ANTHONY J. MARCHESE, Ph.D.

COLORADO STATE UNIVERSITY • FORT COLLINS, CO 80523 • (267) 528-7954

RESEARCH: Combustion, internal combustion engines, alternative fuels, methane emissions from the oil and gas industry, microgravity research, chemical kinetics, biomass cookstoves.

EDUCATION:

Ph.D., Mechanical and Aerospace Engineering — **Princeton University**
Awarded: November 1996 — Princeton, NJ
Thesis Topic: *Microgravity Droplet Combustion*

M.A., Mechanical and Aerospace Engineering — **Princeton University**
Awarded: April 1994 — Princeton, NJ

M.S., Mechanical Engineering — **Rensselaer Polytechnic Institute**
Awarded: May 1992 — Hartford, CT
GPA: 4.00 / 4.00

B.S., Mechanical Engineering — **Rensselaer Polytechnic Institute**
Awarded, Magna cum Laude: December 1989 — Troy, NY
GPA: 3.81 / 4.00

EMPLOYMENT:

Associate Dean for Academic and Student Affairs — **January 2016 - Present**
Walter Scott, Jr. College of Engineering, Colorado State University — Fort Collins, CO

Director, Engines and Energy Conversion Laboratory — **July 2013 - Present**
Associate Department Head for Graduate Studies — **July 2011 - July 2013**
Professor — **July 2015 - Present**

Associate Professor — **January 2008 - June 2015**
Colorado State University, Dept. of Mechanical Engineering — Fort Collins, CO

Executive Director — **January 2004 - July 2007**
South Jersey Technology Park at Rowan University — Glassboro, NJ

Department Chair — **January 2007 - December 2007**
Associate Professor; Assistant Professor — **September 1996 - December 2007**
Rowan University, Dept. of Mechanical Engineering — Glassboro, NJ

Graduate Research Assistant — **September 1992 - August 1996**
Princeton University — Princeton, NJ

Assistant Research Engineer — **December 1989 - September 1994**
United Technologies Research Center — East Hartford, CT

Student Trainee Research Engineer — **June 1987 - September 1989**
NASA Lewis Research Center — Cleveland, OH

EXPERIENCE:

Associate Dean for Academic and Student Affairs — **January 2016 - Present**
Colorado State University, Walter Scott, Jr. College of Engineering — **Fort Collins, CO**

- Provide administration and leadership to the Walter Scott Jr. College of Engineering (SCOE) in the areas of curriculum, academic advising, career placement, cooperative education, diversity programs, engineering residential learning community, student recruiting, summer programs and SCOE events.
- Oversee a permanent staff of nine administrative professionals and 30 student workers with an annual budget of $1.2 Million.
- Direct the Engineering Science program, which is an accredited B.S. program with 5 separate concentrations.
- Serve on Dean's cabinet and SCOE Executive Committee and serve as chief liaison for the SCOE to Admissions and the Vice Provost for Undergraduate Affairs.

E-Mail: marchese@colostate.edu
Web site: http://www.engr.colostate.edu/~marchese

- Currently spearheading several new college wide initiatives including developing a new engineering entrepreneurship program in collaboration with College of Business and designing a new multidisciplinary, 4500 SF Senior Capstone Design and Innovation Center.

Professor and Associate Professor **Jan. 2008 - Present**
Colorado State University, Department of Mechanical Engineering **Fort Collins, CO**

- Director of the CSU Engines and Energy Conversion Laboratory; Founder and Director of the Advanced Biofuels Combustion Laboratory, which focuses on development of bio-derived, drop-in replacements for gasoline, diesel and jet fuel.
- Obtained $17.7 Million in funding ($8.4 Million as Principal Investigator) over a 10 year period from NSF, DOE, EDF, Cummins, Boeing, Chevron and other sponsors.
- Principal Investigator on $1.9 Million project organized by Environmental Defense Fund to quantify total methane emissions from U.S. natural gas gathering and processing.
- Served as Fuel Conversion Team Leader for the National Alliance for Advanced Biofuels and Bioproducts, a $50 Million DOE Algal Biofuel Consortium.
- As Associate Department Head for Graduate Studies, I oversaw the graduate program in Mechanical Engineering, which included recruiting and management activities for a graduate student population of over 100 students. Specific initiatives included the creation of a new Departmental Seminar Series, new Ph.D. qualifying examination process and focused recruitment of a high caliber graduate student body in our departmental strength areas of energy and human health.

Executive Director **January 2005 - July 2007**
South Jersey Technology Park at Rowan University **Glassboro, NJ**

- Oversaw development of the first phase of Rowan University's planned 188-acre, 1.5 million SF research park.
- Managed all day-to-day operations and approved all expenditures of South Jersey Technology Park, Inc., a non-profit 501(c)3 corporation.
- Developed and implemented the strategic, financial and real estate plans of the SJTP.
- Raised $7.3 Million in funds from the DRBA, NJCST, NJDCA, U.S. HUD and U.S. for construction and tenant improvements.
- Directed the programmatic development, architectural design, financing and construction of the 45,000 SF Samuel H. Jones Innovation Center, a $15 million LEED® certified wet-laboratory/office building.

Chair, Associate Professor, Assistant Professor **September 1996 - December 2007**
Rowan University, Department of Mechanical Engineering **Glassboro, NJ**

- Hired in 1996 as the first junior faculty member in the Department of Mechanical Engineering at the newly created College of Engineering at Rowan University.
- Obtained funding for 30 proposals from NASA, NSF, NJDOT, NJDEP, NCIIA, U.S. Navy and private industry for a total of $3.2 Million in external funding.
- Developed the thermal sciences curriculum for the Department of Mechanical Engineering.
- Developed the 8-semester multidisciplinary Engineering Clinic design sequence, which featured a design and project based engineering course every semester for all Rowan engineering students.
- Integrated technical writing and public speaking into the Sophomore Engineering Clinic course and team-taught the course with faculty from Public Speaking and College Writing.
- Created the NSF-funded Competitive Assessment Laboratory and implemented it into the Freshman Engineering Clinic II incorporating product dissection and consumer benchmarking into a multidisciplinary freshman engineering course.

- Created the Rowan Undergraduate Venture Capital Fund for rapid development of original student inventions within the Junior/Senior Engineering Clinic. Raised and distributed $120,000 to undergraduate student teams, oversaw development of student intellectual property (4 patents issued) and mentored student startup companies (3 companies started).

Visiting Faculty Fellow **September 2003 - August 2004**
Princeton University **Princeton, NJ**

- On sabbatical from Rowan University, performed chemical kinetic studies on biodiesel fuels in the Combustion and Fuels Laboratory at Princeton University.

NASA/ASEE Summer Faculty Fellow **June1998 - August 1998**
National Aeronautics and Space Administration **Cleveland, OH**

- Received a NASA Summer Faculty Fellowship to study microgravity flame propagation through layered premixed gas systems. The effort included developing reduced methanol kinetic mechanisms and modifying a two-dimensional liquid pool burning model to include detailed chemistry and transport.

Graduate Research Assistant **September 1992 - August 1996**
Princeton University **Princeton, NJ**

- Developed a numerical model to study the transient, spherically symmetric, combustion of pure and multicomponent alkane and alcohol droplets.
- Performed microgravity droplet combustion experiments using the NASA Glenn 2.2 Second Drop Tower. Developed new data analysis and numerical modeling technique to determine flame structure from measured OH radical chemiluminescence.
- Generated matrix of test conditions for NASA space-based FSDC and DCE droplet combustion experiments launched aboard the space shuttle in November 1995, April 1997 and July 1997, respectively.
- Developed a new chemical reaction mechanism for oxidation and pyrolysis of higher n-alkanes (> 270 citations) and experiments using a variable pressure flow reactor.

Assistant Research Engineer **December 1989 - September 1994**
United Technologies Research Center **East Hartford, CT**

- Performed numerical, analytical, and experimental studies to identify the thermal, structural and fluid dynamic effects of variable speed and high discharge temperature on the operation of positive displacement scroll compressors.
- Specified, oversaw installation, and developed software for a UNIX-based, high speed data system featuring a Concurrent 6700 computer.
- Developed instrumentation and real-time data analysis techniques utilizing thermocouples, heat flux gages, high-response pressure transducers, accelerometers, proximity probes, mass flow meters and acoustic emission sensors.
- Developed 2 inventions describing innovative lubrication, thermal management, and dynamic stabilizing concepts for scroll compressors.

Student Trainee Research Engineer **June 1987- September 1989**
National Aeronautics and Space Administration **Cleveland, OH**

- Completed four full-semester, cooperative education assignments in various branches of the Space Propulsion Technology Division at NASA Lewis Research Center. Received offer for career position as research engineer.

- Developed calibration system and compressible flow analysis software to simplify control valve selection for the Rocket Engine Test Facility at NASA Lewis Research Center. Designed innovative propellant feed system for aluminum/RP-1 metallized gel propellant rocket engine testing.
- Determined the thermodynamic performance of chemical rocket propellants derived from the lunar soil and Martian soil/atmosphere. Assessed the current technology for in-situ production of such propellants in support of a lunar base and/or manned Mars mission.
- Performed detailed trajectory analyses for Earth-to-Mars ion-propelled cargo missions.

CONSULTING:

Princeton University / NASA **September 1996 - September 1998**
Princeton, NJ; Huntsville, AL

- Served as a member of the science support team for the Droplet Combustion Experiment (DCE) which flew aboard the first Microgravity Science Laboratory mission (MSL-1) on Space Shuttle Columbia flights STS-83 and STS-94 in April and July 1997.
- Generated and communicated the science requirements from the Payload Operations Control Center at Marshall Space Flight Center to astronauts as they executed the experiment aboard Columbia during the STS-83 and STS-94 missions.

Kimble Glass **October 1997 - October 1998**
Vineland, NJ

- Performed an experimental and modeling study to determine the operating characteristics of annealing furnaces used in specialty glass manufacturing for the pharmaceutical industry.

CVM Corporation **July 1999 – September 1999**
Wilmington, DE

- Performed analytical calculations for development of a Petroleum Hydrotreating Catalyst Plant, which was under development for installation in Kuwait.

L3 Communications **November 2001-January 2009**
Camden, NJ

- Developed and delivered short courses including Rapid Product Development, Electronic Packaging and Propulsion for engineering trainee program at L3 Communications.

National Collegiate Inventors and Innovators Alliance **January 2006-December 2006**
Amherst, MA

- Developed and delivered workshops on engineering entrepreneurship for the Kern Engineering Entrepreneurship Network (KEEN) grant program.

TEACHING EXPERIENCE:

Advanced Combustion Theory and Modeling*	Spring 2010, Spring 2011, Spring 2013
Sustainable Technology Entrepreneurship*	Spring 2010, Spring 2011
Convection Heat Transfer	Spring 2008, Fall 2009
Thermodynamics	Fall 2001, Fall 2002, Spring 2009, Fall 2010, Fall 2011, Fall 2012
Design for X	Spring 2001, Spring 2005
Gas Dynamics*	Fall 2000, Spring 2003, Spring 2006
Rocket Propulsion*	Spring 2000, Spring 2001, Fall 2005, Fall 2007, Spring 2015
Combustion*	Fall 1999, Fall 2004, Fall 2006, Fall 2008 to Fall 2015
Fluid Mechanics II	Spring 1999
Junior/Senior Engineering Clinic	Fall 1998 to Fall 2007
Freshman Engineering Clinic II	Spring 1997, Spring 1998, Spring 2003, Spring 2007
Solid Mechanics	Fall 1997, Fall 1998, Fall 2001, Fall 2002
Freshman Engineering Clinic I	Fall 1996

Ordinary Differential Equations — Fall 1995
Refrigeration Systems — Summer 1991

* Denotes new courses that I have developed.

PROFESSIONAL MEMBERSHIP

Tau Beta Pi National Engineering Honor Society
Pi Tau Sigma National Mechanical Engineering Honor Society
Sigma Xi, The Scientific Research Society
The Combustion Institute
American Institute of Aeronautics and Astronautics (AIAA)
American Society of Mechanical Engineers (ASME)
Society of Automotive Engineering (SAE)
American Society of Engineering Education (ASEE)
Algae Biomass Organization (ABO)
Association of University Research Parks (AURP)

VOLUNTEER WORK

Board of Directors, Diamond Blackfan Anemia Foundation, Inc.

SERVICE TO THE PROFESSION

Editorial Board Service

Editorial Review Board, *Journal of Algal Research,* 2012 to 2017

Journal Reviews

Reviewer for the *AIAA Journal*
Reviewer for the *AIAA Journal of Propulsion and Power*
Reviewer for the journal *Applied Energy*
Reviewer for the journal *Algal Research*
Reviewer for the journal *Combustion Science and Technology*
Reviewer for the journal *Environmental Pollution*
Reviewer for the journal *Fuel*
Reviewer for the journal *Energy & Fuels*
Reviewer for the journal *Fuel Processing Technology*
Reviewer for *the Journal of Experimental Marine Biology and Ecology*
Reviewer for *Proceedings of the Combustion Institute*
Reviewer for the journal *Biotechnology and Bioengineering*
Reviewer for the textbook *Introduction to Combustion,* by Stephen Turns.
Reviewer for the textbook *Technology Ventures,* by Thomas Byers, et al.
Reviewer for the journal *Environmental Science and Technology*
Reviewer for the *Journal of Physics D: Applied Physics*
Reviewer for the *Journal of the Air and Waste Management Association*
Reviewer for the journal *Combustion and Flame*
Reviewer for the journal *Combustion Theory and Modeling*
Reviewer for the journal *Proceedings of the Royal Society of London*
Reviewer for the journal *Measurement Science and Technology*
Reviewer for the journal *ASME Journal of Heat Transfer*
Reviewer for the *International Journal of Engineering Education*
Reviewer for the *ASEE Journal of Engineering Education*

Conference Paper Reviews

Reviewer for proceedings of the ASEE Annual Meeting, 2001-present

Reviewer for proceedings of the NCIIA Annual Meeting, 2003-present
Reviewer for SAE World Congress, 2004-present
Reviewer for SAE Powertrain and Fluids Meetings, 2005-present
Reviewer for the Thirty-Third Symposium (International) on Combustion
Reviewer for the Thirty-Second Symposium (International) on Combustion
Reviewer for the Thirty-First Symposium (International) on Combustion
Reviewer for the Thirtieth Symposium (International) on Combustion
Reviewer for the Twenty-Ninth Symposium (International) on Combustion
Reviewer for the Twenty-Eighth Symposium (International) on Combustion

