

**Seyed Mojtaba Sadrameli, Ph.D.**

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**Education:**

**Ph.D.**, (1985-1988), Chemical Engineering, University of Leeds, Leeds, U.K.

**M.Sc.**, (1983-1985), Chemical Engineering, University of Leeds, Leeds, U.K.

**B.Sc.**, (1975-1980), Chemical Engineering, Sharif University of Technology, Tehran, Iran

**Research Interests and Skills:**

Heat transfer, compact heat exchanger design, kinetics, and process design

Thermal Energy Storage and Renewable Energy, Phase Change Materials

Energy management and temperature control using Phase Change Materials

Thermo-chemical conversion of triglycerides for the production of renewable hydrocarbons

Renewable fuels, hydrogen and biofuel production from biomass gasification and pyrolysis

Industrial energy management/ waste minimization

Energy analysis and energy audit in industrial and commercial buildings

Conceptualization, computer simulation and optimization of chemical processes

Familiar with process simulators such as CHEMCAD, HYSYS, and ASPEN PLUS

**Career History:**

Present: **Honorary Professor of Chemical Engineering**, TMU, Tehran, Iran

2016 **Fly-in Professor** at GUTech, Muscat, Oman.

2006- 2008 **Research Prof. of Chem. Eng.**, University of North Dakota, Grand Forks, ND

Research activities were focused on the production of biofuels from renewable biomass-based materials such crop oils. Emphasis has been placed on developing new thermal/catalytic cracking processes for the production of biojet fuel and octane enhancement hydrocarbons. This project is part of the SUNRISE (Sustainable eNergy Research, Infrastructure and Supporting Education Initiative)

\$ 3.0M grant funded by different governmental and non governmental agencies. The followings are list of the involved projects:

- Thermal cracking of vegetable oils for the production of Biojet fuel (BioJP-8).
- Characterization of the fuel and performance test of a mini-turbine engine using biojet fuels
- Catalytic cracking of vegetable oil for the production of valuable chemicals
- Pyrolysis of crop oil seed cakes for BioOil production

2005- 2006 **Research Associate in Mechanical Engineering**, University of Florida, (UF Solar Energy and Energy Conversion Laboratory), Gainesville, FL.

Activities have been concentrated on the following projects:

Hydrogen production from biomass gasification and pyrolysis (increasing hydrogen production efficiency using  $CO_2$  sorbent materials): Funded project from NASA.

Biomass end-use energy applications

2003- 2005 **Visiting Professor of Chem. Engineering**, University of Florida, Gainesville, FL.

Taught two courses in Chemical Engineering Department (Process Design and Material and Energy Balances in Chemical Processes) and collaborated in research work at Mechanical Engineering (UF Solar Energy and Energy Conversion Laboratory)

**Administrative positions:**

1996- 2001 Director of Process Engineering Group, TMU, Tehran, Iran

1991- 1993 Chair of Chemical Engineering Department, TMU, Tehran, Iran

2000-2003 Director Faculty Promotion office, TMU, Tehran, Iran

2016-2017 Director of Process Engineering Group, TMU, Tehran, Iran.

2016-present Member of evaluation committee, Faculty of chemical engineering, TMU.

**Courses Taught:**

- Advanced Heat Transfer
- Industrial Heat Recovery Systems
- Energy Management and Renewable Energies
- Advanced Transport Phenomena
- Heat Transfer I and II
- Fluid Mechanics
- Applied mathematics
- Differential equations
- Material and Energy balances of chemical processes
- Process Design of Chemical Processes
- Modeling and Simulation of Chemical Engineering Processes
- Environmental Engineering in Oil Production

**Publications:**

100 referred national and international journal publications

100 conference presentations

20 keynote and workshop presentations

**Theses and Dissertations Directed:**

More than 100 M.Sc. theses

More than 20 Ph.D. theses

**Industrial Projects and Grants:** Some of the following projects have been carried out with the cooperation of international companies such as Linde and Jasper in Germany.

