THE UNIVERSITY OF TEXAS AT AUSTIN
Cockrell School of Engineering

R. Bruce Eldridge

James R. Fair Process Science and Technology Center Head and Distinguished Senior Lecturer

Department of Chemical Engineering

EDUCATION:

The University of Arkansas	Chemical Engineering	BSChE	Summer 1980
The University of Arkansas	Chemical Engineering	MSChE	Fall 1981
The University of Texas at Austin	Chemical Engineering	PhD	Summer 1986

PROFESSIONAL REGISTRATION: Texas Professional Engineer (PE #82416)

CURRENT AND PREVIOUS ACADEMIC POSITIONS:

The University of Arkansas	Assistant Professor	Fall 1986 - Spring 1987
The University of Texas at Austin	Senior Lecturer	Sum. 1996 – Sum. 2008
The University of Texas at Austin	Distinguished Sr. Lecturer	Fall 2008 – present
The University of California-Berkeley	Visiting Lecturer	Spring 2014 / Sum.2016
The Univ. of California-Santa Barbara	Visiting Professor	Fall 2022

OTHER PROFESSIONAL EXPERIENCE:

The University of Texas at Austin	PSTC Head	Jan. 2008 - present
The University of Texas at Austin	Separations Research Program Head	Sum. 1996 - Dec. 2007
Phillips Petroleum Co.	Process Engineer	Sept. 1981 - Dec. 1983
Phillips Petroleum Co.	Research Engineer	May 1987 - May 1996

HONORS AND AWARDS:

Stice, Wissler, Schechter - *TEAChE* undergraduate teaching award (2015, 2009)
Fellow American Institute of Chemical Engineers (elected 2010)
The University of Arkansas Academy of Chemical Engineering (2008) - Director (2010) - Chair (2012)
Young Engineer of the Year–Oklahoma Society of Professional Engineers (1993)
Young Engineer of the Year–Bartlesville Chapter of OSPE (1993)
Graduate Student Research Award – AIChE Separations Division – Luke Macfarlan recipient (2022)
Graduate Student Research Award – AIChE Separations Division – Mike Basden recipient (2014)
Graduate Student Research Award – AIChE Separations Division – Scott Owens recipient (2009)
Graduate Student Research Award – AIChE Separations Division – Jianjun Peng recipient (2002)
Graduate Student Research Award – AIChE Separations Division – Carolyn Schmit recipient (2000)

PROFESSIONAL SOCIETY AND MAJOR GOVERNMENTAL COMMITTEES:

Member AIChE EBPC (2012- 2014)
Meeting Program Co-chair AIChE Spring 2013 National Meeting
Chair, AIChE Separations Division (2002-2003)
Vice-Chair, AIChE Separations Division (2001-2002)
Director of AIChE Separations Division (1997-2000)
Chair, AIChE Bartlesville Oklahoma Section (1991-1992)
AIChE Continuing Education Program (1998-2004)

COMMUNITY ACTIVITIES:

Various youth and children's ministry activities at Bethany United Methodist Church including:
Taught elementary Sunday school (1996-2003)
Lead youth confirmation small group (2006-2009)
Taught Vacation Bible School (2001-2005)
Participated and coordinated youth mission trip to rural Tennessee (2002-2009)

Active with Mobile Loaves and Fishes – a homeless outreach program (2008-2014)
Active with Feed My People – urban Austin homeless outreach program (2010- 2014)
ROHI Rio Grande Valley (Mexico) outreach ministry (2008-2009)
Riverbend Church El Salvador mission program (2010-2018)

PUBLICATIONS:

A. Refereed Archival Journal Publications (while at The University of Texas at Austin)

46. N. J. Czarnecki, L. Giannetti, S.A. Owens, S. Barnicki, and R. B. Eldridge, "Enery and Economics of Wall Placement for Divided Wall Distillation Columns," *Industrial & Engineering Chemistry Research*, **63**, 18513-18524 (2024).

45. Jeffrey A. Weinfeld, R. Bruce Eldridge, and Scott Owens, "Development of an Industrial Reactive Dividing Wall Column Process Through Laboratory-scale Experimentation and Modeling," *Chemical Engineering and Processing: Process Intensification*, **189**, 109380 (2023).