Grant and Program Review Panels

Selection Committee, Chairs in Design Engineering, Natural Sciences and Engineering Research Council of Canada, 2014-present
Program Review Committee, National Collegiate Inventors and Innovator's Alliance, Oct. 2001
Peer review panelist for U.S. Civilian Research and Development Foundation (CRDF) Grants, 2003
Program Review Committee for Hewlett Foundation ESWI Grant Program, Nov. 2002
Program Review Committee for Kern Family Foundation Engineering Entrepreneurship, 2004-2005
Peer review panelist for Science Foundation Ireland, November 2015
Peer review panelist for NASA Postdoctoral Program (NPP), April 2012
Peer review panelist for NSF Energy for Sustainability (Biofuels), May 17-18, 2012
Reviewer for Smithsonian Institution and Indo-US Science & Technology Forum (IUSSTF), 2011
Peer review panelist for NSERC Chair in Design Engineering, University of Waterloo. October 2015
Peer review panelist for NSERC Chair in Design Engineering, University of Calgary. November 2013
Peer review panelist for NSERC Chair in Design Engineering, University of Victoria. April 2011
Peer review panelist for NSERC Chair in Design Engineering, Ryerson University, Dec. 2011
Peer review panelist for NSERC Chair in Design Engineering, Ryerson University, Dec. 2008
Peer review panelist for NSF Combustion and Plasma Systems, December 2005, March 2007, Jan. 2014
Peer review panelist for EPA/NSF Pollution Prevention in Fluid and Thermal Systems, May 1997
Peer review panelist for NASA Microgravity Combustion Science Proposals, May 2002
Peer review panelist for NASA Microgravity Combustion Science Proposals, May 2000
Peer review panelist for NASA EPSCoR Microgravity Science Proposals, October 2000
Peer review panelist for NASA EPSCoR Microgravity Science Proposals, January 2001
Peer review panelist for NCIIA/Venture Well, 2001 to present

Conference Organization and Session Chair Activities

Past Program Chair, 11th Algae Biomass Summit, Algae Biomass Organization, 2016
Program Chair, 10th Algae Biomass Summit, Algae Biomass Organization, 2016
Program Vice-Chair, 9th Algae Biomass Summit, Algae Biomass Organization, 2015
Engineering and Analysis Track Chair, 8th Algae Biomass Summit, Algae Biomass Organization, 2014
Technical Organizing Committee, 7th Algae Biomass Summit, Algae Biomass Organization, 2013
Engineering and Analysis Track Chair, 6th Algae Biomass Summit, Algae Biomass Organization, 2012
Technical Organizing Committee, 5th Algae Biomass Summit, Algae Biomass Organization, 2011
Program Committee, 3rd International Conference on Algal Biomass, Biofuels and Bioproducts, 2013
Program Committee, 2nd International Conference on Algal Biomass, Biofuels and Bioproducts, 2012
Program Committee, 1st International Conference on Algal Biomass, Biofuels and Bioproducts, 2011
Session Chair, 3rd International Conference on Algal Biomass, Biofuels and Bioproducts, 2013
Session Chair, 2nd International Conference on Algal Biomass, Biofuels and Bioproducts, 2012
Session Chair, 1st International Conference on Algal Biomass, Biofuels and Bioproducts, 2011
Session Chair, Spring Meeting, Combustion Institute, Western States Section, March 2010
Session Chair, 9th Joint Meeting of the Combustion Institute, May 2015.
Session Chair, 8th Joint Meeting of the Combustion Institute, May 2013.
Session Chair, 7th Joint Meeting of the Combustion Institute, March 2011.

Session Chair, 6th Joint Meeting of the Combustion Institute, May 2009.
Session Chair, SAE Powertrain and Fluids Meeting, October 2006, October 2007, November 2009
Session Chair, Thirty-Third Symposium (International) on Combustion, August 2010
Session Chair, Thirty-Second Symposium (International) on Combustion, August 2008
Session Chair, Spring Meeting, Combustion Institute, Western States Section, March 2008
Session Chair, Fall Meeting, Combustion Institute, Eastern States Section, November 2005
Session Chair, 4th Joint Meeting of the U.S. Sections of the Combustion Institute, March 2005
Session Chair, FIE Annual Conference, October 2006, November 2003
Session Chair, ASEE Annual Conference, Education Research Methods Division, June 2001
Session Chair, ASEE Annual Conference, Entrepreneurship Division, 2001, 2004, 2006, 2007
Session Chair, Twenty-Seventh Symposium (International) on Combustion, August 1998
Session Chair, Fall Meeting, Combustion Institute, Eastern States Section, October 1997

Other Professional Service Activities

Expert Reviewer, EPA Greenhouse Gas Inventory, Natural Gas and Petroleum Systems, 2015 – present
Chair, Western States Section of the Combustion Institute, 2015 – present
Vice Chair/Chair Elect, Western States Section of the Combustion Institute, 2013 – 2015
Secretary, Western States Section of the Combustion Institute, 2009 – 2013
Member of Combustion and Fuels Committee, SAE, 2006-present
Member of the Board of Directors, National Alliance on Advanced Biofuels and Bio-Products
Team Leader, Fuel Conversion, National Alliance on Advanced Biofuels and Bio-Products
Chair, ASEE Entrepreneurship Division, 2000-2001, 2006-2007
F.I.R.S.T. Robot Competition, (Camden High School/Rowan team) 1998, 1999, 2000, 2001, 2002
ASME Leadership Development Intern, Council on Education, 1999

SERVICE TO THE UNIVERSITY

Colorado State University

Advisory Committee on Undergraduate Affairs, Colorado State University, 2016-present
Admissions Advisory Committee, Colorado State University, 2016-present
Education Abroad Advisory Committee, Colorado State University, 2016-present
Associate Dept. Head for Graduate Studies, Department of Mechanical Engineering, 2011 - 2013
College of Engineering Think Tank, Colorado State University, 2009 - 2012
College of Engineering Awards Committee, 2010 - 2011

Rowan University

Intellectual Property Task Force, 2005-2007
Campus Master Plan Steering Committee, 2004-2007
Middle States Accreditation Steering Committee, 2003- 2004
Chair, College of Engineering Clinic Committee, 2001-2002
College of Engineering Promotion Committee, 2003, 2006-2007
College of Engineering Sophomore Clinic Coordinator, 1998-2000
College of Engineering Planning Committee, 2000-2007
Rowan University Senate, 1999-2001
ASME faculty advisor, 1996-1998
Learning Outcomes Assessment Committee member, 1996-1998
Intercollegiate Athletics Committee member, 1998-2000
Advisory Panel, Faculty Center for Excellence in Teaching and Learning, 1996-2001
Advisory Panel, Center for the Study of Student Life and Development, 2000-2002
Curriculum Chair, Department of Mechanical Engineering, 1997-1998
College of Engineering Computer Resources Committee (CRC), 1997-1999

SEARCH COMMITTEES

Colorado State University

Director of Admissions, 2017
Executive Assistant to Dean of Engineering, Search Committee Chair, 2017
Mechanical Engineering Energy Faculty, Search Committee Chair, 2016
Mechanical Engineering Faculty, 2013
Mechanical Engineering Thermal Sciences Faculty Position, 2010
Department Head, Mechanical Engineering, 2009

Rowan University

Rhorer Chair for Entrepreneurial Studies, 2006
Vice President for University Advancement, 2006
College of Engineering Dean, 2000
Director of Faculty Center for Teaching Excellence, 2000
Mechanical Engineering Faculty, 1 Position, 2004
Mechanical Engineering Faculty, 1 Position, 2000
Mechanical Engineering Faculty, 1 Position, 1999
Mechanical Engineering Faculty, 2 Positions, 1998
Mechanical Engineering Faculty, 2 Positions, 1997
Mechanical Engineering Faculty, 1 Position, 1996
Electrical and Computer Engineering Faculty, 1 Position, 2002
Electrical and Computer Engineering Faculty, 2 Positions, 2000
Electrical and Computer Engineering Faculty, 2 Positions, 1997
Electrical and Computer Engineering Faculty, 2 Positions, 1996
Mechanical Engineering Technician, 1 Position, 1997
Mechanical Engineering Technician, 1 Position, 2007
Process Engineering Technician, 1 Position, 1999

AWARDS AND HONORS

CSU Best Teacher Award Nominee, 2009, 2010, 2011, 2012, 2013
ASEE 2004 Kauffman Award for Technology Entrepreneurship, 2004
CASE Professor of the Year, Rowan University Nominee, 2002
NASA Institute for Advanced Concepts, Phase I Fellow, 2002.
Carnegie Scholar, Carnegie Academy for the Scholarship of Teaching and Learning, 2001-2002
ASME Leadership Development Initiative Fellowship, Council on Education, 1999
NASA/ASEE Summer Faculty Fellow, 1998
NASA/ASEE Summer Faculty Fellow, 1999
Honored as the first-ever "Person of the Week" by the Rowan Alumni Association, 1997
Luigi Crocco Prize for Outstanding Teaching Assistant, 1993

WORKSHOPS ATTENDED AND CONTINUING EDUCATION

Babson-Olin Symposium for Engineering Entrepreneurship Educators (SyE^3), June 21-25, 2005.

Mini-Conference on Energy STEM Innovations. NSF Coalition. University of Wisconsin, Madison, WI. May 28-29, 2003.

Entrepreneurship Boot Camp. Rowan University Center for Innovation and Entrepreneurship. Glassboro, NJ. April 2002

Carnegie Academy for the Scholarship of Teaching and Learning, The Carnegie Foundation for the Advancement of Teaching, Menlo Park, CA, 2001, 2002

Roundtable on Entrepreneurship in Engineering Education, Stanford, CA, October 2005.

Roundtable on Entrepreneurship in Engineering Education, Stanford, CA, October 27-29, 2004.

Roundtable on Entrepreneurship in Engineering Education, Stanford, CA, October 5-6, 2000.

1999 Summer Academy, *American Association for Higher Education*, Snowmass Village, CO, July 14-18, 1999

New Century Scholars Workshop, *National Science Foundation*, Stanford, CA, August 1-5, 1999

MEDIA APPEARANCES

Channel 4, KCNC, CBS4 Denver, November 2015. Featured in a story on measurement of emissions from VW vehicles in response to the VW emissions controversy.

NPR Marketplace and *NPR On Point, August 2015.* Interviewed in a segment on methane emissions from natural gas operations and new EPA methane rules.

Channel 4, KCNC, CBS4 Denver, May 2010. Interviewed in a segment on engine testing on bio-butanol produced from pine beetle kill.

Channel 10, WCAU, Philadelphia. August 2002. Interviewed in a segment describing an experiment built by Rowan Engineering students, which flew aboard NASA's KC135 reduced gravity aircraft.

Channel 6, WPVI, Philadelphia. April 2001. Interviewed in a segment describing the development of the Engineering College at Rowan and describing an experiment built by Rowan Engineering students, which flew aboard NASA's KC135 reduced gravity aircraft.

Channel 17, WPHL, Philadelphia. Sept. 1999. Appeared in a segment describing an experiment built by Rowan Engineering students, which flew aboard NASA's KC135 reduced gravity aircraft.

Channel 17, WPHL, Philadelphia. April l 1997. Interviewed in a segment on the evening news on Channel 17, WPHL, Philadelphia. The interview explained my research and discussed its relevance to the fire aboard the Russian Space Station, Mir.

NJN, New Jersey's Public Television Station. July 1997. Interviewed in a long segment on the evening news for NJN, New Jersey's public television station prior to the STS-94 Space Shuttle mission.

My experimental work has been featured in various newspaper articles in numerous newspapers including The New York Times, The Newark Star Ledger, Gloucester County Times, Atlantic City Press, Mount Olive Chronicle, Courier Post, Philadelphia Inquirer, the Fort Collins Coloradoan, the Denver Post, the Boulder Weekly, the Bloomberg Markets magazine.

The Rowan Undergraduate Venture Capital Fund has been featured in dozens of articles in newspapers such as the Philadelphia Inquirer, Star Ledger, Atlantic City Press, Courier Post, Gloucester County Times, etc. and in national publications such the ASME *Mechanical Engineering* magazine. My student's work in microgravity boiling heat transfer has been featured in the Philadelphia Inquirer, Gloucester County Times and the Courier Post.

PERSONAL INTERESTS

Baseball, soccer, golf, hiking, mountain biking, drawing/painting, guitar.

INVENTIONS

U.S. Pat. # 5,366,352*;* *Thermostatic Compressor Suction Inlet Duct Valve*, with R. L. DeBlois and D. G. Cutts; Awarded: November 22, 1994.

U.S. Pat. # 5,256,044; *Scroll Compressor with Improved Axial Compliance*, with J. J. Nieter, and R. L. DeBlois; Awarded: October 26, 1993.

U.S. Pat. # 8,899,222; *Cook Stove Assembly*, with M. Defoort, B. Willson and D. Lionberg. Awarded: December 2, 2014.

U.S. Pat. # 8,973,442; *Thermophoretic Sampler*, with John Volckens, Gary Casuccio, Henry P. Lentz, John T. Mastovich, Daniel David Miller-Lionberg and Judith Chun-Hsu Yang. Awarded: March 10, 2015.

U.S. Pat. # 9,618,439; *Thermophoretic Sampler*, with John Volckens, Gary Casuccio, Henry P. Lentz, John T. Mastovich, Daniel David Miller-Lionberg and Judith Chun-Hsu Yang. Awarded: April 17, 2017.

TECHNICAL SESSIONS, WORKSHOPS AND CONFERENCES ORGANIZED

Conference Organizer, GTI CH_4 Connections, Fort Collins, CO, December, 2017

Program Chair, 10th Annual Algae Biomass Summit, Phoenix, AZ, October, 2016.

Program Vice-Chair, 9th Annual Algae Biomass Summit, Washington, DC, October, 2015.

Engineering and Analysis Track Chair, 8th Annual Algae Biomass Summit, San Diego, CA, October, 2014.

Organizer and Session Chair, "Conversion of Algae Biomass and Lipids into Fuels, 8th Annual Algae Biomass Summit, San Diego, CA, October, 1, 2014.

Conference Organizer and Host, Fall 2013 Technical Meeting of the Western State Section of the Combustion Institute, 2013

Organizer and Session Chair, "Conversion of Whole Algal Biomass into Liquid Fuels via Hydrothermal Processes", 7th Annual Algae Biomass Summit, Orlando, FL, September 30, 2013.

Organizer and Session Chair, Third International Conference on Algal Biomass, Biofuels and Bioproducts, June 16-19, 2013, Toronto, Canada.

Organizer and Panelist, .Marchese, A. J. (2012). Optimized Biodiesel. 2012 Biodiesel Technical Workshop of the National Biodiesel Board. Kansas City, MS, October 31, 2012.

Engineering and Analysis Track Chair, 6th Annual Algae Biomass Summit, Denver, CO, September, 2012.

Organizer and Session Chair, "New Conversion Technologies for Algal Biomass", 6th Annual Algae Biomass Summit, Denver, CO, September 27, 2012.

Organizer and Session Chair, "New Conversion Technologies for Algal Biomass ", Second International Conference on Algal Biomass, Biofuels and Bioproducts, June 10-13, 2012, San Diego, CA.

Organizer, "Alternative Fuels", 2012 SAE Powertrain, Fuels and Lubricants, Fall 2012, Europe.

Organizer and Session Chair, "Harvesting and Extraction Processes", 5th Annual Algae Biomass Summit, Minneapolis, MN, October 15-17, 2011.

Organizer and Session Chair, "New Conversion Technologies for Algal Biomass ", First International Conference on Algal Biomass, Biofuels and Bioproducts, July 17-21, 2011, St. Louis, MO.

