Las Cruces, NM.
15. *Generating Perchlorate and N-Nitrosodimethylamine Isotherms Using Pecan Shell Activated Carbons*; J. Freeh, J. Rodriguez, D. A. Rockstraw, C. E. Brewer, American Institute of Chemical Engineers National Meeting, Salt Lake City, UT, November, 11, 2015.
16. *Generating Perchlorate and N-Nitrosodimethylamine Isotherms Using Pecan Shell Activated Carbons*; J. Freeh, D. Amidei, D. A. Rockstraw, C. E. Brewer, 13th Annual International Workshop on Environment and Alternative Energy, European Space Agency, Madrid, Spain, November, 11, 2015.
17. *Remediating Salt Attack in Adobe and Earthen Structures*; E. Liefeld, D. A. Rockstraw, G. Henry, Earth USA 2015 Conference, Santa Fe, NM Oct. 2-4, 2015.
18. *Understanding, Detecting, Measuring, and Remediating Salt Attack (Salt Weathering) in Adobe and Earthen Structures*; D. A. Rockstraw, S. Cooper, E. Liefeld, G. Henry, Earth USA 2013 Conference, Santa Fe, NM, Oct. 4-5, 2013.
19. Teach Your Students the Power of Aspen Plus® and Aspen HYSYS® with University Teaching Modules; D. A. Rockstraw, C. Yip, and B. Gochenour, AspenTech Webinar series, Oct 2 2013.

20. Incorporating Process Simulation Across the Chemical Engineering Curriculum to Improve Student Performance On the Capstone Design Project, American Institute of Chemical Engineers Conference, Pittsburgh, PA Oct. 28 - Nov 2, 2012.
21. Continuing Our Journey to Bridge the Process Safety Gaps Between Academia and Industry (Paper 232e), Bruce K. Vaughen, Thomas O. Spicer, D. Morrison, James A. Klein, and David A. Rockstraw, American Institute of Chemical Engineers Conference, Minneapolis, MN, Oct. 16-21, 2011.
22. Mentoring STEM Students (panel member), presented by The NMSU Teaching Academy on Thursday, September 15, 2011.
23. Recruiting & Interacting with Students; Erin Reyes (NSPE), David Rockstraw (NMSU), and Terrance Glunt (FDOT), NSPE Leadership Webinar Series, Nov. 11, 2010.
24. Photocatalytic Activity of TiO_2 and $\text{TiO}_2\text{-xCxNy}$ Thin Films From Polymer Assisted Deposition, S. Baber, Q. Lin, V. Daram, D. A. Rockstraw, S. Deng, H. Luo, American Institute of Chemical Engineers Conference, Salt Lake City, UT, Nov. 7-12, 2010.
25. Workshop: How to Make Meetings Worthwhile and Entertaining, Michelle Wilson, Alicia Aguirre, David Rockstraw, Jessica Houston, American Institute of Chemical Engineers Conference, Salt Lake City, UT, November 6, 2010.
26. Deposition Of Ru-Ni-S Nanoparticles On Carbon By Spray-Pyrolysis: Effects Of Solvent And Other Processing Parameters, K. C. Pingali, S. Deng, D. A. Rockstraw, American Institute of Chemical Engineers Conference, Salt Lake City, UT, Nov. 4-9, 2007.
27. Synthesis of Ru-Ni Core-Shell Nanoparticles for Sensor Applications, S. Deng, K. C. Pingali, D. A. Rockstraw, Nanoelectronic Devices for Defense and Security conference, organized by the U. S Army Edgewood Chemical Biological Center (ECBC) & U.S. Army Research Office (ARO) in Washington DC, June 18-21, 2007.
28. Water Distillation in a Solar Still, E. Sandoval, A. De La O, D.A. Rockstraw; American Institute of Chemical Engineers Conference, San Francisco, CA; Nov. 12-17, 2006.
29. Synthesis of core-shell nanoparticles and mathematical modeling of exponential relation of particle size variation with precursor concentration, K.C. Pingali, S. Deng, D.A. Rockstraw; Am. Institute of Chemical Engineers Conference, San Francisco, CA; November 12-17, 2006.
30. Formation of Ru-Ni core-and-shell nanoparticles by spray pyrolysis and effect of temperature and precursor constituent ratio on particle size; K. C. Pingali, S. Deng, D. A. Rockstraw; The 14th International Conference on Composites/NANO Engineering Conference, Boulder, CO; July 2-7, 2006.
31. Synthesis of binary metal nanoparticles of Ru-Ni with core and shell structure; K. C. Pingali, S.Deng, D. A. Rockstraw, Particle Technology Forum, American Institute of Chemical Engineers Conference, Cincinnati, OH; October 30-November 4, 2005.
32. Effect of Ammonium Nitrate on Average Size Reduction of Nanoparticles of Silver and Nickel; K. C. Pingali, S.Deng, D. A. Rockstraw, Nanoscale Science and Engineering Forum, American Institute of Chemical Engineers Conference, Cincinnati, OH; October 30-November 4, 2005.