44 N. J. Czarnecki, S.A. Owens, and R. B. Eldridge, "Extractive Dividing Wall Column for Separating Azeotropic Systems: A Review," *Industrial & Engineering Chemistry Research*, **62** (14), 5750−5770 (2023).

43. L. H. Macfarlan, M.T. Phan, R. B. Eldridge, "A Volume-of-Fluid Methodology for Interfacial Mass Transfer," Chemical *Engineering Science*, **275**, 118720 (2023).

42. J.A. Weinfeld, R. B. Eldridge, and S.A. Owens, "Evaluation of the Aldol Condensation of Propionaldehyde as a Reactive Dividing Wall Column Test System," *Industrial & Engineering Chemistry Research*, **61** (23), 8220−8232 (2022).

41. L. Macfarlan, M. T. Phan, and R. B.Eldridge, "Methodologies for Predicting the Mass Transfer Performance of Structured Packing with Computational Fluid Dynamics: A Review," *Chemicals Engineering and Processing – Process Intensification*, (172), pg.108798, 2022.

40. L. Macfarlan, M. T. Phan, and R. B. Eldridge, "Structured Packing Geometry Study for Liquid-Phase Mass Transfer and Hydrodynamic Performance Using CFD," *Chemical Engineering Science*, 249, pg. 117353, 2022.

39. L. Macfarlan, A.F. Seibert, M.T. Phan, R. B. Eldridge, "CFD-based Study on Structured Packing Geometry", *Chem. Eng. Sci.,* (243) pg. 116767, 2021.

38. M. Walk, J. Hamacher, J.J. Downs, S.M. Miller, S.A. Owens, R. B. Eldridge, "Validation of Differential Temperature Control for Dividing Wall Distillation Column", *Ind. Eng. Chem. Res.,* (60) pg. 1341, 2021.

37. M.M. Donahue, M. Baldea, R. B. Eldridge, "Steady State Considerations for Designing Minimum Energy Control Strategies for a Dividing Wall Distillation Column with Trace Components", *Chem. Eng. and Processing: Process Intensification,* (145) pg. 107641, 2019.

36. M.M. Donahue, J.J. Downs, M. Baldea, R. B. Eldridge, "Managing Trace Components in a Dividing Wall Distillation Column: An Experimental Study", *Ind. Eng. Chem. Res.,* (58) pg. 12687, 2019.

35. J.A. Weinfeld, S. A. Owens, R. B. Eldridge, "Reactive Dividing Wall Columns: A comprehensive review", Chem. Eng. and Processing: Process Intensification., (123) pg. 20, 2018.

34. M.M. Donahue, B.J. Roach, J.J. Downs, T. Blevins, M. Baldea, R. B. Eldridge, "Dividing Wall Column Control: Common Practices and Key Findings", *Chem. Eng. and Processing: Process Intensification,* (107) pg. 106, 2016.

33. R.F. Morrison, N. Lipscomb, P. Ginn, R. B. Eldridge, "Rhenium Oxide Base Olefin Metathesis", *Ind. Eng. Chem. Res.,* (53) pg. 19136, 2014.

32. M. Basden, R. B. Eldridge, J. Farone, E. Feng, D. S. Hussey, D. L. Jacobson, "Liquid Holdup Profiles in Structured Packing Determined via Neutron Radiography", *Ind. Eng. Chem. Res.,* (52) pg. 17263, 2013.

31. S. A. Owens, M R. Perkins, K.W. Schulz, R. A. Ketcham, R. B. Eldridge, "Computational Fluid Dynamic Simulation of Structured Packing" *Ind. Eng. Chem. Res.,* (52) pg. 2032, 2013.

30. R.E. Tsai, A.F.Seibert, R.B.Eldridge, and G.T. Rochelle, "A Dimensionless Model for Predicting the Mass Transfer Area of Structured Packing" AIChE J., (57) pg. 1173-1183, 2011.