Instructor, "Sustainable Vision Teaching Laboratory", An NSF Sponsored Workshop, Colorado State University, June 2011

Organizer and Panelist, "Conversion of Algae Biomass and Lipids into Practical Fuels", 4th Annual Algae Biomass Summit**,** Phoenix, AZ, September 28-30, 2010.

Organizer and Session Chair, "Alternative Fuels", 2010 SAE Powertrain & Fluid Systems, November 2010, San Diego, CA

Organizer and Session Chair, "Alternative Fuels", 2009 SAE Powertrain & Fluid Systems, November 2009, San Antonio, TX

Organizer, "Compression Ignition Performance with Alternative Fuels", 2009 International SAE Powertrain & Fluid Systems, October 2009, Florence, Italy.

Organizer, 2nd National Capstone Design Conference, Boulder, CO, June 2010

Organizer and Session Chair, "Alternative Fuels", 2008 SAE Powertrain & Fluid Systems, October 2008, Chicago, IL

Organizer and Session Chair, "Alternative Fuels", 2007 SAE Powertrain & Fluid Systems, October 2007, Chicago, IL.

Organizer and Panelist, "Toward a Common Standard Rubric for Evaluating Capstone Design Projects", 1st National Capstone Design Conference, Boulder CO, June 2007.

Organizer and Session Chair, "Diesel Emissions: Emissions Measurement", 2006 SAE Powertrain & Fluid Systems, October 16 – 19, 2006 Toronto, Ontario, Canada

Panelist, "From E team funding to Venture Capital: Creating Bridging Alternatives for Technology Commercialization", National Collegiate Inventors and Innovators Alliance, Tenth Annual Meeting, Portland, OR, March 2006.

Panelist, "Commercialization of Undergraduate Intellectual Property: A Comparison to the Research University Model", National Collegiate Inventors and Innovators Alliance, Tenth Annual Meeting, Portland, OR, March 2006.

Workshop Organizer and Leader, "Innovative Entrepreneurship Programs", Roundtable On Entrepreneurship Education for Scientists and Engineers, Stanford University, Stanford, CA, October 2005.

Panelist, "Commercialization of University Intellectual Property: Variations in Approaches of Research (Doctoral), Comprehensive (Masters) and Liberal Arts Institutions", National Collegiate Inventors and Innovators Alliance, Ninth Annual Meeting, San Diego, CA, March 2005.

Panelist, "Understanding Student Empowerment and Promoting Student Learning through the Scholarship of Teaching and Learning", Association of American Colleges and Universities, Philadelphia, PA, November 2004.

Panelist, "Best Practices in Engineering Entrepreneurship Education", Roundtable On Entrepreneurship Education for Scientists and Engineers, Stanford University, Stanford, CA, October 2004.

Panelist, "Challenges in Diversity - Gender, Class and Ethnicity: Strategies for Teaching & Learning. The Professions", Carnegie Fellows' Notre Dame Diversity Conference, South Bend, IN, November 2002.

Organizer and Session Chair, "Reinventing the Design Curriculum", National Collegiate Inventors and Innovators Alliance, Fourth Annual Meeting, Washington, DC, March 2000.

Organizer and Session Chair, "Crossing Interdisciplinary Boundaries: Impediments and Enablers to Faculty Collaboration and Integration", Eighth AAHE Conference on Faculty Roles and Rewards, New Orleans, LA, February 2000.

Panelist, "Innovation in Engineering Education: What Makes Innovation Possible and Sustainable", Frontiers in Education Conference, Kansas City, MO, October 2000.

GRADUATE STUDENTS SUPERVISED

Graduate Advisor – Ph.D.

Marc, Baumgartner, Ph.D., 2014, "Characterizing Fuel Reactivity in Advanced Combustion Engines", Colorado State University.

Torben Grumstrup, Ph.D., 2014, "NO_x Formation in Methyl Ester, Alcohol and Alkane Droplet Autoignition and Combustion: PLIF Measurements and Detailed Kinetic Modeling, Colorado State University.

Esteban Hincapie, Ph.D., 2014, "Development of a Continuous Flow Ultrasonic Harvesting System for Microalgae", Colorado State University.

Andrew Hockett, Ph.D., 2015, "A Computational and Experimental Study on Combustion Processes in Natural Gas/Diesel Dual Fuel Engines", Colorado State University.

Jessica Tryner, Ph.D., 2016, "Combustion Phenomena in Biomass Gasifier Cookstoves", Colorado State University, Expected.

Timothy Vaughn, Ph.D., 2017, "Modeling Methane Emissions from U.S. Natural Gas Operations: National Gathering Station Emission Factor Development and Facility/Regional Top-Down and Bottom-Down Reconciliations", Colorado State University.

Ciprian Dumitrache, Ph.D., 2017, "Novel Laser Ignition Technique Using Dual-Pulse Pre-Ionization, Colorado State University (Co-Advisor).

Colin Gould, Ph.D. Candidate, 2017, Colorado State University, Expected.

Graduate Advisor – M.S.

Fred Hovermann, M.S., 2003 "Development of a New Apparatus to Measure Flame Spread through a Free-Stratified Fuel/Air Mixture", Rowan University.

Jason Hearne, M.S., 2004, "School Bus Idling and Mobile Diesel Emissions: Effect of Fuel Type and Development of a Mobile Test Cycle", Rowan University.

Andrew Toback, M.S., 2005, "Diesel Emission Reduction Strategies for School Buses and Heavy Duty Diesel Vehicles: Exhaust After Treatment", Rowan University.

Sarina Colligan, M.S., 2005, "Emissions Measurements and Life Cycle Analysis of Biodiesel and ULSD for Recycling and Trash Vehicles", Rowan University.

Marcos Villa-Gonzalez, M.S., 2005, "Two-dimensional Propagating Edge Flames, Rowan University.

Matthew Hammill, M.S., 2005, "Ignition Delay of Oxygenated Fuel Droplets: Development of a 1 Second Drop Tower and 1-g Results", Rowan University.

Timothy Vaughn, M.S., 2006, "Ignition Delay of Biodiesel and Biodiesel Surrogate Fuel Droplets", Rowan University.

Mark Wessel, M.S., 2007, "Microgravity Ignition Delay of Bio-Ester Fuel Droplets", Rowan University.

David McKenna, M.S., 2008, "Mobile Emissions Measurements from Biodiesel Blends in Diesel Locomotives", Rowan University.

Bethany Fisher, M.S., 2009, "Characterization of Gaseous and Particulate Emissions from Combustion of Algae Based Methyl Ester Biodiesel", Colorado State University.

Daniel Thayer, M.S., 2010, "A Personal Thermophoretic Sampler for Collection and Analysis of Airborne Nanoparticles", Colorado State University.

Harrison Bucy, M.S., 2011, "Oxidative Stability of Algal Methyl Esters", Colorado State University.

Kelly Fagerstone, M.S., 2011, "Measurement of Direct Nitrous Oxide Emissions from Microalgae Cultivation Under Oxic and Anoxic Conditions", Colorado State University.

Kristen Naber, M.S., 2012, "FTIR Spectroscopy of Methyl Butanoate-Air and Propane-Air Low Pressure Flat Flames, Colorado State University.

David Martinez, M.S., 2012, "A Reduced Chemical Kinetic Mechanism for Computational Fluid Dynamic Simulations of High BMEP, Lean Burn, Natural Gas Engines", Colorado State University.

Andrew Thompson, MS, 2014, Colorado State University, "The Effect of Altitude on Turbocharger Performance Parameters for Heavy Duty Diesel Engines: Experiments and GT-Power Modeling", MS, 2014, Colorado State University.

Matthew O'Connell, MS, 2014, Colorado State University, "Statistical Analysis of the Challenges to High Penetration of Wind Energy", MS, 2014, Colorado State University.

Nathan Loveldi, MS, 2014, "Development of a Solid Human Waste Semi-gasifier Burner for Use in Developing Countries", Colorado State University.

Sean Ryan, MS, 2016, "Design and Fabrication of a 3-D Printable Counter-Flow/Precipitation Heat Exchanger for use with a Novel Off-Grid Solid State Refrigeration System", Colorado State University.

Andrew Boissiere, MS, 2016, "Effect of Additives on Laser Ignition and Compression Ignition of Methane and Hydrocarbons in a Rapid Compression Machine", Colorado State University.

Thomas Falloon, MS, 2016, "The Effect of Fuel Additives in a Natural Gas and Gasoline Engine", Colorado State University.

Thor Hogberg, MS, 2017, "The effects of ambient air injection on particulate matter emissions in high firepower chimney cookstoves, Colorado State University.

Kelly Banta, MS, 2017, "Corrosion Testing of Alloys for Biomass Cookstove Combustors", Colorado State University.

Stacey Dufrane, MS, 2017, "Optimization of Daytime Fuel Consumption for a Hybrid Diesel and Photovoltaic Industrial Microgrid", Colorado State University.

Maxwell Flagge, MS, 2017, "Development of a Combustion System for Fecal Materials", Colorado State University.

Siddhesh Bhoite, MS, 2017, "A Computational Study of Autoignition, Spark Ignition and Dual Fuel Droplet Ignition in a Rapid Compression Machine", Colorado State University.

Caleb Elwell, MS, 2017, "Improving the Cold Temperature Properties of Tallow-Based Methyl Ester Mixtures Using Fractionation, Blending and Additives", Colorado State University.

James Tillotson, MS, 2017, Colorado State University, Expected.

Alyssa Aligata, MS, 2018, Colorado State University, Expected.

Jeffrey Mohr, MS, 2018, Colorado State University, Expected.

Andrew Zdanowicz, MS, 2019, Colorado State University, Expected.

Brenna King, 2019, MS, Colorado State University, Expected.

Graduate Committee – Ph.D.

Landon Owen, Ph.D. Candidate, CSU, 2018, Expected

Carlos Quiroz, Ph.D. Candidate, 2018, Expected

Saeid Aghahossein Shirazi, Ph.D. Candidate, 2018, Expected.

Adam Friss, Ph.D. Candidate, CSU, 2017, Expected.

Alexander Stanton, Ph.D. Candidate, CSU, 2017, Expected.

Kelsey Bilsback, Ph.D. Candidate, CSU, 2017, Expected.

Laurie McHale, Ph.D. Candidate, CSU, 2017, Expected.

Aron Dobos, Ph.D., CSU, 2016.

John Field, Ph.D., CSU, 2015.

Ben Geller, Ph.D., CSU, 2014.

Dijiang Liu, Ph.D., CSU, 2014.

Liaw Batan, Ph.D., CSU, 2014.

Steve Brown, Ph.D., CSU, 2014.

Jason Prapas, Ph.D., CSU, 2013.

Dan Wise, Ph.D., CSU, 2013.

Matthew Viele, Ph.D., CSU, 2013.

Christian L'Orange, Ph.D., CSU, 2013.

Jason Quinn, Ph.D., 2011, CSU

Lei Tao, Ph.D., CSU, 2010.

Kenneth Kroenlein, Ph.D., Princeton University, 2007.

Michael Foster, Ph.D., Drexel University. 2007.

Ahmet Yozgatligil, Ph.D., Drexel University, 2005.

Graduate Committee – M.S.

Samuel Compton, M.S., CSU, 2017

Robbie Mitchell, M.S., CSU, 2017
Spencer Vore, M.S., CSU, 2015
Arunachalam Lakshminarayanan, M.S., CSU 2014
Isaiah Franka, M.S., CSU, 2013.
Frank Sutley, M.S., CSU, 2013.
Kristina Armstrong, M.S., CSU, 2013.
Nick Wilvert, M.S., CSU, 2012.
Koushik Badrinarayanan, M.S., CSU, 2012.
Jake Doyle, M.S., CSU, 2012.
John Gattoni, M.S., CSU, 2012.
Nathaniel Douglas, M.S., CSU, 2011.
Frank Locisano, M.S., CSU, 2011.
Eric Wood, M.S., CSU, 2011.
Dan Lionberg, M.S., CSU, 2011.
Nathaniel Douglas, M.S., CSU, 2011.
Frank Locisano, M.S., CSU, 2011.
Eric Wood, M.S., CSU, 2011.
Guhan Srivatsan, M.S., CSU, 2010.
Aparna Arunachalam, M.S., CSU, 2010.
Guhan Srivatsan, M.S., CSU, 2010.
Matt Ruter, M.S., CSU, 2010.
Brett Wilson, M.S., CSU, 2009.
Aditya Muktibodhi, M.S., CSU, 2009.
Marty Malenshek, M.S., CSU, 2008.
David Martinez, MS, Rowan Universtiy, MS, 2007.
Brian Kuritz, MS, Rowan University, 2003.
Jeremy T. Neyhart, MS, Rowan University, 2002
Brian K. Fitzpatrick, MS, Rowan University, 2002.
Peter Jansson, MS, Rowan University, 1997

Undergraduate and High School Research Students

Jeffrey Mohr, CSU, Honors Undergraduate Research Scholar, 2012-present
Darryl Beemer, CSU, Honors Undergraduate Research Scholar, 2012-2013
Robert Termuhlen, Iowa State University, 2014, C2B2 REU
Juan David Lllanos, Loyola Marymount University, 2013, C2B2 REU
Wesley Blummer, Villanova University, 2012, C2B2 REU
Daniel Purdy, Colorado State University, 2012 SBDC Research Student
Patrick Hock, 2011, German Foreign Exchange Student
Hayden Schappell, 2011, Broomfield High School, Colorado
Bryant Ladson, Morehouse College, 2009, CSU AGEP Program
Kabel Skelton, 2010, CSU, Engines and Energy Conversion Laboratory
Travis Lau, Northwestern University, 2009, C2B2 REU

Manuel Kern, 2009, German Foreign Exchange Student
Alexander Stanton, West Virginia University, 2008, C2B2 REU
Michael Harris, 2006, REU Pollution Prevention, Rowan University
Amy Mensch, 2005, REU Pollution Prevention, Rowan University
Jamie Ginn, 2005, REU Pollution Prevention, Rowan University
Ingrid Osorio, 2004, REU Pollution Prevention, Rowan University
Cliff Amundson, 2004, REU Pollution Prevention, Rowan University
Michael Resciniti, 2002
Nick Pekula, 2002
Jennifer Akers, 2000

JOURNAL PUBLICATIONS AND BOOK CHAPTERS [Total Citations: 2399; h-Index: 27]

1. [93 citations] Marchese, A. J., and Dryer, F. L. (1996). The Effect of Liquid Mass Transport on the Combustion and Extinction of Bi-Component Droplets of Methanol and Water*, Combust. Flame.* **105***,* p. 104.

2. [47 citations] Marchese, A. J., Dryer, F. L., Colantonio, R. O., and Nayagam, V. (1996). Microgravity Combustion of Methanol and Methanol/Water Droplets: Drop Tower Experiments and Model Predictions. *Proc. Combust Inst.* **26***,* pp. 1209-1218.

3. [55 citations] Marchese, A. J., Dryer, F. L., Nayagam, V., and Colantonio, R. O. (1996). Hydroxyl Radical Chemiluminescence Imaging and the Structure of Microgravity Droplet Flames, *Proc. Combust Inst.* **26***,* pp. 1219-1227.