***In the US:***

Development of a simulation package for the simulation and optimization of a heat recovery system in the aluminum melting furnaces, Jasper Co., Geseke, Germany, 2003-2004

Design and commissioning of a continuous bench-scale setup (10 kg/hr) for the production of biojet fuel from thermal cracking of vegetable oils, UND, ND, 2006-2007

Design of a pilot plant for the production of 2500 kg/hr biojet fuel from crop oils, UND, ND, 2007-2008

***In Iran:***

2018-2023 Application of phase change and nano materials in energy management with \$500000 grant from the research department of TMU.

2017-2019 Application of PCM in efficiency enhancement of solar cells (\$20000 funding from INSF)

Process design of an olefin plant (520000 TPY and liquid/gaseous feedstock)

Energy audit in a lubricating oil refinery funded by oil and gas ministries of Iran (\$50000)

Energy conservation in glass manufacturer industry

Simulation and Optimization of Styrene Plant in Tabriz Petrochemical Complex (\$20000)

Simulation of Ethyl benzene Plant in Tabriz Petrochemical Complex (Project manager of \$20000 project from Tabriz Petrochemical Co. in Iran)

Energy audit of Arak Petrochemical Complex (Project manager of \$50000 granted project from the Ministry of Oil in Iran)

**List of Recent Publications (2013-present):**

All the papers can be cited in [www.scholar.google.com](http://www.scholar.google.com).

**2018 (12)**

S. Vahdati, S.M. **Sadrameli**, "Application of Phase Change Materials (PCMs) inside a parked car cabin under intense sun irradiation: Experiment & CFD modeling", *Thermal Science and Engineering Progress*, In press, 2018

S. Hasanabadi, S.M. **Sadrameli**, H. Soheili, H. Moharrami, Heihat M.M., A cost effective form-stable PCM composite with modified paraffin and expanded perlite for thermal energy storage in concrete, *Thermal Calorimetry and Analysis*, In press, 2018

M. Hashemzadeh, S.M. **Sadrameli**, "Investigating the Batch and Continuous Biodiesel Production from Linseed Oil in the Presence of a Heterogeneous Based Catalyst in a Packed Bed Reactor", *Journal of Renewable Energy and Environment*, In press, 2018.

S.M. **Sadrameli**, F. Motahrinejad, H. Mohammadpour, F. Dorkoosh, "An experimental investigation to the thermal conductivity enhancement of paraffin wax as a phase change material using diamond nanoparticles as a promoting factor", *Heat and Mass Transfer*, In press, 2018.

Sara Tahan Labibardi, S.M. **Sadrameli**, "Carbon based material included-shaped stabilized phase change materials for sunlight-driven energy conversion and storage: An extensive review", *Solar Energy*, **170**, 1130-1161.2018.

A.Mirahmad, S.M. **Sadrameli**, "A Comparative Study on the Modeling of a Latent Heat Energy Storage System and Evaluating its Thermal Performance in a Greenhouse", *Heat and Mass Transfer*, 54(9), 2871-2884. 2018.

M. Maghami, S.M. **Sadrameli**, M. Shamloo, "Glycerin purification using asymmetric Nano-structured ceramic membranes from production of waste fish oil biodiesel, *Heat and Mass Transfer*, 54(9), 2683-2690. 2018.

M. Hashemzadeh, S.M. **Sadrameli**, "Investigating Continuous Biodiesel Production from Linseed Oil in the Presence of a Co-solvent and a Heterogeneous Based Catalyst in a Packed Bed Reactor", *Energy*, **148**, 888-895, 2018.

A.Mousavi Baygi, S.M. **Sadrameli**, "Thermal Management of Photovoltaic Solar Cells Using Polyethylene Glycol 1000 (PEG1000) as a Phase Change Material (PCM)", *Thermal Science and Engineering Progress*, **5**,405-411, 2018.

A.Alizadeh, S.M. **Sadrameli**, "Numerical modeling and optimization of thermal comfort in building: Central composite design and CFD Simulation", *Energy and Buildings*, **164**, 187-202, 2018.

M. Taherkhani, S.M. **Sadrameli**, An improvement and optimization study of biodiesel production from linseed via in-situ transesterification using a co-solvent, *Renewable Energy*, **119**, 787-794, 2018.

S. Sami, S.M. **Sadrameli**, N. Etesami, "Thermal Properties Optimization of Microencapsulated a Renewable and Non-toxic Phase Change Material with a Polystyrene Shell for Thermal Energy Storage Systems", *Applied Thermal Engineering*, **130**, 1416–1424, 2018.