29. J. Chen, E.L. Rosen, C.W. Bielawski, R. B. Eldridge, "A Study of Cu(I)- Ethylene Complexation for Olefin-Paraffin Separation" AIChE J., (57) pg. 630-644, 2011.

28. A. M. Kunjapur, R.B. Eldridge, " Review: Photobioreactor design for commercial biofuel production," *Ind. Eng. Chem. Res*., (49) pg.3516 – 3526, 2010.

27. S. A. Owens, A. Kossmann, J. Farone, R. A. Ketcham, R. B. Eldridge, "Flow Field Visualization in Structure Packing Using Real Time X-ray Radiography," *Ind. Eng. Chem. Res*., (48) pg. 3606-3618, 2009.

26. R. E. Tsai, P. Schultheiss, A.Kettner, G. T. Rochelle, J. C. Lewis, A. F. Seibert, R. B. Eldridge, "Influence of Surface Tension on Effective Packing Area," *Ind. Eng. Chem. Res*., (47) pg. 1253-1260, 2008.

25. C. W. Green, J. Farone, J. K. Briley, R. B. Eldridge, R. A. Ketcham, B. Nightingale, "Novel Application of X-ray Computed Tomography: Determination of Gas/Liquid Contact Area and Liquid Hold-up in Structured Packing," *Ind. Eng. Chem. Res*., (46) pg. 5734-5753, 2007.

24. L. M. Rueda, T. F. Edgar, R. B. Eldridge, "A Novel Control Methodology for a Pilot Plant Azeotropic Distillation Column," *Ind. Eng. Chem. Res.,* (45) pg. 8361-8372, 2006.

23. T. A. Reine, R. B. Eldridge, "Adsorption Equilibrium and Kinetics for Ethylene-Ethane Separation with a Novel Solvent," *Ind. Eng. Chem. Res*., (44) pg. 7505-7510, 2005.

22. T. A. Reine, W. M. Edwards, B. Wang, J. J. Lagowski, R. B. Eldridge, "Use of Electrochemistry to Predict Ethylene Absorption Capacities of Reactive Absorption Systems," *Ind. Eng. Chem. Res*., (43) pg. 6514-6520, 2004.

21. S. Lextrait, T. F. Edgar, R. B. Eldridge, "Steady-State Rate-Based Simulation of Packed Reactive Distillation: Spatial Discretization," *Ind. Eng. Chem. Res*., (43) pg. 3855-3869, 2004.

20. C. Schmit, R. B. Eldridge, "Investigation of X-Ray Imaging of Vapor-Liquid Contactors. 1. Studies Involving Stationary Objects and a Simple Flow System," *Chem. Eng. Sci.,* (59) pg. 1255-1266, 2004.

19. C. Schmit, J. Perkins, and R. B. Eldridge, "Investigation of X-Ray Imaging of Vapor-Liquid Contactors. 2. Experiments and Simulations of Flows in an Air-Water Contactor," *Chem. Eng. Sci.,* (59) pg. 1267-1283, 2004.

18. J. J. Peng, T. F. Edgar, R. B. Eldridge, "Dynamic Rate-based and Equilibrium Models for a Packed Reactive Distillation Column," *Chem. Eng. Sci.,* (58) pg. 2671-2680, 2003.

17. E. Olivier, R. B. Eldridge, "Prediction of Trayed Distillation Column Mass-Transfer Performance by Neural Networks," *Ind. Eng. Chem. Res*., (41) No. 14, pg. 3436-3446, 2002.

16. J. J. Peng, S. W. Lextrait, T. F. Edgar, R. B. Eldridge, "A Comparison of Steady State Equilibrium and Rate-Based Models for Packed Reactive Distillation Columns," *Ind. Eng. Chem. Res*., (41) No. 11, pg. 2735-2744, 2002.

15. Schmit, D. Cartmel, and R. B. Eldridge, "The Experimental Application of X-ray Tomography to a Vapor-Liquid Contactor," *Chem. Eng. Sci.,* (56) pg. 3431-3441, 2001.