4. [62 citations] Marchese, A. J. and Dryer, F. L. (1997). The Effect of Non-Luminous Thermal Radiation in Microgravity Droplet Combustion. *Combust. Sci. and Tech*., **124**, 1-6, pp. 371-402.

5. [230 citations] Held, T. J., Marchese, A. J., and Dryer, F. L. (1997). A Semi-Empirical Reaction Mechanism for N-Heptane Oxidation and Pyrolysis, *Combust. Sci. and Tech.,* **123***,* pp. 107-146.

6. [34 citations] Marchese, A. J., Dryer, F. L. and Colantonio, R. O. (1998). Radiative Effects in Space-Based Methanol/Water Droplet Combustion Experiments. *Proc. Combust Inst.* **27**, pp. 2627-2634.

7. [95 citations] Nayagam, V., Haggard, J. B., Colantonio, R. O., Marchese, A.J., Dryer, F.L., Zhang, B. L. and Williams, F. A. (1998). Microgravity n-Heptane Droplet Combustion in Oxygen-Helium Mixtures at Atmospheric Pressure. *AIAA Journal.* **Vol. 36, No. 8**, pp. 1369-1378.

8. [101 citations] Marchese, A. J., Dryer, F. L. and Nayagam, V. (1999). Numerical Modeling of Isolated N-Alkane Droplet Flames: Initial Comparisons with Ground and Space-Based Microgravity Experiments. *Combust. Flame*, **116**, pp. 432-459.

9. [58 citations] Newell, J. A., Marchese, A. J, Ramachandran, R. P., Sukumaran, B. and Harvey, R. (1999). Multidisciplinary Design and Communication: A Pedagogical Vision. *International Journal of Engineering Education.* ***Vol 15, No. 5****, pp. 376-382.*

10. [28 citations] Marchese, A. J., Schmalzel, J. L, Mandayam, S. A. and Chen, J. C. (2001) A Venture Capital Fund for Undergraduate Engineering Students at Rowan University. *Journal of Engineering Education.* ***Vol. 90, No. 4****, pp. 589-596.*

11. [16 citations] Miller, F.J., Easton, J. W., Marchese, A.J. and Ross, H.D. (2002). Gravitational Effects on Flame Spread Through Non-Homogeneous Gas Layers. *Proc. Combust Inst.* **29**, pp. 2561-2567.

12. [17 citations] Ramachandran, R. P. and Marchese, A. J. (2002). Integration of Multidisciplinary Design and Technical Communication: An Inexorable Link. *International Journal of Engineering Education.* ***Vol 18, No. 1****, pp. 32-38.*

13. [25 citations] Marchese, A. J. Ramachandran, R.P., Hesketh, R.P. and Schmalzel, J.L. (2003). The Competitive Assessment Laboratory: Introducing Engineering Design via Consumer Product Benchmarking. *IEEE Transactions on Education.* **46**, pp. 197-205.

14. [31 citations] Pekula, N., Kuritz, B., Hearne, J., Marchese, A.J., Hesketh, R. P. (2004). The Effect of Ambient Temperature, Humidity and Engine Speed on Idling Emissions from Heavy Duty Diesel Trucks. *SAE 2003 Transactions, Vol.112, Journal of Fuels and Lubricants, ISBN Number: 0-7680-1451-4, September 2004, pages 148-158.*

15. Kuritz, B., Hearne, J., Marchese, A.J., Hesketh, R. P. (2004). Application of Experimental Design in the Steady State Particulate Exposure Levels in a 1992 International School Bus. *General Emissions 2004, SAE International Special Publication: Paper Collections. ISBN: 978-0-7680-1399-3, March, 2004.*

16. [2 citations] Ginn, J., Toback, A., Hearne, J., Marchese, A.J., Hesketh, R. P. and Amundsen, C. (2005). Life Cycle and Economic Analysis of Heavy Duty Diesel Vehicle Idling Alternatives. *SAE 2004 Transactions, Vol.113-4, Journal of Fuels and Lubricants, ISBN Number* 0-7680-1553-7*, July 2005, pages 426-435*.

17. [9 citations] Toback, A., Hearne, J., Kuritz, B., Marchese, A.J., Hesketh, R. P. (2005). The Effect of Ambient Temperature and Humidity on Idling Emissions from Diesel School Buses. *SAE 2004 Transactions, Vol.113-4, Journal of Fuels and Lubricants, ISBN Number:* 0-7680-1553-7*, July 2005, pages 530-539*.

18. [11 citations] Hearne, J., Toback, A., Marchese, A.J., Hesketh, R. P. (2005). Development of a New Composite School Bus Test Cycle and the Effect of Fuel Type on Mobile Emissions from Three School Buses. *General Emissions 2005, SAE International Special Publication: Paper Collections. ISBN: 978-0-7680-1589-8, April 2005*.

19. [4 citations] Toback, A., Hearne, J., Colligan, S., Osorio, I, Hesketh, R. P. and Marchese, A.J. (2005). Experimental Evaluation of Aftertreatment Devices on Mobile School Bus Emissions from Diesel Powered School Buses. *Diesel Exhaust Emissions Control 2005, SAE International Special Publication: Paper Collections. ISBN: 978-0-7680-1587-4, April 2005*.

20. [3 citations] Villa-Gonzales, M., Marchese, A. J., Easton, J. W. and Miller, F. J. (2007) Experimental Measurements of Two-Dimensional, Planar, Propagating Edge Flames. *Proc. Combust Inst.* **31**, 939-946.

21. [222 citations] Gail, S., Thomson, M., Sarathy, S. M., Syed, S. A., Dagaut, P., Dievart, P., Marchese, A. J. and Dryer, F. L. (2007). A Wide Range Kinetic Modeling Study of Methyl Butanoate. *Proc. Combust Inst.* **31**, 305-311.

22. [1 citation] Sukumaran, B., Mehta, Y., Bryant, T., D'Intino, R., Marchese, J., Everett J. and Gephardt, Z. (2007). Generating Entrepreneurship Opportunities for the Developing World through the Engineering Curriculum. *World Transaction in Engineering and Technology Education,* Vol. 6, No. 1, pp. 37-40.

23. [22 citations] Kadlowec, J., Bhatia, K., Chandrupatla T.R., Chen, J. C., Constans, E., Hartman, H., , Marchese, A. J., von Lockette, P. and Zhang, H. (2007). Design Integrated into the Mechanical Engineering Curriculum: Assessment of the Engineering Clinics. *Journal of Mechanical Design*, July 2007, Volume 129, Issue 7, pp. 682-691.

24. [3 citation] Nayagam, V., Marchese, A. J. and Sacksteder, K.R (2008). Microgravity Droplet Combustion: An Inverse Scale Modeling Problem. *Progress in Scale Modeling. Pp. 169-178, Kozo Saito, Editor. Springer*

25. [2 citations] Weaver, K. M, Marchese, A. J., Vozikis, G. S. and Dickson, P. (2010). Promoting Entrepreneurship Across the University: The Experiences of Three Diverse Academic Institutions. *Journal of Small Business and Entrepreneurship*, **23**, pp. 797-806.

26. [37 citations] Fisher, B. C., Marchese, A. J., Volckens, J., Lee, T. and Collett, J. (2010). Measurement of Gaseous and Particulate Emissions from Algae-Based Fatty Acid Methyl Esters. *SAE Int. J. Fuels Lubr.* **3**, pp. 292-321.

27. [23 citations] Thayer, D., Volckens, J., Koehler, K., Marchese, A. J. and Prieto, A. (2011). A Personal Sampler for Airborne Nanoparticles. *Aerosol Science and Technology.* **45**, pp. 1-7.

28. [34 citations] Marchese, A. J., Vaughn, T. L., Kroenlein, K. and Dryer, F. L. (2011). Ignition Delay of Fatty Acid Methyl Ester Fuel Droplets in Microgravity: Experiments and Detailed Numerical Modeling. *Proc. Combust. Inst.*, **33**, pp. 2021-2030.

29. [56 citations] Fagerstone, K., Quinn, J. C., De Long, S, Bradley, T. and Marchese, A. J. (2011). Quantitative Measurements of Direct N_2O Emissions from Microalgae Cultivation. *Environmental Science & Technology,* **45 (21)**, pp. 9449-9456.

30. [6 citations] Bucy, H. and Marchese, A. J. (2012). Oxidative Stability of Algae Derived Methyl Esters. *Journal of Engineering for Gas Turbines and Power,* ***Vol. 134****,* pp. 092805-1 to 092805-13.

31. [35 citations] Bucy, H., Baumgardner, M. and Marchese, A. J. (2012). Chemical and Physical Properties of Algal Methyl Ester Biodiesel Containing Varying Levels of Methyl Eicosapentaenoate and Methyl Docosahexaenoate. *Algal Research* **1** pp. 57–69.

32. [31 citations] Baumgardner M., Marchese, A. J. and Sarathy, M. (2013). Autoignition Characterization of Primary Reference Fuels and n-Heptane/n-Butanol mixtures in a Constant Volume Combustion Device and Homogeneous Charge Compression Ignition Engine. *Energy and Fuels*, **27** *(12), pp. 7778-7779.*

33. [15 citations] Leith, D., Miller-Lionberg, D., Marchese, A. J., Lentz, H., Lersch, T, Casuccio, G. and Volckens, J. (2014). Development of a Transfer Function for a Personal Thermophoretic Nanoparticle Sampler. *Aerosol Science and Technology,* **48** (1), 81-89.

34. [13 citations] Hawley, B., McKenna, D., Marchese, A. J. and Volckens, J. (2014). Time Course of Bronchial Cell Inflammation Following Exposure to Diesel Particulate Matter. *Toxicology In Vitro,* **28**, pp. 829-837.

35. [26 citations] Tryner, J., Willson, B.D. and Marchese, A. J. (2014). The Effects of Fuel Type and Stove Design on Emissions and Efficiency of Natural Draft Semi-Gasifier Biomass Cookstoves. *Energy for Sustainable Development*, **23**, pp. 99–109.

36. [22 citations] Hawley, B., L'Orange, C. L., Olsen, D. B., Marchese, A. J. and Volckens, J. (2014) Oxidative stress and aromatic hydrocarbon response of human bronchial epithelial cells exposed to petro- or biodiesel exhaust treated with a diesel particulate filter. *Toxilogical Sciences.* **141** (2), pp. 505-514.

37. [15 citations] Prapas, J., Baumgardner, M., Marchese, A. J. and DeFoort, M. (2014). Influence of Chimneys on Combustion Characteristics of Buoyantly Driven Biomass Stoves. *Energy for Sustainable Development*, **23**, pp. 286-293.

38. [2 citations] Hincapie, E. and Marchese, A. J. (2015). An Ultrasonically Enhanced Inclined Settler for Microalgae Harvesting. *Biotechnology Progress*, **31** (2), pp. 414-423.

39. [26 citations] Roscioli, J. R., Yacovitch, T. I., Floerchinger, C., Mitchell, A. L., Tkacik, D. S., Subramanian, R., Martinez, D. M., Vaughn, T. L., Williams, L., Zimmerle, D., Robinson, A. L., Herndon, S. C., and Marchese, A. J. (2015). Measurements of methane emissions from natural gas gathering facilities and processing plants: measurement methods. *Atmos. Meas. Tech.*, **8**, pp. 2017-2035.

40. [59 citations] Mitchell, A.L., Tkacik, D.S., Roscioli, J.R, Herndon, S.C., Yacovitch, T. I., Martinez, D.M., Vaughn, T. L., Williams, L. L., Subramanian, R.A.,. Zimmerle, D.J., Marchese, A.J. and Robinson, A.L. (2015). Measurements of methane emissions from natural gas gathering facilities and processing plants: measurement results. *Environ. Sci. Technol.,* **49** (5) 3219-3227.

41. [47 citations] Zimmerle, D.J, Williams, L., Vaughn, T.L., Quinn, C., Subramanian, R.A., Duggan, G. B, Willson, B.D, Opsomer, J. D., Marchese, A. J, Martinez, D. M. and Robinson. A.L. (2015). Methane emissions from the natural gas transmission and storage system in the United States. *Environ. Sci. Technol.* **49** (15), pp. 9374-9383.

42. [55 citations] Lyon, D., Zavala-Araiza, D., Alvarez, R., Harriss, R., Palacios, V., Lan, X., Talbot, R., Lavoie, T, Shepson, P, Yacovitch, T., Herndon, S., Marchese, A.J., Hamburg, S. (2015). Constructing a spatially resolved methane emission inventory for the Barnett Shale region. *Environ. Sci. Technol.*, **49** (13), pp. 8147–8157.

43. [42 citations] Marchese, A.J., Zimmerle, D.J, Vaughn, T. L., Martinez, D.M., Williams, L., Robinson, A.L., Mitchell, A.L., Subramanian, R.A., Tkacik, D.S., Roscioli, J.R. and Herndon, S.C. (2015). Methane emissions from United States natural gas gathering and processing. *Environ. Sci. Technol.* **49** (17), pp. 10718-10727.

44. [11 citations] Baumgardner, M. E., Vaughn, T. L., Lakshminarayanan, A., Olsen, D.B., Ratcliff, M., McCormick, R. L. and Marchese, A. J. (2015). Combustion of Lignocellulosic Biomass Based Oxygenated Components in a Compression Ignition Engine. *Energy and Fuels*, **29** (11), 7317-7326.

45. [62 citations] Zavala-Araiza, D., Lyon, D.R., Alvarez, R.A., Davis, K.J., Harriss, R. Herndon, S.C., Jackson, R.B., Karion, A., Eric A. Kort, E.A, Lamb, B.K, Marchese, A.J., Pacala, S. W., Robinson, A.L., Shepson, P. B., Sweeney, C., Townsend-Small, A., Yacovitch, T.I., Hamburg, S.P. (2015). Reconciling divergent estimates of oil and gas methane emissions. *Proceedings of the National Academy of Science,* **112** (51) 15597-15602.

46. [15 citations] Hockett, A. G., Hampson, G. and Marchese, A. J. (2016). Development and Validation of a Reduced Chemical Kinetic Mechanism for Computational Fluid Dynamics Simulations of Natural Gas/Diesel Dual-Fuel Engines. *Energy and Fuels*, **30** (3), pp. 2414-2427.

47. [6 citations] Tryner, J., Tillotson, J., Baumgardner, M.E., Mohr, J., DeFoort, M. and Marchese, A. J. (2016). The effects of fuel properties, air flow rates, secondary air inlet geometry, and operating mode on the performance of TLUD semi-gasifier cookstoves. *Environ. Sci. Technol.* **50** (17), pp. 9754-9763.

48. [4 citations] Alvarez, R.A., Lyon, D.R., Marchese, A.J, Robinson, A. L. and Hamburg, S. P. (2016). Possible malfunction in widely used methane sampler deserves attention but poses limited implications for supply chain emission estimates. *Elementa.* 4:000137. **DOI** 10.12952/journal.elementa.000137.

49. [1 citation] Kleinman, M. T., Mueller, G.R., Stevenson, E., Alvarez, R., Marchese, A. J. and Allen, D. (2016). Emissions from oil and gas operations in the United States and their air quality implications: critical review discussion. *Journal of the Air & Waste Management Association.* **66** (12), pp. 1165-1170.