**2017 (5)**

M. Yousefi, H. Pahlavanzadeh, S.M. **Sadrameli**, "Create the Isotherm Condition in Catalytic Converters of Sulfuric Acid plants by Heat Pipe", *Journal of Heat and Mass Transfer*, **53**(8), 2693-2700, 2017

A. Palizdar, **S.M. Sadrameli**, “Conventional and advanced exergoeconomic analyses applied to ethylene refrigeration system of an existing olefin plant, *Energy Conversion and Management*”, **123**, 24-35, 2017.

H. Mohammad Poor, **S.M. Sadrameli**, “Calculation and prediction of binary mixture flash point using correlative and predictive local composition models”, *Fluid Phase Equilibria*, **440**, 95-102, 2017

A. Bayat, **S.M. Sadrameli**, “Production of renewable aromatic hydrocarbons via conversion of canola oil methyl ester (CME) over zinc promoted HZSM-5 catalysts”, *Renewable Energy*, **106**, 62-67, 2017.

A. Jamekhorshid, **S.M. Sadrameli**, R. Barzin, M. Farid, “Composite of Wood-Plastic and Micro-Encapsulated Phase Change Material (MEPCM) Used for Thermal Energy Storage”, *Applied Thermal Engineering*, **112**, 82-88, 2017.

#### **2016 (14)**

M. Kord, **S.M. Sadrameli**, B. Ghobadian, “Optimization of Biodiesel Production from Castor Oil Using a Microwave via Response Surface Methodology (RSM)”, *J. Env. and Ren. Energy*, **3**(4), 1-9, Fall 2016.

Y. Azizi, **S.M. Sadrameli**, “Thermal management of a LiFePO<sub>4</sub> battery pack at high temperature environment using a composite of phase change materials and aluminum wire mesh plates”, *Energy Management and Conversion*, **128**, 294-302, 2016.

M.R. Mousavi, **S.M. Sadrameli**, “Application of phase change materials in the efficiency enhancement of solar panels”, *Sharif Journal of Mech. Eng., University of Sharif*, **33**(3), 77-82, Spring 2016.

H. Seifi, **S.M. Sadrameli**, “Bound cleavage at carboxyl group-glycerol backbone position in thermal cracking of the triglycerides in sunflower oil”, *J. Anal. App. Pyr.*, **121**, 1-10, 2016.

**S.M. Sadrameli**, “Thermal/catalytic cracking of liquid hydrocarbons for the production of olefins: A state-of-the-art review II: Catalytic cracking review”, *Fuel*, **173**, 285-297, 2016.

**S.M. Sadrameli**, Mathematical Models for the Simulation of Thermal Regenerators: A state-of-the-art review, *Renewable & Sustainable Energy Reviews*, **58**, 462-476, 2016.

A Bayat, **S.M. Sadrameli**, J. Towfighi, “Production of Green Aromatics via Catalytic Cracking of Canola Oil Methyl Ester (CME) Using HZSM-5 Catalyst with Different Si/Al Ratios”, *Fuel*, **180**, 244-255, 2016

H. Seifi, **S.M. Sadrameli**, “Improvement of Renewable Transportation Fuel Properties by Deoxygenation Process using Thermal and Catalytic Cracking of Triglycerides and their Methyl Esters”, *Applied Thermal Engineering*, **100**, 1102-1110, 2016.

M. Alizadeh, **S.M. Sadrameli**, “Development of Free Cooling Based Ventilation Technology for Building: Energy Storage Unit, Performance Enhancement Techniques and Design Considerations-A review”, *Renewable & Sustainable Energy Reviews*, **58**, 619-645, 2016.

M. Alizadeh, **S.M. Sadrameli**, “Modeling of Thermal Cracking Furnaces via Exergy Analysis Using Hybrid Artificial Neural Network–Genetic Algorithm”, *ASME, Journal of Heat Transfer*, **318**(4), 324-334, 2016.

M. Maghami, J. J. Yousefi, **S.M. Sadrameli**, A. Haghtalab, Liquid-Liquid Phase Equilibrium in Ternary Mixture of Waste Fish Oil Biodiesel-Methanol-Glycerol: Experimental Data and Thermodynamic Modeling, *Fluid Phase Equilibria*, **409**, 124-130, 2016.