14. C. Schmit, D. Cartmel, and R. B. Eldridge, "Process Tomography: An Option for the Enhancement of Packed Vapor-Liquid Contactor Model Development," *Ind. Eng. Chem. Res*. (39) No. 6, pg. 1546-1553, 2000.

13. G. S. Pollock, R. B. Eldridge, "Neural Network Modeling of Structured Packing Height Equivalent to a Theoretical Plate," *Ind. Eng. Chem. Res*. (39) No. 5, pg. 1520-1525, 2000.

12. A. Whaley, C. Bode, J. Ghosh, R. B. Eldridge, "HETP and Pressure Drop Prediction for Structured Packing Distillation Columns Using a Neural Network Model," *Ind. Eng. Chem. Res*. (38) No. 4, pg. 1736-1739, 1999.

11. R. B. Eldridge and J. R. Fair, "Sieve-Tray Extractor Continuous-Phase Mixing," *Ind. Eng. Chem. Res*., (38) No. 1, pg. 218-222, 1999.

10. D. R. Safarik, R. B. Eldridge, "Olefin/Paraffin Separation by Reactive Absorption: A Review," *Ind. Eng. Chem. Res*., (37) No. 7, pg. 2571-2581, 1998.

B. Refereed Archival Journal Publications (prior to joining The University of Texas at Austin)

9. R. B. Eldridge, R. E. Babcock, "Oil Contaminant Removal from Drill Cuttings," *Proceedings of the Third Annual International Petroleum Environmental Conference*, Albuquerque, New Mexico, Vol. 1, pg. 667-671, 1996.

8. R. B. Eldridge, "Oil Contaminant Removal from Drill Cuttings by Supercritical Extraction," *Ind. Eng. Chem. Res*., (36) No. 6, pg. 19011905, 1996.

7. G. R. Patton, R. O. Dunn, B. Eldridge, "Phillips Petroleum Co. High Conversion TAME Process," *HTI Quarterly*, Autumn, pg. 21-27, 1995.

6. R. B. Eldridge, "The Phillips Petroleum Company Industrial Experience Program," *Chemical Engineering Education,* (29) No. 1, pg. 18-21, Winter 1995.

5. R. B. Eldridge, C. W. Simpson, and D. J. Elliott, "Groundwater Air Stripping–Effect on Water Toxicity," *AIChE Environmental Progress*, (14) No. 1, pg. 25-27, Spring 1994.

4. R. B. Eldridge, "Olefin/Paraffin Separation Technology–A Review," *Ind. Eng. Chem. Res*. (32) No. 10, pg. 2208-2212 (1993).

3. S. D. Booth-McGee, R. B. Eldridge, and J. L. Turpin, "Application of Traditional Mass Transfer Algorithms to a Bioextraction Process," *Ind. Eng. Chem. Res*., (28) No. 12, pg. 1868-1873, 1989.

2. A. Velaga, L. J. Thibodeaux, K. T. Valsaraj, D. M. Moncada, R. B. Eldridge, and J. S. Cho, "Packed Crisscross Flow Cascade Tower Efficiencies for Methanol-Water Separations. Experimental Versus Calculated Values Based on Countercurrent Flow Correlations," *Ind. Eng. Chem. Res*., (27) No. 8, pg. 1481-1487, 1988.

1. R. B. Eldridge, J. L. Humphrey, J. R. Fair, "Continuous-Phase Mixing on Crossflow Extraction Sieve Trays," *Separation Science and Technology*, 22 (2&3), pg. 1121-1134, 1987.

ORAL PRESENTATIONS:

A. Invited presentations while at The University of Texas at Austin

6. "The Process Science and Technology Center," Sandia National Laboratory, May 2007.

5. "On-going Separations Research at The University of Texas," Los Alamos National Lab, May 2007.

4. "The University of Texas Separations Research Program," NASA Johnson Space Center, June 2004.

3. “Advanced Hydraulic and Mass Transfer Models for Distillation Column Optimization and Design,” AIChE South Texas Section Distillation Symposium, April 2004.

2. “X-ray Computed Tomography Applied to Structured Packing,” Air Products R&D, June 2003.

1. “Reactive Distillation Principals and Processes” Sasol R&D, October 2002.