50. [10 citations] Dumitrache, C., Baumgardner, M.E., Boissiere, A., Maria, A., Roucis, J., Marchese, A.J. and Yalin, A. (2017). A Study of Laser Induced Ignition of Methane-Air Mixtures inside a Rapid Compression Machine. *Proc. Combust. Inst.,* **36** (3), pp. 3431-3439.

51. [1 citation] Hockett, A. G., Hampson, G. and Marchese, A. J. (2017). Natural Gas/Diesel RCCI CFD Simulations using Multi-component Fuel Surrogates. *Int. J. Powertrains*, **6** (1), pp. 76-108.

52. [14 citations] Zavala-Araiza, D, Alvarez, R. A., Lyon, D.R., Allen, D., Marchese, A.J., Zimmerle, D. J., Hamburg, S.P. (2017). Super-emitters in natural gas infrastructure are caused by abnormal process conditions. *Nature Communications*. **8**:14102, **DOI** 10.1038/ncomms14012.

53. Tryner, J., Volckens, J. and Marchese, A. J. (2018). Effects of operational mode on particle size and number emissions from a biomass gasifier cookstove. *Aerosol Science and Technology*. **52** (1), pp. 87-97.

54. Hincapie, E., Tryner, J., Aligata, A., Quinn, J. and Marchese, A. J. (2018). Measurement of Acoustic Properties of Microalgae and Implications on the Performance of Ultrasonic Harvesting Systems. *Algal Research*. **31**, p. 77-86.

55. Alvarez, R.A., Zavala-Araiza D., Lyon, D.R., Allen, D.T., Barkley, Z. R., Brandt, A.R., Davis, K.J., Herndon, S. C., Jacob, D.J., Karion, A., Kort, E.A., Lamb, B. K., Lauvaux, T., Maasakkers, J.D., Marchese, A. J., Omara, M., Pacala, S.W., Peischl, J., Robinson, A.L., Shepson, P.B., Sweeney, C., Townsend-Small, A., Wofsy, S.C., Zimmerle, D., Hamburg, S. P. (2018). Improved characterization of methane emissions from the U.S. oil and gas supply chain. *Science*. Submitted.

56. Rahman, S.M.A., Van, T.C., Hossain, F. M., Jafari, M., Dowell, A., Islam, M.A. Nabi, M. N., Marchese, A.J., Tryner, J., Rainey, T., Ristovski, Z.D., Brown, R.J. (2018). Fuel properties and emission characteristics of essential oil blends in a compression ignition engine. *Fuel.* Submitted.

57. Rahman, S.M.A., Van, T.C., Nabi, M. N., Hossain, F. M., Jafari, M., Dowell, A., Islam, M.A.., Marchese, A.J., Tryner, J., Rainey, T., Ristovski, Z.D., Brown, R.J. (2018). Performance and combustion characteristics analysis of multi-cylinder CI engine using essential oil blends. *Energies.* 11 (4), pp 738.

58. Hockett, A. G., Barta, J., Hampson, G., Baumgardner, M., Marchese, A. J. (2017). An Experimental and Multidimensional Computational Study on Uncontrolled Combustion Rates in a Light Duty Natural Gas/Diesel Dual Fuel Engine. *Combustion Science and Technology*. Submitted.

CONFERENCE PROCEEDINGS AND TECHNICAL PRESENTATIONS

Research

1. Zdanowicz, A., Mohr, J., Bhoite, S., Baumgardner, M., Tryner, J., Dumitrache, C., Yalin, A. and Marchese, A. J. (2018). Characterization of Knock Propensity via Observations of End-Gas Autoignition from Laser Ignited, Premixed Flames in a Rapid Compression Machine. *2018 Spring Technical Meeting of the Western States Section of the Combustion Institute.* Bend, OR, March 2018.

2. Baumgardner, M. E, Lakshminarayanan, A., Olsen, D. B., Ratcliff, M. A., McCormick, R. L. and Marchese, A. J. (2017). Durability Testing of Biomass Based Oxygenated Fuel Components in a Compression Ignition Engine. *ASME Internal Combustion Engine Division Meeting*. Seattle, WA, October 2017.

3. Tryner, J., Albrecht, K., Billing, J., Hallen, R. T. and Marchese, A. J. (2017). Performance of a Compression Ignition Engine Fueled with Renewable Diesel Blends Produced from Hydrothermal Liquefaction, Fast Pyrolysis, and Conversion of Ethanol-to-Diesel. *2017 Fall Technical Meeting of the Western States Section of the Combustion Institute*, Laramie, WY, October 2017.

4. Gould, C., Mohr, J., and Marchese, A. J. (2017). Evaporation and Autoignition Studies of Liquid n-Alkane Droplets in Lean, High Pressure Methane/Air Mixtures in a Rapid Compression Machine. *2017 Fall Technical Meeting of the Western States Section of the Combustion Institute*, Laramie, WY, October 2017.

5. Aligata, A., Hincapie, E., Tryner, J., Marchese, A. J. and Quinn, J. (2017). Providing access to clean water through low-cost acoustic processing. *Global Grand Challenges Summit 2017.* Washington, DC, July 2017.

6. Aligata, A., Hincapie, E., Tryner, J., Marchese, A. J. and Quinn, J. (2017). Understanding acoustic harvesting: determination of microalgal acoustic properties. *11th Annual Algae Biomass Summit.* Salt Lake City, UT, October 2017.

7. Tryner, J., Albrecht, K., Billing, J., Hallen, R. T. and Marchese, A. J. (2017). Characterization of Fuel Properties and Engine Performance of Renewable Diesel Produced from Hydrothermal Liquefaction of Microalgae and Wood Feedstocks. *11th Annual Algae Biomass Summit.* Salt Lake City, UT, October 2017.

8. Aligata, A., Hincapie, E., Tryner, J., Marchese, A. J. and Quinn, J. (2017). Acoustic harvesting of algal biomass: species and compositional impacts. *7th International Conference on Algal Biomass, Biofuels and Bioproducts.* Miami, FL, June 2017.

9. Baumgardner, M. E, Lakshminarayanan, A., Olsen, D. B., Ratcliff, M. A., McCormick, R. L. and Marchese, A. J. (2017). Durability Testing of Biomass Based Oxygenated Fuel Components in a Compression Ignition Engine. *The 10th US National Meeting of the Combustion Institute*. University of Maryland, April 2017.

10. Bhoite, S., Dumitrache, C., Yalin, A. and Marchese, A. J. (2017). A computational study of laser ignited premixed fuel-air mixtures in a rapid compression machine. *The 10th US National Meeting of the Combustion Institute.* University of Maryland, April 2017.

11. Gould, C., Bhoite, S., Mohr, J., Baumgardner, M. and Marchese, A. J. (2017). Autoignition of Liquid Hydrocarbon Droplets in Lean, High Pressure Natural Gas Mixtures Using in a Rapid Compression Machine. *The 10th US National Meeting of the Combustion Institute*. University of Maryland, April 2017.

12. Tryner, J., Volckens, J. and Marchese, A. J. and Yalin, A. (2017). Effects of operational mode on particle size and number emission rates from a biomass gasifier cookstove. *The 10th US National Meeting of the Combustion Institute*. University of Maryland, April 2017.

13. Marchese, A.J. (2016). Methane emissions from United States natural gas gathering and processing systems: measurement campaign and development of a national emissions estimate. *109th Annual Conference and Exhibition of the Air and Waste Management Association*, New Orleans, LA, June 22, 2016.

14. Marchese, A.J. (2016). Critical Review Presentation: Emissions from oil and gas operations in the United States and their air quality implications. *109th Annual Conference and Exhibition of the Air and Waste Management Association*, New Orleans, LA, June 22, 2016.

15. Baumgardner, M. E., Vaughn, T. L., Lakshminarayanan, A., Olsen, D.B., Ratcliff, M., McCormick, R. L. and Marchese, A. J. (2016). Assessing the Effect of Increased Levels of Biomass Based Oxygenated Components in a Diesel Engine. *2016 Spring Technical Meeting of the Western States Section of the Combustion Institute*, Seattle, WA, March 2016.

16. Tryner, J., An, Q., Mohr, J., Steinberg, A., Yalin, A. and Yalin, A. (2016). High-speed OH and acetone PLIF imaging of an inverse non-premixed cross-flow flame. *2016 Spring Technical Meeting of the Western States Section of the Combustion Institute*, Seattle, WA, March 2016.

17. Tillotson, J., Tryner, J., Mohr, J. and Marchese, A. J. (2015). Effects of stove design and fuel bed properties on TLUD operation and performance. *2016 ETHOS Conference.* Kirkland, WA, January 30-31, 2016.

18. Tryner, J., Tillotson, J., Mohr, J. and Marchese, A. J. (2016). Achieving Tier 4 Emissions and Efficiency in Biomass Cookstoves. *2016 ETHOS Conference.* Kirkland, WA, January 30-31, 2016.

19. Subramanian, R., Presto, A., Li, X., Omara, M., Sullivan, M., Roscioli, J., Herndon, S., Williams, L., Vaughn, T., Zimmerle, D., Marchese, A.J., Weyant, C., Bond, T., Heimburger, A., Shepson, P., McCabe, D., Baum, E. and Robinson, A. L. (2016). Emissions of Methane, Volatile Organic Compounds, and Black Carbon from Natural Gas and Oil Development Activities: Measurements from Denver-Julesburg, Uintah, Marcellus, and Bakken fields and the US natural gas infrastructure, and an Examination of the Fat-Tail Problem. *96th Annual Meeting of the American Meteorology Society, 18th Conference on Atmospheric Chemistry*, New Orleans, LA, January 10-14, 2016.

20. Lyon. D.R., Zavala Araiza, D., Alvarez, R., Harriss, R.C., Palacios, V., Lan, X., Talbot, R.W., Shepson, P.B., Lavoie, T.N., Yacovitch, T. I., Herndon, S. C., Marchese, A.J., Zimmerle, D.J., Robinson, A.L. and Hamburg, S. (2015). Integrating Oil and Gas Measurement Data to Estimate Spatially-Gridded Methane Emissions in the Barnett Shale. *American Geophysical Union Fall Meeting*, December 15-18, 2015.

21. Marchese, A.J., Zimmerle, D.J, Vaughn, T. L., Martinez, D.M., Williams, L., Robinson, A.L., Mitchell, A.L., Subramanian, R.A., Tkacik, D.S., Roscioli, J.R. and Herndon, S.C. (2015). Development of a national estimate of methane emissions from United States natural gas gathering facilities and processing plants. *American Geophysical Union Fall Meeting*, December 15-18, 2015.

22. Tillotson, J., Tryner, J., Mohr, J. and Marchese, A. J. (2015). Particulate matter and carbon monoxide emissions during transient combustion events in a top-lit up-draft semi-gasifier cookstove *Fall Technical Meeting of the Western States Section of the Combustion Institute.* Provo, UT, October 5-6, 2015.

23. Tryner, J., Tillotson, J., Mohr, J. and Marchese, A. J. (2015). Measurement of Syngas Composition in a top-lit up-draft semi-gasifier cookstove under varying modes of operation. *Fall Technical Meeting of the Western States Section of the Combustion Institute.* Provo, UT, October 5-6, 2015.

24. Barta, J., Hockett, A., Marchese, A.J., Suhre, B. and Hampson, G. (2105). Practical Cylinder Pressure Monitoring for Production IC Engines Combustion Control. *9th Dessau Gas Engine Conference*, Dessau, Germany, April 16-17, 2015.

25. Hockett, A. G., Hampson, G. and Marchese, A. J. (2015). A Reduced Chemical Kinetic Mechanism for Heptane/Methane/Ethane/Propane Mixtures for CFD Simulations of Natural Gas/Diesel Dual Fuel Engines. 250th *American Chemical Society National Meeting and Exposition*, Boston, MA, August 16-20, 2015.

26. Quinn, J. C., Morgan, M.R., Vaughn, T. L., McCurdy, A., Seefeldt, L., Bugbee, B. and Marchese, A. J. (2015). Combustion of Biodiesel Derived from *Nannochloropsis salina*: Compression Ignition Engine Particulate and Gaseous Emissions. *Fifth International Conference on Algal Biomass, Biofuels and Bioproducts*. San Diego, CA, June 2015.

27. Dumitrache, C., Boissiere, A., Baumgardner, M., Marchese, A. J. and Yalin, A. (2015). Laser Ignition of Methane-Air Mixtures: An Investigation of Lean Limit and Minimum Ignition Energy. 2015.

28. Dumitrache, C., Boissiere, A., Baumgardner, M., Marchese, A. J. and Yalin, A. (2015). Fundamental Studies of Laser Ignition of Natural Gas/Air Mixtures at Elevated Temperatures and Pressures. *The 9th US National Meeting of the Combustion Institute*. Cincinnati, OH, May 2015.

29. Quinn, J. C., Morgan, M.R., Vaughn, T. L., McCurdy, A., Seefeldt, L., Bugbee, B. and Marchese, A. J. (2015). Compression Ignition Engine Particulate and Gaseous Emissions from the Combustion of Biodiesel Derived from Microbes. *2015 National Biodiesel Conference and Exposition*. Fort Worth, TX, January 2015.

30. Tryner, J., Tillotson, J., Baumgardner, M. E. and Marchese, A. J. (2015). The effects of secondary air delivery parameters on the performance of a top-lit up-draft semi-gasifier biomass cookstove. *The 9th US National Meeting of the Combustion Institute*. Cincinnati, OH, May 2015.

31. Dumitrache, C., Baumgardner, M., Marchese, A. J. and Yalin, A. (2015). Study of Laser Ignition with a Rapid Compression Machine. *AIAA Science and Technology Forum, 2015*.

32. Herndon, S. C., T. I. Yacovitch, J. R. Roscioli, C. R. Floerchinger, W. B. Knighton, J. D. Goetz, P. F. DeCarlo, A. Mitchell, D. S. Tkacik, R Subramanian, A. L Robinson, D. M Martinez, L. Williams, D. Zimmerle and A. J. Marchese (2014). Using Co-Emitted Species to Identify Natural Gas Emission Vectors. *2014 American Geophysical Union, Fall Meeting*. San Francisco, CA, December 15-19, 2014.

33. Herndon, S. C., J. R. Roscioli, T. I. Yacovitch, C. R. Floerchinger, A.Mitchell, D. S. Tkacik, R Subramanian, A. L. Robinson, D. M. Martinez, T. L. Vaughn, L. Williams, D. Zimmerle and A. Marchese (2014). Quantifying the Industrial Facility-Level Emission Rate of Methane in Various Segments of the Natural Gas Industry. *2014 American Geophysical Union, Fall Meeting*. San Francisco, CA, December 15-19, 2014.

34. Hockett, A., Barta, J., Polley, N., Hampson, G. and Marchese, A. J (2014). Computational Modeling of Natural Gas/Diesel Dual Fuel Combustion: Exploration of Natural Gas Substitution Limits. *Work-in-Progress Poster Session. 35th International Symposium on Combustion*. San Francisco, CA, August 2014.