R. Parvizsedghy, **S.M. Sadrameli**, J. Towfighi, “Upgraded biofuel diesel production by thermal cracking of Castor biodiesel”, *Energy and Fuels*, **30**(1), 326-333, 2016.

A. Mirahmad, **S.M. Sadrameli**, A. Jamekhorshid, "A Comprehensive Study on a Latent Heat Thermal Energy Storage System and its Feasible Applications in Greenhouses", *Iranian Journal of Chemical Engineering*, **13**(2), 61-73, 2016.

A. Mirahmad, **S.M. Sadrameli**, H. Seifi, "Modeling and Simulation of a Latent Heat Thermal Energy Storage System (LHTES) Containing Phase Change Materials", *Sharif Journal of Mechanical Eng.*, **31-3**(2), 33-39, 2016.

#### **2015 (4)**

**S.M. Sadrameli**, "Thermal/Catalytic Cracking of Hydrocarbons for the Production of Olefins: A state-of-the-art review I: Thermal cracking review", *Fuel*, **140**, 102-115, 2015.

A. Bayat, **S.M. Sadrameli**, "Conversion of Canola oil and Canola oil Methyl Ester (CME) to Green Aromatics over a HZSM-5 Catalyst: a Comparative Study", *RSC Advances*, **5**, 28360-28368, 2015.

**S.M. Sadrameli**, H. Ajdari, "Mathematical Modeling and Simulation of Thermal Regenerators Including Solid Radial Conduction Effects", *Applied Thermal Engineering*, **76**, 441-448, 2015.

M. Maghami, **S.M. Sadrameli**, B. Ghobadian, "Production of Biodiesel from Fishmeal Plant Waste Oil Using Ultrasonic and Conventional Methods", *Applied Thermal Engineering*, **75**, 575-580, 2015.

#### **2014 (5)**

A. Jamekhorshid, **S.M. Sadrameli**, A. Bahramian, "Process Optimization and Modeling of Microencapsulated Phase Change Material Using Response Surface Methodology", *Applied Thermal Engineering*, **70**, 183-189, 2014.

R. Parvizsedghy, **S.M. Sadrameli**, "Consequence Modeling of Hazardous Accidents in a Supercritical Biodiesel Plant", *Applied Thermal Engineering*, **66**(1-2):282-289, 2014.

A. Jamekhorshid, **S.M. Sadrameli**, M. Farid, "A Review of Microencapsulation Methods of Phase Change Materials (PCMs) as a Thermal Energy Storage (TES) Medium", *Renewable & Sustainable Energy Reviews*, **32**(3):531-542, 2014.

M. Maleki, **S.M. Sadrameli**, F. Dorkoosh, H. Sharifi, "Synthetic and physical characterization of phase change materials microencapsulated by complex coacervation for thermal energy storage applications", *Int. J. Energy Research*, **38**(11):1492-1500, 2014.

A. Mirahmad, **S.M. Sadrameli**, H. Seifi, "Theoretical and Experimental Studies on a Latent Heat Thermal Energy Storage System (LHTES) Containing Flat Slabs of Phase Change Materials", *International of Journal of Smart Grid and Clean Energy*, **3**(2):234-240, 2014.

#### **2013 (2)**

H. Seifi, **S. M. Sadrameli**, J. Towfighi, "Development of a molecular kinetic model and tuning of its required kinetic parameters for thermal cracking of light hydrocarbons", *Iranian Journal of Chemical Engineering*, **10**(2):33-54, 2013.

M. Omraei, S. Sheybani, **S. M. Sadrameli**, J. Towfighi, "Preparation of Biodiesel Using KOH-MWCNT Catalysts: An 2 Optimization Study", *Ind. & Eng. Chem.*, **52**(5):1829-1835, 2013.

