

Ertan Agar

CONTACT INFORMATION	Drexel University Mechanical Engineering and Mechanics Science Center 3701 Market Street Room 468 Philadelphia PA, 19104	<i>Phone:</i> (215)-895-1201 <i>Mobile:</i> (215)-279-3019 <i>E-mail:</i> ertan.agar@drexel.edu
RESEARCH INTERESTS	Electrochemical Energy Conversion and Storage; Vanadium Redox Flow Batteries; Reaction Kinetics; Electrochemical Computational Modeling; Proton Exchange Membrane Fuel Cells	
EDUCATION	Drexel University , Philadelphia, PA USA <i>Ph.D.</i> , Mechanical Engineering and Mechanics <i>Supervisor:</i> Dr. E. Caglan Kumbur	(Expected) 2013
	Middle East Technical University , Ankara, Turkey <i>M.Sc.</i> , Mechanical Engineering <i>Thesis Title:</i> 2-D Modeling of a Proton Exchange Membrane Fuel Cell <i>Supervisor:</i> Dr. Derek Baker <i>Co-advisor:</i> Dr. Mehmet Sankır	February, 2010
	Middle East Technical University , Ankara, Turkey <i>B.Sc.</i> , Mechanical Engineering	June, 2007
PROFESSIONAL EXPERIENCE	Drexel University , Dept. Mechanical Engineering and Mechanics, Philadelphia, PA USA <i>Teaching and Research Assistant</i>	March, 2010 - Present
	TOBB University of Economics and Technology , Ankara, Turkey Governmental Project for 1-5 kW PEMFC Design and Development <i>Research Assistant</i>	January, 2009 - January, 2010
	Middle East Technical University , Dept. Mechanical Engineering, Ankara, Turkey <i>Teaching and Research Assistant</i>	September, 2007 - January, 2009
PUBLICATIONS	Journal Papers	
	(1) Chen, D., Hickner, M. A., Agar, Ertan , and Kumbur, E. C. <i>Selective Anion Exchange Membrane for High Coulombic Efficiency Vanadium Redox Flow Batteries</i> , Submitted to Electrochemistry Communications , 2012, in review.	
	(2) Agar, Ertan , Dennison, C. R., Knehr, K. W., and Kumbur, E. C. <i>Identification of Performance Limiting Electrode using Asymmetric Cell Configuration in Vanadium Redox Flow Batteries</i> , Submitted to Journal of Power Sources , 2012, in review.	
	(3) Knehr, K. W., Agar, Ertan , Dennison, C. R., Kalidindi, A. R., and Kumbur, E. C. <i>A Transient Vanadium Flow Battery Model Incorporating Vanadium Crossover and Water Transport through the Membrane</i> , Journal of Electrochemical Society , 159, 2012, A1146-A1459.	
	(4) Baker, D., Agar, Ertan <i>International Summer Engineering Program on Fuel Cells for Undergraduate Engineering Students</i> , International Journal of Hydrogen Energy , 36, 2011, 3712-3725.	