35. Baumgardner, M. and Marchese, A.J. (2014). Relationship between octane number, cetane number, and methane number: analysis of constant volume combustion chamber and variable compression ratio engine results *Work-in-Progress Poster Session. 35th International Symposium on Combustion*. San Francisco, CA, August 2014.

36. Vaughn, T. L. Drenth, A., Lakshminarayanan, A., Olsen, D.B., Ratcliff, M. McCormick, R. L., and Marchese, A. J. (2014). Characterization of Gaseous and Particulate Emissions from the Combustion of Cellulosic Biomass Based Oxygenated Components in a Compression Ignition Engine. *Work-in-Progress Poster Session. 35th International Symposium on Combustion*. San Francisco, CA, August 2014.

37. Tryner, J., Yalin, A., DeFoort, M. and Marchese, A.J. (2014). Development of a Tier 4 semi-gasifier biomass cookstove through the application of fundamental combustion science. *Work-in-Progress Poster Session. 35th International Symposium on Combustion*. San Francisco, CA, August 2014.

38. Grumstrup, T., Marchese, A. J, Dryer, F. L., Farouk, T. (2014). Planar laser-induced fluorescence spectroscopy and simulations of ignition and combustion of freely falling alkane, alcohol, and methyl ester droplets. *Work-in-Progress Poster Session. 35th International Symposium on Combustion*. San Francisco, CA, August 2014.

39. Quinn, J., Morgan, M., Vaughn, T., McCurdy, A., Seefeldt, L. and Marchese, A.J. (2014). Compression Ignition Engine Particulate and Gaseous Emissions from the Combustion of Biodiesel Derived from Nannochloropsis salina. *2014 Algae Biomass Summit*. San Diego, CA, October 2014.

40. Hincapie, E. and Marchese, A. J. (2014). Development of an ultrasonically enhanced inclined settler for microalgae harvesting. *2014 Algae Biomass Summit*. San Diego, CA, October 2014.

41. McCormick, R. L., Ratcliff, M., Christensen, Yanowitz, Marchese, A. J., Olsen, D.B, Vaughn, T. L, Drenth, A. and Lakshminarayanan, A. (2014). Impact of Lignocellulosic Biomass-Derived Oxygenates on Diesel Fuel

Properties and Engine Emissions. *2014 SAE Powertrain Fuels and Lubricants Meeting, Birmingham, UK, October 2014.*

42. Hincapie, E. and Marchese, A. J. (2014). Development of an ultrasonically enhanced inclined settler for microalgae harvesting. *Fourth International Conference on Algal Biomass, Biofuels and Bioproducts*. Santa Fe, NM, June 2014.
43. Quinn, J., Morgan, M., Vaughn, T., McCurdy, A., Seefeldt, L. and Marchese, A.J. (2014). Characterization of Gaseous and Particulate Emissions from the Combustion of Biodiesel from Microalgae in a Compression Ignition Engine. *Fourth International Conference on Algal Biomass, Biofuels and Bioproducts. Santa Fe, NM*, June 2014.
44. Hincapie, E. and Marchese, A. J. (2014). Development of a Continuous Flow Ultrasonic Microalgae Harvesting System. *The Future of Algae Production Systems Panel. 11th Annual World Congress on Industrial Biotechnology*. Philadelphia, PA, May 2014.
45. Hockett, A., Barta, J., Hampson, G., Suhre, B. and Marchese, A. J (2013). Computational Modeling of a Natural Gas/Diesel Dual Fuel Engine using CONVERGE™. *Fall Technical Meeting of the Western States Section of the Combustion Institute*. Fort Collins CO, October 7-8, 2013.
46. Vaughn, T. L, Olsen, D., Ratcliff, M., McCormick, R. L. and Marchese, A. J (2013). Characterization of Gaseous and Particulate Emissions from the Combustion of Cellulosic Biomass Based Oxygenated Components in a Compression Ignition Engine. *Fall Technical Meeting of the Western States Section of the Combustion Institute*. Fort Collins CO, October 7-8, 2013.
47. Baumgardner, M.E. and Marchese, A. J. (2013). A Phenomenological Relationship between Octane Number and Cetane Number and the Impact on HCCI Fuel Characterization. *Fall Technical Meeting of the Western States Section of the Combustion Institute*. Fort Collins CO, October 7-8, 2013.
48. Loveldi, N., Mizia, J., Marchese, A. J. and DeFoort, M. (2013). Performance Assessment of a Biomass Downdraft Semi-Gasifier Burner with Application Toward Solid Human Waste Incineration. *Fall Technical Meeting of the Western States Section of the Combustion Institute*. Fort Collins CO, October 7-8, 2013.
49. Thompson, A., Baumgardner, M.E. and Marchese, A. J. (2013). Modeling In-Cylinder Heat Transfer for a Single Cylinder HCCI Engine. *Fall Technical Meeting of the Western States Section of the Combustion Institute*. Fort Collins CO, October 7-8, 2013.
50. Tryner, J., Beemer, D., DeFoort. M. and Marchese, A.J. (2013). The Effect of Primary and Secondary Air Flow Rates on Measured Gas Composition in a Top Lit Updraft Semi-Gasifier Cookstove. *Fall Technical Meeting of the Western States Section of the Combustion Institute*. Fort Collins CO, October 7-8, 2013.
51. Hincapie, E. and Marchese, A. J. (2013). Investigation on Acoustophoretic Motion of Microalgae. *2013 Algae Biomass Summit*. Orlando, FL, October 2013.
52. Marchese, A. J. (2013). Conversion of Algal Lipids and Biomass into Drop-In Liquid Fuels: Lessons Learned from the NAABB Consortium. Invited Keynote Presentation. *Third International Conference on Algal Biomass, Biofuels and Bioproducts*. Toronto, CA, June 2013.
53. Hincapie, E. and Marchese, A. J. (2013). Investigation on Acoustophoretic Motion of Microalgae. *Third International Conference on Algal Biomass, Biofuels and Bioproducts*. Toronto, CA, June 2013.
54. Tryner, J. and Marchese, A.J. (2013). The Effects of Fuel Type and Geometry on Emissions and Efficiency of Natural Draft Semi-Gasifier Biomass Cookstoves. *The 8th US National Meeting of the Combustion Institute*. Park City, UT, May 19-22, 2013.
55. Grumstrup, T., Marchese, A. J., Dryer, F. L. and Farouk, T. (2013). The contributions of thermal and prompt NOx chemistry on NOx formation near igniting oxygenated liquid fuel droplets. *The 8th US National Meeting of the Combustion Institute*. Park City, UT, May 19-22, 2013.

56. Baumgardner, M. E., Marchese, A. J. and Sarathy, M. (2013). Autoignition Characterization of Primary Reference Fuels and n-Heptane/n-Butanol mixtures in a Constant Volume Combustion Device and Homogeneous Charge Compression Ignition Engine. *The 8th US National Meeting of the Combustion Institute.* Park City, UT, May 19-22, 2013.

57. Tryner, J., Willson, B. D. and Marchese, A.J. (2012). Development of an Improved Natural Draft Biomass Gasifier Cookstove. *Work-in-Progress Poster Session. 34th Symposium (International) on Combustion.* Warsaw, Poland, August 2012.

58. Vaughn, T., Grumstrup, T., Naber, K. and Marchese, A.J. (2012). Measurements of NOx Formation From the Combustion of Algal Methyl Ester Biodiesel and Algal Hydrotreated Renewable Diesel. *Work-in-Progress Poster Session. 34th Symposium (International) on Combustion.* Warsaw, Poland, August 2012.

59. Baumgardner, M., Hockett, A. and Marchese, A. J. (2012). Targeted chemical mechanism modification and experimental validation for bio-alcohol/FAME blends for use in traditional and advanced combustion applications *Work-in-Progress Poster Session. 34th Symposium (International) on Combustion.* Warsaw, Poland, August 2012.

60. Hincapie, E. and Marchese, A. J., Marrone, B., Coons, J. and McCarty, B. (2012). Design of a Continuous Flow, Ultrasonic Algae Harvesting Device: Ultrasonic Property Measurements and Finite Element Modeling Results. *2012 Algae Biomass Summit,* Denver, CO, September 24 -27, 2012.

61. Hincapie, E. and Marchese, A. J., Marrone, B., Coons, J. and McCarty, B. (2012). Design of a Continuous Flow, Ultrasonic Algae Dewatering System: Ultrasonic Property Measurements and Finite Element Modeling Results. *Second International Conference on Algal Biomass, Biofuels and Bioproducts*. San Diego, CA, June, 2012.

62. Hawley, B., Volckens, J. and Marchese, A. J. (2012). Is Green Diesel Healthy Diesel? Investigating the inflammatory effects of exhaust from an engine run with petro- or biodiesel fuels. *Mountain and Plains Educational Research Center for Occupational and Environmental Health and Safety*, February, 2012.

63. Marchese, A. J. and Albrecht, K. O. (2012). A Review of Algal Lipid to Fuel, Lipid Extracted Algae to Fuel and Whole Algal Biomass to Fuel Conversion Technologies. *Invited Keynote Presentation. Second International Conference on Algal Biomass, Biofuels and Bioproducts*. San Diego, CA, June, 2012.

64. Martinez-Morett, D., Tozzi, L. and Marchese, A.. J. (2012). Natural Gas Chemical Kinetic Mechanisms For CFD Simulations Of High BMEP, Lean-Burn Gas Engines, ASME Internal Combustion Engine Division, Spring Technical Conference, Torino, Italy, May 6 – 9, 2012. **ASME ICES2012-81109**

65. Hincapie, E. and Marchese, A. J. (2012). Design and Construction of an Algal Dewatering System by the Use of Ultrasonic Standing Waves and its Performance Evaluation by Finite Element Modeling. *World Renewable Energy Forum,* Denver, CO, May 13-17, 2012.

66. Hincapie, E. and Marchese, A. J. (2012). Design and Construction of an Algal Dewatering System by the Use of Standing Waves and its Performance. *International Biomass Conference and Expo,* Denver, CO, April 16-19, 2012.

67. Bucy, H., Fisher, B.C. and Marchese, A. J. (2011). Chemical and Physical Properties of Algal Methyl Esters Containing Varying Levels of Methyl Eicosapentaenoate and Methyl Docosahexaenoate. *2011 Algae Biomass Summit, Minneapolis, MN,* October 25-27, 2011.

68. Fagerstone, K., Quinn, J., Bradley, T., DeLong, S. and Marchese, A. J. (2011). Measurement of Direct Nitrous Oxide Emissions from Microalgae Cultivation Under Simulated Photobioreactor and Open Pond Conditions. *2011 Algae Biomass Summit, Minneapolis, MN,* October 25-27, 2011.

69. Marchese, A. J. (2011). Fuel Properties and Pollutant Emissions from Algal Methyl Ester Biodiesel. Invited Keynote Presentation. *First International Conference on Algal Biomass, Biofuels and Bioproducts.* St. Louis, MO, July 17-20, 2011.

70. Bucy, H. and Marchese, A. J. (2011). Oxidative Stability and Ignition Quality of Algal Methyl Esters Containing Varying Levels of Methyl Eicosapentaenoate and Methyl Docosahexaenoate. *First International Conference on Algal Biomass, Biofuels and Bioproducts***,** St. Louis, MO, July 17-20, 2011.

71. Fagerstone, K., Quinn, J., Bradley, T. and Marchese, A. J. (2011). Measurement of Direct Nitrous Oxide Emissions from Microalgae Cultivation. *First International Conference on Algal Biomass, Biofuels and Bioproducts***,** St. Louis, MO, July 17-20, 2011.

72. Batan, L., Quinn, J., Fagerstone, K., Bradley, T. and Marchese, A. J. (2011). A Current Evaluation of Life Cycle Greenhouse Gas Emissions, Land Use and Environmental Impact from Large Scale Production of Biofuels from Microalgae" *2011 World Congress on Industrial Biotechnology & Bioprocessing*, May 8 – 11, 2011, Toronto, CA.

73. Bucy, H. and Marchese, A. J. (2011). Oxidative Stability of Algae Derived Methyl Esters Containing Varying Levels of Methyl Eicosapentaenoate and Methyl Docosahexaenoate. **ASME ICEF2011-60047** *ASME 2011 Internal Combustion Engine Division Fall Technical Conference, Morgantown, WV,* October 2-5, 2011.

74. Marchese, A. J. (2010). Emissions from Algal Methyl Ester Biodiesel. 2010 *Biodiesel Technical Workshop of the National Biodiesel Board.* Kansas City, MS, November 3, 2010.

75. Thayer, D., Koehler, K., Prieto, A., Marchese, A. J. and Volckens, J. (2010). Laboratory Evaluation of a Personal, Thermophoretic Sampler for Airborne Nanoparticles. *29th Annual Conference of the American Association of Aerosol Research.* Portland, OR, October, 2010.

76. Thayer, D., Volckens, J., Koehler, K., Marchese, A. J. and Prieto, A. (2010). A Personal Sampler for Engineered Nanoparticles. *Graduate Student Poster Session of the American Industrial Hygiene Conference and Exposition (AIHCE),* Denver*,* CO*,* May 24-26, 2010.

77. Fisher, B. C. and Marchese, A. J. (2010). Characterization of Gaseous and Particulate Emissions from the Combustion of Algal Methyl Esters in a Turbocharged Direct Injection Diesel Engine. *Western States Meeting of the Combustion Institute*, Boulder, CO, March, 2010.

78. Farouk, T., Dryer, F. L., Marchese, A. J. Vaughn, T. L. and Kroenlein, K. (2010). A Numerical Study on the Impact of Supporting Fibers on Tethered Droplet Ignition under Microgravity Conditions. *Western States Meeting of the Combustion Institute*, Boulder, CO, March, 2010.

79. Marchese, A. J., Grumstrup, T. and Vaughn, T. L. (2010). Examination of the Role of C_2O Radical in Methyl Ester NO_x Formation. *Western States Meeting of the Combustion Institute*, Boulder, CO, March, 2010.

80. Fisher, B. C., Lee, T., Collett, J., Volckens, J. and Marchese, A. J. (2010). Measurement of Gaseous and Particulate Emissions from Algae-Based Biodiesel FAME. **SAE-2010-01-1523**, *2010 SAE International Powertrains, Fuels & Lubricants Meeting*, Rio de Janeiro, Brazil, May 5-7, 2010.

81. Fisher, B. C., Lee, T., Collett, J., Volckens, J. and Marchese, A. J. (2009). Measurement of Gaseous and Particulate Emissions from Algae-Derived Biodiesel FAME. 2009*Algae Biomass Summit*, San Diego, CA October 7-9, 2009.

82. Volckens, J., Koehler, K., Marchese, A. J. and Prieto, A. (2009). A Personal Sampler for Engineered Nanoparticles. *28th Annual Conference of the American Association of Aerosol Research.* Minneapolis, MI, October, 2009.

83. McKenna, D. S., Marchese, A. J. and Volckens, J. (2009). Investigation of Health Effects of Algae-Derived Biofuel Exhaust Emissions. *NSF IGERT Poster Session, Washington, DC.*

84. Marchese, A. J. (2009). Algae Derived Biofuels for the Transportation Sector. Panel Member: Greenhouse Gas Emissions from Advanced Diesel Technologies- What to Expect Now and in the Future. *2009 Transportation Planning, Land Use and Air Quality Conference.* Denver, CO, July 28-29, 2009.