#### **List of Recent Presentations:**

Sadrameli S. M., et al, Fouling in Transfer line of Ethylene Plant by Physical condensation, Proceedings of the Heat Exchanger Fouling Conference, Eng. Foundation, Davos, Switzerland, August 2001

Sadrameli, S. M., "Renewable Energy Projects in Iran", Training Workshop on Renewable Energy Technologies for Clean Environment and Sustainable Development, 26-29 March 2002, Amman, Jordan

Niaei, A., , Towfighi, J., S. M. Sadrameli, Masoomi, M., Study of the Pyrolysis Reactions and Coke Deposition in Industrial Naphtha Cracking, Lecture notes in the Proceedings of the International Conference on Computational Science-Part I, **ICCS**, Amsterdam, The Netherlands, pp. 723-732, 2002.

Niaei, M. Masoumi, J. Towfighi, S. M. Sadrameli, M. Shahrokhi, Computer control pilot plant system for suding of pyrolysis reactions and coke deposition in thermal cracking process - experimental results, 15th International Congress of Chemical and Process Engineering, 25 - 29 August 2002, Praha, Czech Republic

M. Mofarahi, S. M. Sadrameli, J. Towfighi, Simulation of a Vacuum Pressure Swing Adsorption Process for Propylene/Propane Separation, 54<sup>th</sup> Canadian Chemical Engineering Conference, Calgary, Alberta, Canada, Oct. 3-6, 2004.

C. Martin, S.M. Sadrameli, Y. Goswami, Comparison of optimum operating conditions for a combined power and cooling thermodynamic cycle, Proceedings of SWC2005, Solar World Congress, August, 14-17, Orlando, USA, 2005.

M. Mahishi, S. M. Sadrameli, et. al, Hydrogen production from Ethanol: A Thermodynamic Analysis of a Novel Sorbent Enhanced Gasification Process, Proceedings of IMECE05, 2005 ASME Int. Mech. Eng. Congress, and Exposition, Nov. 5-11, Orlando, Florida, USA, 2005.

S. M. Sadrameli, A.E.S Green, Modeling Representations of Renewable Olefins from Thermal Cracking of Canola Oil, 4th International Conference on Energy Research & Development (**ICERD-4**), Nov. 17-19, Kuwait, 2008.

S. M. Sadrameli, A. Modarresi, Experimental and Theoretical Studies of an Ice Storage Regenerator System, Seventh Jordanian International Mechanical Engineering Conference, JIMEC 7, Sept. 27-29, Amman, Jordan, 2010.

M. Maleki, S. M. Sadrameli, F. Dorkoosh, Preparation and Characterization of Microcapsules as Phase Change Materials For Thermal Energy Storage, 10<sup>th</sup> Int. Conf. for Enhanced Building Operations, ICEBO 2010, Oct. 26-28, Kuwait, 2010.

S. Farajzadeh, S. M. Sadrameli, Kinetic modeling of corn oil methanolysis considering the effect of interfacial area of reaction system, 2<sup>nd</sup> Int. Conference on Chemical Engineering and Advanced Materials, CEAM 2010-VF, Nov. 15-26, 2010.

M. Maleki, S. M. Sadrameli, F. Dorkoosh, Microencapsulation of Phase Change Materials by Complex Coacervation for Thermal Energy Storage Systems, 20<sup>th</sup> Int. Conference on Management of Technology, Miami, Florida, USA, 10-14 April 2011.

S. M. Sadrameli, M. Omraei, Production of biodiesel by transestrification of canola oil using solid base catalyst KOH/-Al<sub>2</sub>O<sub>3</sub>, TMS 2012, 141<sup>st</sup> Annual Meeting and Exhibition, Orlando, FL, USA, 11-15 March 2012.

A.Mirahmad, S. M. Sadrameli, Theoretical and Experimental Studies on a Latent Heat Thermal Energy Storage System (LHTES) containing flat slabs of Phase Change Materials, 2013International Conference on Smart Grid and Clean Energy Technologies, ICSGCE 2013, 11-13October 2013, Kuala Lumpur, Malaysia.

S.M. Sadrameli, H.R.B. Ajdari, Theoretical and Experimental Studies of a Fixed Bed Regenerator for Heat Recovery in Aluminum Furnaces, TMS 2015, Light Metals, Orlando, FL, USA, 15-19 March 2015.



S. M. Sadrameli, A. Mirahmad, S.R. Mousavi, Y. Azizi, Innovative Research Studies on the Energy Management Systems Using Phase Change Materials for Commercialization, COMS2016, ASME, 28-30 August 2016, Houston, USA.