B. Contributed presentations while at The University of Texas at Austin (speaker listed first)

38. N. Czarnecki, R. B. Eldridge, “Economics and Energy Usage Comparison of Conventional and Dividing Wall Distillation Columns”, AIChE Spring Meeting , New Orleans, Louisiana, (2024)

37. L. Macfarlan, R.B. Eldridge, Novel Modeling of Liquid Phase Hydrodynamics and Mass Transfer in Structured Packings” AIChE Spring Meeting , New Orleans, Louisiana, (2024)

36. J. Weinfeld, R.B. Eldridge, S, A. Owens, “Reactive Distillation in a Dividing Wall Column”, AIChE Spring Meeting, San Antonio, Texas (2022).

35. J. Weinfeld, R. B. Eldridge, “Lab-scale Experimentation and Simulation of a Reactive Dividing Wall Column” AIChE Virtual Spring Meeting (2020).

34. L. Macfarlan, R.B. Eldridge, M. Phan, “Advanced Modeling of Structured Packing Development – B: Mass Transfer” AIChE Virtual Spring Meeting (2020).

33. M. Phan, L. Macfarlan, R.B. Eldridge, , “Advanced Modeling of Structured Packing Development – A: Hydraulics” AIChE Virtual Spring Meeting (2020).

32. M. Donahue, R. B. Eldridge, M. Baldea, “Controlling Trace Impurities in a Dividing Wall Distillation Column” AIChE Spring Meeting, New Orleans, Louisiana (2019).

31. M. Phan, R.B. Eldridge, “Computational Fluid Dynamics (CFD) Simulations of Multiphase Flow Through Representative Elementary Units (REU) of Structured Packing” AIChE Spring Meeting, Orlando, Florida (2018).

30. M. Donahue, R.B. Eldridge, M. Baldea, “Using a Dividing Wall Distillation Column to Isolate Trace Impurities*”* AIChE Spring Meeting, Orlando, Florida (2018)

29. M. Donahue, M. Baldea, R.B. Eldridge, “Experimental Studies Controlling Trace Components in a Dividing Wall Distillation Column*”* AIChE Fall Meeting, Minneapolis, Minnesota (2017)

28. B. Roach, R.B. Eldridge, “Scaling up Dividing Wall Distillation Columns” AIChE Fall Meeting, Minneapolis, Minnesota (2017)

27. C. Andrews, B. Roach, R.B. Eldridge, “Optimizing Dividing Wall Distillation Columns*”* AIChE Fall Meeting, Minneapolis, Minnesota (2017)

26. B. Roach, R.B. Eldridge, C. Andrews, D. Barsotti “Novel Optimization of a Dividing Wall Distillation Column*”* AIChE Spring Meeting, San Antonio, Texas (2017)

25. M. Donahue, M. Baldea, R.B. Eldridge, "Process Intensification and Distillation: How to Control a Fixed Design Dividing Wall Distillation Column*"* AIChE Fall Meeting, San Francisco, California (2016)

24. B. Roach, R.B. Eldridge, "Dividing Wall Distillation Steady State Model Validation" AIChE Spring Meeting, Austin, Texas (2015)

23. M. Basden, C. Waas R.B. Eldridge, "Simulated Pressure Drop in Structured Packing: Experimental Validation and Impact of Packing Geometry," AIChE Annual Meeting, Atlanta, Georgia (2014)

22. B. Roach, R.B. Eldridge, "Fundamental Investigation of Divided Wall Distillation through Pilot Column," AIChE Annual Meeting, Atlanta, Georgia (2014)

21. M. Basden, R.B. Eldridge, "The Impact of Joint Rotation Angle on the Performance of Mellapak N250Y," AIChE Spring Meeting, Houston, Texas (2012)

20. R. Morrison, R.B. Eldridge, "Olefin Production via Reactive Distillation Based Olefin Metathesis," AIChE Annual Meeting, Salt Lake City, Utah (2010)

19. R.E. Tsai, A. F. Seibert, R. B. Eldridge and G.T. Rochelle, "A Dimensionless Model for Predicting the Mass Transfer Area of Structured Packing," AIChE Annual Meeting, San Antonio, Texas (2009)

18. S.A. Owens, R. B. Eldridge, "Advanced Analysis of Structured Packing Via Computational Fluid Dynamics ," AIChE Annual Meeting, San Antonio, Texas (2009)

17. R.B. Eldridge, "CO_2 Capture Myth and Legend," AIChE Annual Meeting, Philadelphia, Pennsylvania (2008).

16. M. G. Mphahlele, R. B. Eldridge, "Distillation Column Flooding Predictor," AIChE Annual Meeting, Orlando, Florida (2006).