85. Fisher, B. C. and Marchese, A. J. (2009). Characterization of Gaseous and Particulate Emissions from Algae-Derived Biodiesel FAME. *Biofuels for Transportation Symposium, American Chemical Society Meeting*, Washington DC, August 16-20, 2009.

86. Martinez-Morett, D., R. P. Hesketh, K. K. Bhatia, A. J. Marchese, L. J. Bonanno (2009). Measurement of Particulate Matter Within School Bus Passenger Compartments Under Realistic Operating Conditions: An Evaluation Of Retrofit Devices. *Air and Waste Management Association, 102nd Annual Conference and Exhibition,* Detroit, MI, June 2009.

87. Volckens, J., Marchese, A. J. and Prieto, A.(2009). A Personal Sampler for Assessing Nanoparticle Exposures. *American Industrial Hygiene Association Annual Conference*, Toronto, CA, June 2009.

88. Marchese, A. J. (2009). Properties and Suitability of Liquid Fuels Derived from Microalgae. *The IARU International Scientific Congress on Climate Change,* Copenhagen, Denmark, March 2009.

89. McKenna, D., Vaughn, T., Rowen, C., Hesketh, R. P., Bhatia, K.K., Marchese, A. J., Chipko, G. and Guran, S. (2008). Evaluation of Emissions and Performance of Diesel Locomotives with B20 Biodiesel Blends: Static Test Results. **RTDF2008-74030**. *2008 ASME Rail Transportation Division Meeting*, September 24, 2008.

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201. Ramachandran, R. P., Marchese, A. J., Newell, J. A. (2000). A Pedagogical Concept of Integrating Multidisciplinary Design and Technical Communication. *ASEE Annual Meeting*, St. Louis, MO.

202. Harvey, R., Johnson, F., Marchese, A. J., Newell, J. A., Ramachandran, R. P., and Sukumaran, B. (1999). Improving the Engineering and Writing Interface: An Assessment of a Team-Taught Integrated Course. *ASEE Annual Meeting*, St. Louis, MO.

203. Harvey, R., Johnson, F., Marchese, A. J., Newell, J. A., Ramachandran, R. P., and Sukumaran, B. (1999). Teaching Quality: An Integrated TQM Approach to Technical Communication and Engineering Design. *ASEE Zone Meeting, Monmouth University, Spring 1999*.

Diversity Issues

204. Gorakhki, M.R.H., Huq, N., Marchese, A. J., Baker, D. and Catton, K. (2018). Identifying Factors for Retention of Engineering Students in First 2 Years. *2018 ASEE Annual Conference*. Salt Lake City, UT. June 2018.

205. Gale, R., Marchese, A. J. and Rome, D. (2004) "Understanding Student Empowerment in the Professions, Promoting Student Learning through the Scholarship of Teaching and Learning", *Association of American Colleges and Universities, Philadelphia, PA, November 2004*.

206. Marchese, A. J. (2003). Creating a High Quality and Inclusive Public Undergraduate Engineering Program: Bridging the Gap Between Institutional Mission and Institutional Culture. *Workshop on Racism and Diversity in Community*. University of Illinois at Urbana-Champaign. January 24-25, 2003

207. Marchese, A. J. (2002). Creating an Inclusive Undergraduate Engineering Program. *Challenges in Diversity - Gender, Class and Ethnicity: Strategies for Teaching & Learning*. November 2002. Notre Dame, IN.

208. Marchese, A. J. (2002). Strategies for Enhancing Learning in Students of Color at Predominantly White Undergraduate Engineering Programs. *American Association for Higher Education. Annual Meeting*. March 2002, Chicago, IL.

TRADE JOURNAL ARTICLES

209. Marchese, A. J., Mandayam, S. and Schmalzel, J. L. (1998). Thermodynamics of Coffee Makers. *Hewlett Packard Engineering Educator*, Vol. 2, No. 1, p. 8.

210. Schmalzel, J., Marchese, A. J., and Hesketh, R. P. (1998). What's Brewing in the Engineering Clinic? *Hewlett Packard Engineering Educator*, Vol. 2, No. 1, p. 6.

211. Johnson, F. S, Marchese, A. J. and Mosto, P. (2000). Crossing Interdisciplinary Boundaries: Impediments to and Enablers of Faculty Collaboration and Integration. *The Department Chair*, Anker Publishing Company.

INVITED PRESENTATIONS

1. Marchese, A. J. (2018). Methane Emissions from the United States Natural Gas Supply Chain. *Rowan University,* Glassboro, NJ. January 2018.
2. Marchese, A. J. (2018). Methane Emissions from the United States Natural Gas Infrastructure: Field Measurements and National Emissions Modeling Results. *USDA Fire Sciences Laboratory,* Missoula, MT, April 2018.
3. Marchese, A. J. (2017). Methane Emissions from United States Natural Gas Facilities: Measurement Campaign and National Emissions Modeling Results. *University of Georgia,* Athens, GA, September 2017.
4. Marchese, A. J. (2017). Methane Emissions from United States Natural Gas Gathering Compressor Stations and Processing Plants. *Louisiana State University,* Baton Rouge, LA, February 2017.
5. Marchese, A. J. (2016). Methane Emissions from United States Natural Gas Midstream Facilities: Measurement Campaign and Development of a National Emissions Estimate. *University of Colorado,* Boulder, CO, June 2016.
6. Marchese, A. J. (2015). Total Methane Emissions from U.S. Natural Gas Midstream Operations. *Carnegie Mellon University,* Pittsburgh, PA, November 2015.
7. Marchese, A. J. (2015). Greenhouse Gas Inventory Implications from Methane Emissions from United States Natural Gas Gathering and Processing. *Environmental Protection Agency*, Pittsburgh, PA, November 2015.
8. Marchese, A. J. (2015). Methane Emissions from United States Natural Gas Gathering and Processing. *National Oil and Gas Emissions Committee*, Oklahoma City, OK, September 2015.
9. Marchese, A. J. (2015). Methane Emissions from United States Natural Gas Gathering and Processing. *Environmental Protection Agency*, Washington, DC, August 2015.
10. Marchese, A. J. (2015). Methane Emissions from United States Natural Gas Gathering and Processing. *Pipeline Research Council International, 2015 Spring Technical Meeting*, Fort Collins, CO, June 2015.
11. Marchese, A. J. (2015). Methane Emissions from United States Natural Gas Gathering and Processing. *2015 Gas Producers Association Convention*, San Antonio, TX, April 2015.
12. Marchese, A. J. (2014). Natural Gas/Diesel Dual Fuel Combustion: Engine Experiments and Computational Modeling. *University of Colorado at Colorado Springs*, December 2014.
13. Marchese, A. J. (2013). Conversion of Algal Lipids and Biomass into Drop-In Liquid Fuels: Lessons Learned from the NAABB Consortium. Invited Keynote Presentation. *Third International Conference on Algal Biomass, Biofuels and Bioproducts*. Toronto, CA, June 2013.
14. Marchese, A. J. (2013). Biofuels from Microalgae: Recent Progresses in Development of Sustainable and Scalable Liquid Transportation Fuels. Invited Keynote Presentation. *Sixth International Congress of Mechanical Engineering (CIMM) 2013,* Barranquilla, Colombia, May 2-4, 2013.
15. Marchese, A. J. (2013). An Evaluation of Algal Lipid Derived and Whole Algal Biomass Derived Fuel Conversion Technologies and Fuel Properties. *The Program for Advancing Research in Petroleum Alternatives for Transportation,* February 25 -27, 2012, Dead Sea, Israel

16. Marchese, A. J. (2012). Fuel Properties from Algal Methyl Ester Biodiesel Containing Various Varying Levels of Methyl Eicosapentaenoate and Methyl Docosahexaenoate. 2012 *Biodiesel Technical Workshop of the National Biodiesel Board.* Kansas City, MS, October 31, 2012.

17. *Marchese, A. J.* (2012). Fuel Properties and Pollutant Emissions from Algal Biofuels. *Sustainable Bionergy Development Center Seminar Series. Colorado State University, Invited Presentation.* October 16, 2012.

18. Marchese, A. J. (2012). Recent Developments in Algal Biofuel Conversion Technologies. *Renewable and Alternative Energy Seminar Series,* Davis, Graham and Stubbs, LLC. Denver, CO*,* July 25, 2012.

19. Marchese, A. J. (2012). A Review of Algal Lipid to Fuel, Lipid Extracted Algae to Fuel and Whole Algal Biomass to Fuel Conversion Technologies. *Invited Keynote Presentation. Second International Conference on Algal Biomass, Biofuels and Bioproducts*. San Diego, CA, June, 2012.

20. Marchese, A. J. (2012). Fuel Properties and Pollutant Emissions from Algal Biofuels. *University of Illinois at Chicago, Invited Presentation.* January 10, 2012.

21. Marchese, A. J. (2011). Fuel Properties and Pollutant Emissions from Algal Methyl Ester Biodiesel. *Woodward Governor, Invited Presentation.* September 15, 2011.

22. Marchese, A. J. (2011). Algal biofuels: progress and challenges ahead in the quest for a sustainable and scalable liquid transportation fuel". *Invited Presentation. Professor Frederick L. Dryer: A Celebration of 45 Years of Distinction. A Special Symposium at the Eastern States Sectional Meeting of the Combustion Institute. Storrs, CT. October 8, 2011.*

23. Marchese, A. J. (2011). Algal Biofuels: Current Status of the Industry. Invited panelist for Alternative Fuels Panel, *ASME 2011 Internal Combustion Engine Division Fall Technical Conference, Morgantown, WV, October 2-5, 2011.*

24. Marchese, A. J. (2011). Oxidative Stability, Ignition Quality and Pollutant Emissions from Algal Methyl Ester Biodiesel. *Invited Presentation. Bio-Energy Conference of the Americas*, Medellin, Colombia, August 2011.

25. Marchese, A. J. (2011). Fuel Properties and Pollutant Emissions from Algal Methyl Ester Biodiesel. Invited Keynote Presentation. *First International Conference on Algal Biomass, Biofuels and Bioproducts.* St. Louis, MO, July 17-20, 2011.

26. Marchese, A. J. (2010). Algae's Investment Outlook in Fuel, Pharmaceuticals and Chemicals. *Invited Keynote Panel Session. World Algae Congress USA 2010*. San Francisco, CA, December 7, 2010.

27. Marchese, A. J. (2010). Emissions from Algal Methyl Ester Biodiesel. 2010 *Biodiesel Technical Workshop of the National Biodiesel Board.* Kansas City, MS, November 3, 2010.

28. Marchese, A. J. (2010). Production, Characterization and Combustion of Algal Biofuels. Invited Presentation, *2nd Algae Workshop, Colorado Lakes and Reservoir Management Association (CLRMA).* Denver, CO, August 27, 2010.

29. Marchese, A. J. (2010). Combustion of Algae-Derived Biofuels. *CSU Engineering Innovations Breakfast.* Boulder, CO, April 6, 2010.

30. Marchese, A. J. (2010). Engaging the Entrepreneurial Mindset. *Lawrence Technological University, Detroit, MI.* May 13, 2010.

31. Marchese, A. J. (2010). Production and Characterization of Algal Biofuels. *Coordinating Research Council*, Golden, CO, March 2, 2010.

32. Marchese, A. J. (2010). Production and Characterization of Algal Biofuels. Invited Keynote Presentation, *Western States Meeting of the Combustion Institute*, Boulder, CO, March, 2010.

33. Marchese, A. J. (2009). "Algae Based Biofuels for the Transportation Sector", Clean Energy Supercluster, Expo 2009, May 2009, Colorado State University.

34. Marchese, A. J. (2009). Pollutant Emissions Reduction in Biofuel Powered Systems. Front Range Student Ecology Symposium, February 25, 2009.

35. Marchese, A. J. (2008). Creating an Entrepreneurial Culture in an Engineering Curriculum. *Worcester Polytechnic Institute*, Worcester, MA, October 25, 2008.

36. Marchese, A. J. (2008). Engaging the Entrepreneurial Mindset in an Engineering Curriculum. *Ohio Northern University*, Ada, OH. May 19, 2008.

37. Marchese, A. J. (2007). Biodiesel Locomotive Emissions Testing Using a Mobile Emissions Analyzer SEMTECH Users Conference, Sensors, Inc., Detroit, MI., October 2007.

38. Marchese, A. J. (2007). A Solution to the Biodiesel NO_x Problem. *Colorado State University*, April, 2007.

39. Marchese, A. J. (2007). Fundamental and Practical Research toward Solution to the Biodiesel NO_x Problem. *West Virginia University*, March, 2007.

40. Marchese, A. J. (2006). Biodiesel Research at Rowan University. *New Jersey Technology Council, Green Homes, Green Vehicles, Green Buildings Conference*. May 2006.

41. Marchese, A. J. (2005). The Biodiesel NOx Problem. *University of Colorado at Colorado Springs. Colorado Institute for Technology Transfer and Implementation,* November 2005.

42. Marchese, A. J. (2005). Exhaust Emissions from Biodiesel Powered School Buses. *NJ Biofuels Workshop*, Rutgers EcoComplex, June 2005.

43. Marchese, A. J. (2003). Flame Spread through Free Stratified Mixtures. *Drexel/ KAIST and Seoul National University Mini-Combustion and Plasma Workshop*, Drexel University, August 2003.

44. Marchese, A. J. (2003). Microwave Resonant Transfer Plasma Propulsion. *Mechanical Engineering Department Seminar Series.* Drexel University. April 2003.

45. Marchese, A. J. (2003). Flame Propagation through Free Stratified Fuel/Air Mixtures. *Aerospace and Mechanical Engineering 2002/2003 Colloquium*. University of Notre Dame. February 2003.

46. Marchese, A. J. (2001). Microgravity Droplet Combustion: Experiments and Detailed Numerical Modeling. *Inivted Lecture: University of Vermont*. University of Vermont. July 2001.

47. Marchese, A. J. (1997) Microgravity Droplet Combustion. *Invited Lecture: University of Delaware Fluid, Particulate and Environmental Seminar Series*, Oct. 1997.

OTHER

1. Marchese, A. J. Combustion of Single and Multicomponent Liquid Droplets: Detailed Kinetic Modeling and Microgravity Experiments. *Ph.D. Dissertation, Department of Mechanical and Aerospace Engineering*, Princeton University, 1996.

2. Marchese, A. J. Thermodynamics of Scroll Compressors. *Master's Project. Rensselaer Polytechnic Institute at Hartford*, 1992.