33. Suitable Course Content and Pedagogy for use of the Aspen Plus® Simulator in the Chemical Engineering Curriculum, D.A. Rockstraw, 2004 American Society of Engineering Education National Meeting, Salt Lake City, UT, June 20-23, 2004.
34. Rapid oxidation of sulfide mine tailings by reaction with potassium ferrate, D.A. Rockstraw, M. Murshed, A.T. Hanson, M.J. Johnson, Int. Symposium on Chemical Reaction Engineering, Chicago, IL, June 6-9, 2004.
35. Synthesis and characterization of TiO₂ aerogel photocatalysts for environmental remediation technologies, D.A. Rockstraw, G.K. Newman, M. Dreyer, S. J. Kersey, II Encuentro Científico Internacional de Invierno - ECI2003i, Lima Peru Jan 2-5, 2003.
36. Adsorption of 2,4-dinitrophenol and 2,4-dinitrotoluene from aqueous system using surfactant-modified, lignocellulosic-based activated carbon, A. D. Cota-Espericueta, D. Rockstraw, 224th ACS National Meeting, Boston, MA, August 18-22, 2002.
37. A Generating equation for Mixing Rules for the Interatomic Potential Parameters and a New Mixing Rule for the Noble Gases, American Institute of Chemical Engineers National Meeting, Poster Session: Applying Molecular Simulations and Computational Chemistry, Ali K Al-Matar, David A Rockstraw, Reno, NV, November 2001.
38. **2001 AIChE Extra:** "The Expert Witness: An Alternative Career Path for the Chemical Engineer," D. A. Rockstraw, Ph.D., P.E.
39. Adsorption of metal ions onto oxidized, activated carbon produced from pecan shells, in single and multicomponent systems, S.A. Dastgheib, D. A. Rockstraw, 219th American Chemical Society National Meeting, San Francisco, CA, March 27, 2000
40. Adsorption of aromatics on pecan-shell-based carbon, D.A. Rockstraw and L.A. Roybal, 219th American Chemical Society National Meeting, San Francisco, CA, March 27, 2000
41. Solution to the 1999 AIChE National Student Design Contest, D.A. Rockstraw, S.P. Bellner, American Institute of Chemical Engineers National Meeting, Dallas, TX, November 1, 1999.
42. Vitrified Magnesite Dissolution and its Impact on Plutonium Residue Processing, K.W. Fife, J.L. Alwin, D.A. Rockstraw, 129th Minerals, Metals, and Materials Society, Nashville, TN, March 12-16, 2000.
43. Real-Time Densitometer for Implementation in Hanford Tanks, M Corpening, K Anderson, DA Rockstraw, Waste Management '99; Tucson, AZ, February 28 - March 4, 1999.
44. Enhanced Pyrite Destruction and Copper Recovery with Fe(VI), A. Al-Matar, J. Alwin, J. Kearns, D.A. Rockstraw, Waste Management '99 Proceedings, Tucson, AZ, February 28 - March 4, 1999.
45. A Novel Lignocellulosic-Based Carbon Material for Separation of Ionic Species from Aqueous Solutions, D. A. Rockstraw, R. Shawabkeh, R. K. Bhada, TechnoVentions '98, Orlando, FL, December 9-12, 1998.
46. Synthesis & Characterization of Phosphate-Based Zirconium/Titanium Mixed Oxide Catalysts, D. K. Kambhampati, D. A. Rockstraw, N. Jackson, S. Thoma, poster presentation at the 2nd World Congress on Environmental Catalysis Conference, Miami, FL, November 1998.