15. T. A. Reine, R. B. Eldridge, "Absorption Equilibrium and Kinetics for Ethylene-Ethane Separation with a Novel Solvent," AIChE Annual Meeting, Austin, Texas (2004).

14. C. W Green, R. B. Eldridge, "Hydraulic Characterization of Stainless Steel Structured Packing via X-ray Computed Tomography," AIChE Annual Meeting, Austin, Texas (2004).

13. L. M. Rueda, T. F. Edgar, R. B. Eldridge, "On-line Parameter Estimation and Control for a Pilot Scale Distillation Column," AIChE Annual Meeting, Austin, Texas (2004).

12. J. J. Peng, S. W. Lextrait, T. F. Edgar, R. B. Eldridge, "Equilibrium vs. Rate Based Models for TAME Reactive Distillation," AIChE Annual Meeting, New Orleans, Louisiana (2002).

11. R. B. Eldridge, "Separation Process Technology Education–What Next??" AIChE Annual Meeting, Los Angeles, California (2000).

10. R. B. Eldridge, C. Schmit, D. Cartmel, "Vapor-Liquid Contacting Fundamentals via X-ray Tomography," AIChE Annual Meeting, Atlanta, Georgia (2000).

9. G. S. Pollock, R. B. Eldridge, "Neural Network Modeling of Structured Packing HETP," AIChE

Annual Meeting, Dallas, Texas (1999).

8. J. Schell, A. Whaley, R. B. Eldridge, "General Heuristics for the Design of Catalytic Distillation Columns," AIChE Annual Meeting, Miami, Florida (1998).

7. J. Ghosh, A. Whaley, B. Eldridge, "HETP and Pressure Drop Prediction for Structured Packing Distillation Columns Using Neural Network Model," ANNIE 98, St. Louis, Missouri (1998).

C. Contributed presentations prior to joining The University of Texas at Austin (speaker listed first)

6. R. B. Eldridge, R. E. Babcock, "Oil Contaminant Removal from Drill Cuttings," Third Annual International Petroleum Environmental Conference, Albuquerque, New Mexico (1996).

5. R. B. Eldridge, C. W. Simpson, D. J. Elliott; "Groundwater Air Stripping–Effect on Water Toxicity," AIChE Spring National Meeting, Atlanta, Georgia (1994).

4. M. E. Rezac, R. B. Eldridge, P. Rooney, "The Performance of Gauze Structured Packing for Highly Dilute Solute Fractionation," AIChE Spring National Meeting, Orlando, Florida (1990).

3. R. B. Eldridge, T. G. Russell, J. L. Turpin, "Mass Transfer and Pressure Drop in Random and Structured Packings," AIChE Spring National Meeting, Houston, Texas (1989).

2. R. B. Eldridge, J. L. Humphrey, J. R. Fair, "Hydrodynamics of a Section of a Large Sieve Tray Extractor," International Solvent Extraction Conference, Munich, Germany (1986).

1. R. B. Eldridge, L. J. Thibodeaux, "Distillation in a Packed Crossflow Column," Second World Congress of Chemical Engineering, Montreal, Canada (1981).

PATENTS:

US 5110319 Process for extracting ethanol from fermentation broths for direct blending into gasoline while preserving the broth for recycling. The University of Arkansas.

US 5194582 Process to deodorize an odorous poly(mono-1-olefin). Phillips Petroleum Co.

US 5237122 Alkylation catalyst regeneration. Phillips Petroleum Co.