CONTRACTS AND GRANTS (Total: $23,416,500; PI: $11,714,800)

Externally-Funded Projects as PI ($11,422,800)

2017 – 2018 "Hydrothermal Processing of Biomass: Analysis and Testing of Upgraded HTL Product: Phase 4", *Pacific Northwest National Laboratories*, **$60,000**

2015 – 2016 "Cummins Emissions Solutions: Aftertreatment Testing: Phase 4", *Cummins, Inc.,* **$260,200**

2015 – 2018 "PACE: Producing Algae for Co-products and Energy: CSU Component", *Department of Energy*, **$295,800.**

2015 – 2018 "Autoignition of Liquid Hydrocarbon Droplets in Lean, High Pressure Natural Gas Mixtures Using a Rapid Compression Machine", *National Science Foundation*, **$300,000**

2015 – 2106 "Cummins Emissions Solutions: Aftertreatment Testing Phase 2", *Cummins, Inc.,* **$162,900**

2015 – 2016 "Hydrothermal Processing of Biomass: Analysis and Testing of Upgraded HTL Product", *Pacific Northwest National Laboratories*, **$50,000**

2015 – 2016 "Solar Cooling for Horticulture Application", *Rebound Technology*, **$77,000**

2014 - 2015 "Cummins Emissions Solutions High Altitude Aftertreatment Testing", *Cummins, Inc.*, **$529,000**.

2014 - 2015 "Woodward Fellows Program: Modeling and Experiments on Natural Gas/Diesel Dual Fuel in a GM 1.9L Engine", *Woodward Governor*, **$68,000**.

2014 - 2015 "Rapid Compression Machine Studies of Natural Gas and Syngas Blends", *University of California San Diego*, **$15,000**.

2013 – 2016 "Achieving Tier 4 Emissions and Efficiency with Biomass Cookstoves", *Department of Energy,* **$855,000**

2013 – 2015 "Evaluation of VanDyne Superturbo Performance with Dual Fuel Natural Gas/Diesel Engines: Engine Experiments and GT-Power Modeling", *VanDyne SuperTurbo*, **$162,568**.

2013 – 2014 "Quantifying Fugitive Methane Leakage from the Natural Gas Supply Chain: Gathering and Processing Module", *Environmental Defense Fund*, **$1,696,000**.

2013 - 2015 "Turbocharger Telemetry Testing at Altitude for QSK50 and QSK19 Tier 4f Diesel Engines", *Cummins, Inc.*, **$820,000**.

2013 – 2015 "Evaluation of Cellulosic Biomass Derived Oxygenates as Drop-In Blend Components", *Department of Energy,* **$500,000.**

2012 – 2013 "Targeted Chemical Mechanism Modification for Bio-Alcohol/FAME Blends for Use in Traditional and Advanced Combustion Applications", *Colorado Center for Biorefining and Biofuels*, **$35,000**.

2012 – 2013 "Evaluation of Beef Tallow as Primary Feedstock for Methyl Ester Biodiesel Production: Phase I", *SunWest Alternative Biofuels, LLC*, **$75,000**.

2011 – 2012 "Evaluation of Renewable Aviation Jet Fuel from Alternative Sources", *The Boeing Company,* **$25,000**.

2011 – 2012 "CFD Modeling of Combustion and Heat Transfer during the Intake, Compression, and Combustion Processes in Natural Gas Engines ", *Prometheus, LLC*, **$34,497**.

2010 – 2013 "National Alliance for Advanced Biofuels and Bio-products: CSU Component", (Co-PIs: Kenneth Reardon, Shawn Archibeque). *Department of Energy*, **$1,259,248**.

2010 – 2011 "JP-8 Aerosol Compression Ignition Studies", (Co-PI: Dan Olsen). *Busek Co./Air Force*, **$76,342.**

2010 – 2011 "Demonstration of Bio-Alcohol/FAME Blends with Tailored Low Temperature Chemistry for Enhanced Homogenous Charge Compression Ignition (HCCI) Engine Performance", (Co-PI: Ken Reardon). *Colorado Center for Biorefining and Biofuels*, **$35,000.**

2009 "Engine Performance and Emissions Testing of Hydrogen Generator – Phase I Diesel Engine Tests", *GENR8, LLC*, **$12,000.**

2009-2011 "Technology Entrepreneurship for a Globally Sustainable Future", (Co-PIs: Greg Graff and Paul Hudnut). *NCIIA Course and Program Grant*, **$31,500**.

2009 – 2012 "The Effect of Chemical Structure on Pollutant Formation Kinetics in Algae-Derived Biofuel Combustion", Co:PI: Azer Yalin, *National Science Foundation*, **$324,268.**

2008 - 2009 "Effect of Chemical Structure on NOx and PM Emissions from Algae-Based Biodiesel FAME", 2008-2009, *U.S. Small Business Administration, Sustainable Biofuels Development Center*, **$75,000.**

2008 "Chemical Kinetic and Engine Modeling of a High Altitude, 2-Stroke, Direct Injection C_3H_8-N_2O Internal Combustion Engine", Busek Co./DARPA, **$15,000.**

2008 – 2012 "A Rapid Compression Machine for Chemical Kinetic Studies of Emissions from Bio-Derived Fuels", *National Science Foundation MRI*, **$451,951.**

2007 – 2008 "Evaluation of Biodiesel Blends in NJ TRANSIT Diesel Locomotives", (Co-PI's: Krishan Bhatia and Robert Hesketh). *NJDEP*, $**150,000.**

2007 – 2008 "Evaluation of Biodiesel Blends in Airport Ground Support Equipment", (Co-PI's: Krishan Bhatia and Robert Hesketh; PI transferred to Bhatia). *NJDEP*, **$85,000.**

2006 – 2007 "The Innovation Center: A Rowan University Technology Center and Business Incubator", *U.S. Small Business Administration*, **$493,614.**

2006 – 2007 "A Technology Business Incubator in the Innovation Center at the South Jersey Technology Par*k", New Jersey Commission on Science and Technology*, **$1,500,000.**

2006 "A Technology Business Incubator at the South Jersey Technology Park", *U.S. Department of Housing and Urban Development*, **$72,168.**

2005 – 2006 "The Helping Hand: Design of a Writing Assistive Device for Arthritic Impaired Patients", *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation*, **$14,400.**

2004 – 2005 "A Master Plan for the South Jersey Technology Park", *New Jersey Division of Community Affairs Smart Future Planning Grant*, **$150,000.**

2005 – 2006 "Development of a High Tech Workforce Training Center at the South Jersey Technology Park at Rowan University", *U.S. Small Business Administration* , **$49,332.**

2004 - 2006 "Development of a 1-Second Drop Tower for Microgravity Combustion and Fluid Mechanics Research", (Co-PI: John Chen). *National Science Foundation,* **$189,364.**

2003 – 2004 "Rowan Undergraduate Venture Capital Fund", Principal Investigator, *Henry M. Rowan Family Foundation, Inc.*, **$65,000.**

2002 "The BlackLight Rocket Engine",(Co-PIs: John Schmalzel and Peter Jansson). *NASA Institute for Advanced Concepts*, **$75,000.**

2002 – 2003 "A Distributed Venture Capital Fund for Joint Product Development at Rowan University and Swarthmore College", *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation*, **$4,000.**

2002 – 2003 "Ski Lift Footrest Retrofit", *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation*, **$8,375.**

2001 – 2002 "Enhanced Machine Head Design", Principal Investigator, *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation*, **$10,800.**

2001 "Development of a Passively Cooled Jet Blast Deflector for Aircraft Carrier Launch Operations", *NAVY Air Warfare Center*, **$10,000.**

2001 – 2002 "Enhancing Engineering Design Education through Integration with Technical Communication" *Carnegie Academy for the Scholarship of Teaching and Learning.* **$6,000.**

2000 – 2003 "Gravitational Influences on Flame Propagation through Non-Uniform Gas Mixtures", *NASA Microgravity Combustion Science*, **$98,000.**

2000 – 2002 "A Venture Capital Fund to Encourage Rapid Product Development with Multidisciplinary E-Teams", *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation*, **$30,000.**

2000 – 2002 "CreATe: Creative Audio Technology Laboratory at Rowan University", (Co-PI's: John Schmalzel, Eddie Guerra, Eric Constans, Robert Rawlins). *National Science Foundation*, **$50,000.**

2000 "Development of a Fire Resistant Cover for the NAVY ILARTS System", *NAVY Air Warfare Center*, **$5,000.**

1999 – 2003 "Development of a Human-Powered Stairclimber ", *John and Helen Glass*, **$50,000.**

1999 – 2000 "Stairclimber Competitive Assessment and New Product Development", *Electric Mobility Corporation*, **$20,000.**

1999 – 2000 "A Venture Capital Fund to Encourage Rapid Product Development with Multidisciplinary E-Teams in the Junior Engineering Clinic II", *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation,* $**11,000.**

1998 – 2000 "Competitive Assessment Laboratory", (Co-PI's: Robert Hesketh, John Schmalzel, Kauser Jahan) *National Science Foundation,* **$111,200.**

1998 – 1999 "Numerical Model Development of Flame Propagation through Non-Uniform Premixed Gas Systems", *NASA Glenn Research Center*, **$10,000.**

1998 – 1999 "A Venture Capital Fund to Encourage Rapid Product Development with Multidisciplinary E-Teams in the Junior Engineering Clinic I", *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation*, **$10,000.**

1998 NASA Summer Faculty Fellowship. **$10,000.**

Externally-Funded Projects as Co-PI (Total: $11,702,000)

2018 – 2021 "Expanding the Knock/Emissions/Misfire Limits for the Realization of Ultra-Low Emissions, High Efficiency Heavy Duty Natural Gas Engines", (PI: Daniel Olsen). DOE*,* **$1,200,000**

2016 – 2018 "Characterization of Gathering and Boosting Stations", (PI: Daniel Zimmerle). DOE, **$2,346,000**

2016 – 2018 "Onboard Refueling Vapor Recovery System Testbed and Simulation", (PI: Bret Windom). Honda R&D America, **$310,000**

2016 – 2018 "Test Facility and Proving Ground for ARPA-E MONITOR", (PI: Daniel Zimmerle). DOE ARPA-E, **$4,175,000**

2015 – 2017 "Development of a Membrane Based Natural Gas Conditioning System", (PI: Daniel Olsen). Cummins, **$217,000**

2014 – 2016 "Pre-Ionization Controlled Laser Plasma Formation for Ignition Applications", (PI:Azer Yalin). NSF/DOE, **$240,000.**

2014 – 2015 "Demonstration of Laser Ignition of Gaseous Fuels in a Rapid Compression Machine", (PI:Azer Yalin). Chevron Energy Corporation, **$240,000.**

2013 – 2014 "Commercialization of a Thermophoretic Personal Air Sampler (TP Sampler)", (PI:John Volckens). *U.S. EPA.,* **$150,000.**

2012 – 2013 "Graduate Fellowship Support for RCCI Combustion Research", Woodward Governor, PI: Morgan DeFoort), **$113,503**

2011 – 2012 "Graduate Fellowship Support for RCCI Combustion Research", Woodward Governor, PI: Morgan DeFoort), **$98,870.**

2011 – 2012 "Commercialization of a Thermophoretic Personal Air Sampler (TP Sampler)", (PI:John Volckens). *R.J. Lee Group, Inc.,* **$50,000.**

2011 – 2012 "VanDyne SuperTurbo Modeling and Experiments", (PI: Dan Olsen). *VanDyne SuperTurbo, Inc.* **$36,902.**

2010 – 2011 "Opportunity at the Bottom of the Pyramid: A Faculty Development Program to Prepare the Global Engineer", (PI:Phil Weilerstein, Co-PI's: Paul Hudnut and Bryan Willson). *National Science Foundation,* **$99,000.**

2008 "Performance Evaluation of Fuel Additives on a John Deere 6.8 L Diesel Engine", (PI: Dan Olsen), *EnCana Corporation*, **$99,943.**

2007 – 2008 "Evaluation of Biodiesel Blends in Home Heating Oil",(PI: Krishan Bhatia). *NJDEP*, **$100,000.**

2007 -2008 "Resonant Transfer Plasma Calorimetry Studies", (PI: Peter Jansson). *BlackLight Power Corporation*, **$75,000.**

2006 – 2008 "In-Cabin Particulate Matter Quantification and Reduction Strategies", (PI: Robert Hesketh). *NJDEP*, **$220,000.**

2005 – 2009 "Collaborative Research: Team Play! Integrating Engineering Principles of Sports into the Engineering Curriculum" (PI: Jennifer Kadlowec), *National Science Foundation,* **$129,697.**

2004 – 2007 " REU in Pollution Prevention and Sustainability ", (PI: Kauser Jahan). *National Science Foundation REU* , **$240,513.**

2003 – 2005 "The Technology Entrepreneurship Concentration: An Interdisciplinary Certificate Program for Undergraduate Engineering and Business Majors at Rowan University", (PI: Mark Weaver). *National Collegiate Inventors and Innovators Alliance/Lemelson Foundation*, **$32,000.**

2002 – 2003 "Diesel Emission Reduction Strategies for School Buses and HDDV Trucks", (PI: Robert Hesketh). *NJDOT Dept. of Research and Technology*. **$740,000.**

2001 – 2003 "Development of an Apparatus to Measure Ignition Delay in Microgravity", (PI: John Chen). *National Science Foundation.* **$224,400.**

2001 "Developing Reliability Models of Control Systems for a Nuclear Power Facility", (PI: Peter Jansson). *PSE&G.* $**100,000.**

2000 – 2003 "Hands on the Human Body", (PI: Stephanie Farrell). *National Science Foundation,* **$162,300.**

1998 "Low Cost Automated Crash Notification System", (PI: Clay Gabler) *NJDOT Research Challenge Grant,* **$112,100.**

1998 "Project for an Advanced Electric Vehicle", (PI: Linda Head), *NJDOT Research Challenge Grant*, **$41,095.**

1998 "Development of a Position Tracking System for a Handheld Scanner", (PI: Shreekanth Mandayam). *Physical Acoustics Corporation*, **$18,000.**

1996 – 1998 "Stereolithography: A Distributed Partnership" (PI: T.R. Chandrupatla). *National Science Foundation,* **$200,000.**

Internally-Funded Awards (Total: $104,500)

2011 – 2012 "Is Green Diesel Healthy Diesel? Evaluating the Effects of Alternative Diesel Fuel Emissions Using an Novel Lung Model", *Clean Energy Supercluster Grant*, **$15,000**

2011 – 2012 "Development of a Low Pressure Flat Fame Burner Apparatus for Quantitative Measurements of Prompt NO_x in Methyl Ester Flames", *Rockwell Anderson Seed Grant*, **$6,000**

2010 – 2011 "Development of a Portable Low-Cost Irrigation Pump Set for Developing Economies", *Clean Energy Supercluster Seed Grant*, **$18,000.**

2009 "Microgravity Ignition of Algae- Derived Biofuel Droplets", *NASA Space Grant Consortium Seed Grant*, **$8,500.**

2008 – 2009 "Combustion Chemistry and Pollutant Emissions from Algae-Derived SVO, FAME and HTRD", *Clean Energy Supercluster Seed Grant*, **$35,000.**

1998 – 1999 "Curriculum Pathfinder: A Comprehensive Guide for Students in Engineering", (PI: Jess Everett). *Rowan Courseware Development Grant*, **$14,500.**

1996 – 1997 Image Analysis System for Microgravity Combustion Research", Principal Investigator, *Rowan Foundation*, **$5,000.**

1997 -1998 "Analysis Software for Microgravity Combustion Research", Principal Investigator, *Rowan Foundation*, **$2,500.**