47. One-Step Sol-Gel Synthesis of Sulfated Zirconium/Titanium Phosphate Solid Acid Catalysts, D. K. Kambhampati, D. A. Rockstraw, N. Jackson, S. Thoma, American Institute of Chemical Engineers National Meeting Proceedings, Miami, FL, November 15-19, 1998.
48. Treatment of Copper Mine Tailings by Slurry Approach: A Case Study, D.K. Kambhampati, R. Mallapragada, K.G. Raganathan, R.K. Bhada, D.A. Rockstraw, Environmental Engineering & Management Proceedings, Barcelona, Spain, September 30 – Oct. 2, 1998,
49. Synthesis & Characterization of Carbon from Pecan Shells, D. Rockstraw, Center for Applied Energy Res., Univ of Kentucky, Lexington, KY, April 23, 1998 (invited).
50. Use of Pecan Shells in the Chemical Industry, DA Rockstraw, R Shawabkeh, RK Bhada, D Binkley, XXXII Annual Western Pecan Conference, Las Cruces, NM, March 9, 1998 (invited).
51. Groundwater Remediation with Pecan Shell-Based Activated Carbon and Montmorillonite Clay, J. Alwin, D. Rockstraw, Waste Management '98, Tucson, AZ, Feb 28 - March 4, 1998.
52. Interaction of Micelles with Ion-Exchange Membranes, M. Nelson, D.A. Rockstraw, M. Montoya, J.F. Scamehorn, Am. Inst. Chem. Engrs, Los Angeles, CA, Nov. 16-21, 1997.
53. An Interdisciplinary Course in Design, D.A. Rockstraw, American Chemical Society, Emerging Technologies in Hazardous Waste Management, Special Session WERC: Bringing Environmental Excellence into the 21st Century, Pittsburgh, PA, September 15-17, 1997.
54. Reduction of BOD in Pecan Process Water using Foam Flotation, D.A. Rockstraw, National Pecan Sheller's Association Annual Meeting, Charleston, SC, September 12, 1997 (invited).
55. Removal of Reactive Dyes from Water, D.A. Rockstraw, El Paso Water Users Consortium Meeting, El Paso, TX, July 16, 1997 (invited).
56. Synthesis and Characterization of Phosphate-Based Solid Acid Catalysts, N. Jackson, D.A. Rockstraw, D.K. Kambhampati, S. Thoma, North Amer. Catalysis Society Proceedings, Chicago, IL, May 19-23, 1997.
57. An Activated Carbon Manufactured by Novel Techniques, R. Shawabkeh, D. A. Rockstraw, R. K. Bhada, NMSU Graduate Student Symposium, Las Cruces, NM, May 2, 1997 (First Place).
58. Activated Carbon Manufactured by Novel Technique, DA Rockstraw, R Shawabkeh, RK Bhada, Waste-management Education & Research Consortium/Hazardous Substances Res. Consortium Joint Conference on the Environment, Albuquerque, NM, April 22-24, 1997.
59. Micellar-Enhanced Electrodialysis for Water Treatment, D.A. Rockstraw, J.F. Scamehorn, Waste-management Education and Research Consortium / Hazardous Substances Research Consortium Joint Conference on the Environment, Albuquerque, NM, April 22-24, 1997.
60. A Course in Chemical Process Design, D.A. Rockstraw, J.A. Eakman, S. Bellner, N. Nabours, Am. Soc. of Engineering Educ./Gulf SW Section Proceedings, Houston, TX, Mar. 23-25, 1997.
61. Activated Carbon Manufactured by Novel Techniques, DA Rockstraw, R Shawabkeh, RK Bhada, American Institute of Chemical Engineers Spring Mtg, Houston, TX, March 9, 1997.
62. Activated Carbon From Pecan Shells for Water Treatment, D.A. Rockstraw, R. Shawabkeh, Poster Presentation, XXXI Annual Western Pecan Conf., Las Cruces, NM, Mar. 9-11, 1997.
63. Get Real! That Way by Design, D. Rockstraw, S. Bellner, J. Eakman, N. Nabours, Am. Institute of Chemical Engineers, Free Forum on Engineering Educ., Chicago, IL, Nov. 11-15, 1996.

64. Harvest, Steam Percolation, & Composting Radioactive Flora, M. Pagedar, D. Rockstraw, Waste Management 97, Tucson, AZ, March 2-7, 1996.
65. Effect of Biofilm Parameters on Growth in Solid State Fermentation Processes, S. Rajagopalan, J. Modak, D. Rockstraw, American Institute of Chemical Engineers, Biochemical Engineering Poster Session, Chicago, IL, November 11-15 1996.
66. Are Constant Biofilm Parameters Models Valid? S. Rajagopalan, D. Rockstraw, American Society for Microbiology, Microbial Biofilms Conference, Salt Lake City, UT, October, 1996.
67. An Industrial Challenge: Case Study in Technology Commercialization, D.A. Rockstraw, University of Oklahoma School of Chemical Engineering and Materials Science Seminar, Norman, OK, Mar. 9, 1995 (invited).
68. An Integrated Electrodialysis/Evaporation Process for the Treatment of Aqueous Process Streams Containing Electrolytes, D.A. Rockstraw, J.F. Scamehorn, E.A. O'Rear III, American Institute of Chemical Engineers Fall National Meeting; San Francisco; CA; November 1989.
69. Characterization of Electrodialysis for the Removal of Acids, Salts and Heavy Metal Mixtures from Aqueous Solutions, D.A. Rockstraw, J.F. Scamehorn, American Institute of Chemical Engineers Summer National Meeting Proceedings; Philadelphia, PA; September 1989.
70. Removal of Dissolved Metals from Water Using Electrodialysis, D.A. Rockstraw, J.F. Scamehorn, "10th American Electroplaters and Surface Finishers & EPA Conference on Environmental Control for the Metal Finishing Industry," Orlando, FL, January 23-25, 1989.
71. Use of Electrodialysis to Clean Abandoned Zn Mine Water in NE Oklahoma: Characterization of Multi-Component Systems Containing Species of Mixed Valences, D.A. Rockstraw, J.F. Scamehorn, Annual Generic Meeting of the Bureau of Mines; Reno, NV, May 1989.
72. The Use of Electrodialysis to Clean Water from Abandoned Zinc Mines in Northeast Oklahoma: Characterization of Single Component Systems, Annual Bureau of Mines Generic Meeting, Golden, CO, May 1988.