US 5264649 Alkylation catalyst regeneration utilizing polyvinylpyridine and amine substituted styrene divinylbenzene copolymer contact materials. Phillips Petroleum Co.

US 5264647 Alkylation cataylst regeneration. Phillips Petroleum Co.

US 5600024 Enhanced recovery of alcohol from an ether containing stream. Phillips Petroleum Co.

US 6245956 Method for separating sulfone from a hydrocarbon stream having a small concentration of sulfone. Phillips Petroleum Co.

GRANTS AND CONTRACTS: Total project funding while at UT-Austin = $ 20,365,000

Co-Investigators	Title	Agency	Grant Total	Grant Period
None	Separation Process Technology	Los Alamos	$1,500,000	9/1/22-8/31/27
A.F. Seibert	Study of reactive divided wall distillation	Eastman Chemicals	$ 794,446	1/1/22- 12/31/25
A.F. Seibert	Study of reactive divided wall distillation	Eastman Chemical	$ 594,593	1/1/17–12/31/20
A.F. Seibert	Divided wall distillation column process control study	Emerson Process Management	$ 75,000	9/1/12-12/31/18
A.F. Seibert	Divided wall distillation column study (Phase 1 and Phase 2)	Eastman Chemical	$ 797,543	9/1/12-12/31/18
None	Membrane reactor technology	Total	$ 225,000	1/1/10- 5/31/11
PSTC PI's	Process Science and Technology Center.	Industry	$ 8,402,500	1/1/08-12/31/24
None	X-ray based mass transfer contactor flow field visualization.	NSF	$ 151,700	5/1/06 - 4/30/08
None	Model development and experimental support for hydrocarbon production via reactive distillation.	MPM Technology	$ 553,735	8/1/05 - 8/31/10
SRP PI's	Separations Research Program	Industry	$4,770,200	9/1/96 - 5/31/07
None	Vapor-liquid foam control	ExxonMobil	$ 146,800	12/1/04 - 8/31/06
A.F. Seibert	Distillation hybrid technology workshop	AIChE	$ 38,400	1/1/05 - 6/1/05
None	Advanced hydraulic and mass transfer models for distillation	DOE / ORNL	$ 643,300	6/10/04 - 1/30/05
A.F. Seibert	Distillation column flooding predictor	DOE / 2ndPoint	$ 343,500	9/30/02 - 9/29/04

Valmor deAlmeida (ORNL)	Advanced hydraulic and mass transfer models for distillation.	DOE	$ 828,850	6/21/01 - 5/31/04
A.F. Seibert	VX nerve gas neutralizing agent process development	DOD	$ 82,000	8/4/00 - 1/1/01
None	Development of an olefin absorption process	Amoco / KBR	$ 140,000	8/26/98 - 8/25/00
None	X-ray imaging of structured packing	ORNL	$ 10,000	11/17/99 - 12/31/99
Tom Edgar	Alternative alkylation technology	Condea-Vista	$ 100,000	1/1/98 - 12/31/99
Don Paul, Bill Koros	Aromatics recovery by pervaporation	Amoco	$ 109,900	1/1/97 - 12/31/98
A.F. Seibert	Mass transfer efficiency and capacity of packings in distillation service	FRI	$ 57,800	8/1/97 - 2/21/97

PH.D. SUPERVISION COMPLETED: *(co-supervisor)*

Czarnecki, Natalie	2024	Dividing Wall Columns for Separating Azeotropes	Chemical Engineering	UT-Austin
Macfarlan, Luke (Roger Bonnecaze)	2021	Predictions of the mass transfer in structured packing using computational fluid dynamics	Chemical Engineering	UT-Austin
Weinfeld, Jeff (Gary Rochelle)	2020	Reactive distillation in a dividing wall column	Chemical Engineering	UT-Austin
Donahue, Melissa (Michael Baldea)	2018	Controlling trace impurities in a dividing wall distillation column	Chemical Engineering	UT-Austin
Roach, Bailee (Michael Baldea)	2017	A design model for dividing wall distillation columns	Chemical Engineering	UT-Austin
Basden, Mike (Roger Bonnecaze)	2014	Characterization of structured packing via computational fluid dynamics	Chemical Engineering	UT-Austin
Owens, Scott (Roger Bonnecaze)	2010	Advanced analysis of structured packing via computational fluid dynamics simulation.	Chemical Engineering	UT-Austin
Morrison, Ryan (Gary Rochelle)	2010	Olefin production via reactive distillation-based olefin metathesis.	Chemical Engineering	UT-Austin