Abstracts and Presentations

- (1) Knehr, K. W., **Agar, Ertan**, Dennison, C. R., Kalidindi, A. R., Chen, D., Hickner, M. A., and Kumbur, E. C. *Role of Membrane Properties on Species Crossover and capacity Loss of a Vanadium Redox Flow Battery*, **221st ECS Meeting**, October, 7 - 12, 2012 Honolulu, Hawaii (Abstract + Presentation)
- (2) **Agar, Ertan**, Dennison, C. R., Kalidindi, A. R., Knehr, K. W., Kumbur, E. C. *Reaction Kinetics of Vanadium Species on Functionalized Carbon-Felt Electrodes of Vanadium Redox Flow Batteries*, **244th ACS National Meeting and Exposition**, August, 19 - 23, 2012 Philadelphia, PA (Abstract + Presentation)
- (3) Knehr, K. W., **Agar, Ertan**, Dennison, C. R., Kalidindi, A. R., Kumbur, E. C. *Performance Modeling of Redox Flow Batteries*, **244th ACS National Meeting and Exposition**, August, 19 - 23, 2012 Philadelphia, PA (Abstract + Presentation)
- (4) **Agar, Ertan**, Knehr, K. W., Kalidindi, A. R., Dennison, C. R., and Kumbur, E. C. *Multi-ionic Transport and Effects of Crossover in Vanadium Redox Flow Batteries*, **221st ECS Meeting**, May, 6 - 10, Seattle, Wa (Abstract + Presentation)
- (5) Knehr, K. W., **Agar, Ertan**, Kalidindi, A. R., Dennison, C. R., Kumbur, E. C. *A Computational Model for Quantification of Species Crossover and Related Losses in Vanadium Redox Flow Batteries*, **ASME 6th Conference of Energy Sustainability**, July, 23 - 26, 2012 San Diego, CA (Presentation only)
- (6) Kalidindi, A. R., **Agar, Ertan**, Dennison, C. R., and Kumbur, E. C. *Investigation of Positive Electrode Kinetics for Vanadium Redox Flow Batteries*, **Drexel Research Day**, April, 19, 2012 Philadelphia, PA (Poster) - **Awarded Best Poster in Physical Sciences and Engineering Category**
- (7) Kalidindi, A. R., Dennison, C. R., **Agar, Ertan**, and Kumbur, E. C. *Investigation of Electrolyte Crossover in Vanadium redox Flow Batteries*, **National Conference for Undergraduate Research**, March, 29 - 31, 2012 Ogden, UT (Presentation only)
- (8) Kalidindi, A. R., **Agar, Ertan**, Dennison, C. R., and Kumbur, E. C. *Reaction Kinetics of Vanadium Species on Carbon Felt Electrodes*, **National Collegiate Research Conference**, January, 19 - 21, 2012 Cambridge, MA (Poster) - **Awarded Most Interdisciplinary Poster**
- (9) Dennison, C. R., Kalidindi, A. R., Biel-Gobel, J. J., Commons, W., **Agar, Ertan**, Knehr, K. W., and Kumbur, E. C. *Ionic Transport and Kinetic Processes in Vanadium Redox Flow Batteries*, **The Forth International Forum on Multidisciplinary Education and Research for Energy Science**, December, 17 - 21, 2011 Honolulu, Hawaii (Abstract + Presentation)
- (10) Knehr, K. W., **Agar, Ertan**, Dennison, C. R., Kalidindi, A. R., and Kumbur, E. C. *Modeling Species Crossover and Related Effects on the Performance of a Vanadium Redox Flow Battery*, **The Forth International Forum on Multidisciplinary Education and Research for Energy Science**, December, 17 - 21, 2011 Honolulu, Hawaii (Abstract + Presentation)
- (11) Dennison, C. R., Knehr, K. W., **Agar, Ertan**, and Kumbur E. C. *Component and Performance Analysis of Vanadium Redox Flow Batteries: Experimental and Modeling Studies*, **2011 AIChE Annual Meeting**, October, 16 - 21, 2011 Minneapolis, MN (Abstract + Presentation)
- (12) **Agar, Ertan**, Knehr, K. W., and Kumbur, E. C. *Simulating Performance and Species Crossover in a Vanadium Redox Flow Battery Using COMSOL Multiphysics*, **COMSOL Conference 2011**, October, 13 - 15, 2011 Boston, MA (Abstract + Presentation)

- (13) **Agar, Ertan**, Knehr, K. W., Dennison, C. R., and Kumbur, E. C. *Investigation of the Performance of Vanadium Redox Flow Batteries: A Macroscopic Modeling Approach*, **220th ECS Meeting and Electrochemical Energy Summit**, October, 9 - 14, 2011 Boston, MA (Abstract + Presentation)
- (14) **Agar, Ertan**, Knehr, K. W., and Kumbur, E. C. *Effects of Crossover on the Performance of a Vanadium Redox Flow Battery*, **5th International Conference on Energy Sustainability**, August, 7 - 10, 2011 Washington, DC (Abstract + Presentation)
- (15) Camci, T., Turkmen, I., Ekiz, A., **Agar, Ertan**, Uslu, S., Baker, D., and Sankir, M. *Modeling of Gas Flow Channels for Proton Exchange Membrane Fuel Cells*, **6th International Green Energy Conference**, June, 5 - 9, 2011 Eskisehir, Turkey (Proceeding + Presentation)
- (16) Knehr, K. W., **Agar, Ertan**, and Kumbur, E. C. *Modeling the Performance of a Vanadium Redox Flow Battery*, **Research Experience for Undergraduates Poster Session**, August, 11, 2011 Philadelphia, PA (Poster)
- (17) Knehr, K. W., **Agar, Ertan**, and Kumbur, E. C. *Modeling a Vanadium Redox Flow Battery*, **Research Experience for Undergraduates Poster Session**, August, 12, 2010 Philadelphia, PA (Poster)
- (18) Baker, D., **Agar, Ertan**, Yeralan, S. *International Summer Engineering Program at METU: A Bridge to Global Competency*, **39th ASEE/IEEE Frontiers in Education Conference**, October, 18 - 21, 2009 San Antonio, TX (Abstract + Presentation)

SKILLS

Programming & Software: COMSOL Multiphysics, Fluent, CFD Post, Mathcad, Mathematica, Key Creator, Open Office, MS Office, L^AT_EX, iWork,

COURSES ASSISTED

METU ME 490-Fuel Cell Fundamentals (Fall07/08), ME 203-Thermodynamics I (Fall07/08), ME 105-Computer Aided Engineering Graphics (Spring07/08)

Drexel University MEM 311-Thermal Fluid Science Laboratory (Spring09/10, Fall10/11, Spring10/11, Fall11/12, Fall12/13), MEM 238-Dynamics (Summer09/10), ENGR 180-Math Practicum for Engineers (Winter10/11, Winter11/12)