PATENTS

- 6,225,256, May 1, 2001, Activated carbon feedstock.
- 5,157,186, Oct 20, 1992, Catalytic Coupling of an Alkene with an Aromatic.
- 5,104,843, Apr 14, 1992, Catalyst Composition for Coupling Process.

PROFESSIONAL SERVICE

American Institute of Chemical Engineers (AIChE)

- Fellow, 2015; Fellow's Council (2016 – 2019)
- Faculty Advisor to NMSU Student AIChE Chapter, 2007-2020
 - Outstanding Chapter recognition; 2008, 2009, 2010, 2011, 2016, 2018, 2019

National Society of Professional Engineers

- Board of Directors (Interest Groups representative), 2013 - 2015
- House of Delegates (PEHE representative), 2012 - 2014
- Education Foundation Trustee, 2013 – 2015
- Licensure and Qualifications to Practice Committee, 2013 – 2015
- Legislative & Government Affairs Committee, 2014 - 2015
- Chair, Professional Engineers in Higher Education (PEHE) Interest Group, 2010-11
- SW Region Vice Chair, Professional Engineers in Higher Education (PEHE), 2008-09

New Mexico Society of Professional Engineers

- Faculty Advisor to the NSPE@NMSU Student Chapter, 2010-2015
- Governor of Educational Practice (2000-2010)

HONORS & AWARDS

- Frank Bromilow Award for Teaching Excellence, 2016
- AIChE Fellow, 2015
- NMSU Roush Teaching Award, 2014
- NMSU Environmental Health & Safety “Friend of Safety” Award, 2014
- Robert Davis Distinguished Professorship, 2013
- NMSU Distinguished Achievement Professor Award, 2012
- Ed and Harold Foreman Engineering Education Excellence Award, 2012
- National Society of Professional Engineers, Professional Engineers in Higher Education Engineering Education Excellence Award, 2009
- E-Council Outstanding Engineering Professor Award, 2008
- AspenTech® Educational Innovation Award, 2004
- Outstanding Faculty Member, voted by the 2001 CH E graduating class
- Research Grand Prize, American Academy Environmental Engineers, 1998
- Level II DuPont Safety Sentinel Award, 1995.
- DuPont Partnering Recognition for Suva® HFC development: 1992, 1991

SERVICE ACTIVITIES

Performed article reviews for the following journals (not exhaustive):

- *Applied Surface Science*
- *Advances in Environmental Res.*
- *BioResource Technology*
- *Biotechnology Research*
- *Chemical Engineering Education*
- *Chemical Engineering Journal*
- *Chemosphere*
- *Colloids & Surfaces*
- *Environmental Technology*
- *Fuel Processing Technology*
- *Fire and Materials*
- *Industrial Crops and Products Industrial & Engineering Chemistry Res.*
- *International J. of Scientific Res.*
- *Journal of Physical Chemistry*
- *Journal of Membrane Science*
- *J. of Taiwan Institute of Chem. Engineers*
- *Journal of Environmental Management*
- *Langmuir*
- *Separation Science and Technology*

Proposal Review for funding organizations (not exhaustive):

- National Science Foundation, Div. of Chemical & Transport Systems
- American Chemical Society - Petroleum Research Fund Type AC
- US Civilian Research and Development Foundation
 - *Arab Science & Technology Foundation's Iraq R&D Initiative*
 - *Independent States of the Former Soviet Union*
 - *Moldovan - U.S. Bilateral Grants Program*
 - *International Science and Technology Center (Ukraine)*
- U.S. Department of Agriculture Phase I and Phase II SBIR
- Oklahoma Center for Advancement of Science & Technology
- Canada Foundation for Innovation

Civic activities

- Mesilla Valley Preservation, Inc. (mvpres.org); Director, 2010 - present
- Town of Mesilla Planning, Zoning, & Historical Appropriateness Commissioner; 2009 – 11
- Las Cruces Inline Hockey Association; Founder and Director; 2000 - 08