Tsai, Bob (Gary Rochelle)	2010	Mass transfer area of structured packing.	Chemical Engineering	UT-Austin
Green, Christian (Dave Allen)	2006	Hydraulic characterization of structured packing via x-ray computed tomography.	Chemical Engineering	UT-Austin
Rueda, Lina (Tom Edgar)	2005	Novel process control for a highly non-ideal distillation.	Chemical Engineering	UT-Austin
Reine, Travis (Benny Freeman)	2004	Olefin / paraffin separation by reactive absorption.	Chemical Engineering	UT-Austin
Lextrait, Sebastian (Tom Edgar)	2003	Advanced reactive distillation column model development.	Chemical Engineering	UT-Austin
Schell, John (Tom Edgar)	2002	Modeling and control of reactive distillation for alkylation reactions.	Chemical Engineering	UT-Austin
Peng, Jianjun (Tom Edgar)	2002	Modeling and control of packed reactive distillation columns.	Chemical Engineering	UT-Austin
Schmit, Carolyn (Roger Bonnecaze)	2001	Evaluation of X-ray imaging to investigate hydraulic performance of vapor-liquid contactors.	Chemical Engineering	UT-Austin

M.S. SUPERVISION COMPLETED:

Owens, Scott	2008	Quantitative analysis of vapor phase flow physics in structured packing via X-ray based particle tracking velocimetry.	Chemical Engineering	UT-Austin
Cartmel, Dwight	1997	Investigation of local scale phenomena in vapor liquid contactors using X-ray tomography.	Chemical Engineering	UT-Austin
Booth-McGee, Sharon	1987	Application of traditional mass transfer algorithms to a bio-extraction process.	Chemical Engineering	Univ. of Arkansas

Ph.D.'s IN PROGRESS:

Students admitted to candidacy:

Mary McCorkill (Virginia Tech)
Research Topic: Flow field visualization of a rotating two-phase extraction system.

UNDERGRADUATE RESEARCH SUPERVISION (last 5 years)

(International Scholars)

Johannes Hamacher (TU-Munich) "Dividing Wall Column Experimental Process Control Study" (2020).
Jana Oberlander (TU-Munich) "Examination and Improvement of the Interface in Multiphase VOF CFD Simulation" (2024).
Lorenzo Giannetti (University of Pisa) "Simulation and experimentation campaign of a lab-scale Oldershaw and pilot plant Diving Wall Column" (2024).

(UT-Austin Students)

Ben Broughton, "Reaction Kinetics for a Reactive Distillation Column" (2019)
Mitchel Walk, "Dynamic Model of a Dividing Wall Distillation Column" (2019)

TECHNICAL REVIEWER SERVICE

Journal Review

Science
Journal of Chemical and Engineering Data
Industrial and Engineering Chemistry Research
Chemical Engineering Science
Separations Science and Technology

Proposal Review

ACS Petroleum Research Fund
US Department of Energy
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VITA:

R. Bruce Eldridge currently serves as Program Head of James R. Fair Process Science and Technology Center and as a Distinguished Senior Lecturer in the Department of Chemical Engineering at The University of Texas at Austin. In his capacity as PSTC Head he coordinates the activities of a full-time technical staff and oversees a research program whose principal investigators employ more than forty graduate students. The program enjoys a worldwide reputation as a leader in the investigation and development of mass transfer processes. As a Distinguished Senior Lecturer, Dr. Eldridge teaches courses covering traditional concepts in chemical engineering fundamentals, fluid flow, process design, heat and mass transfer. His teaching approach combines a strong emphasis on chemical engineering principles while promoting a detailed understanding of the applied concepts which are fundamental to professional engineering practice.