

RESUME

Name: Habib Ale Ebrahim

Date of Birth: Aug. 10, 1965

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Education:

B.S. Petrochemical Engineering, Amirkabir University, 1987

M.S. Chemical Engineering, Amirkabir University, 1990

Ph.D. Chemical Engineering, Amirkabir University, 1998

Employment:

Assistant Professor, Chemical Engineering Department, Amirkabir University, 2000-2005

Associate Professor, Chemical Engineering Department, Amirkabir University, 2005-2015

Administrative Deputy, Chemical Engineering Department, Amirkabir University, 2006-2011

Member of Central Library Consultant Team, Amirkabir University, 2007-2015

Manager of Thermo-kinetics Specialized Field, Chemical Engineering Department, Amirkabir University, 2012-2015

Responsible of Promotion Committee, Chemical Engineering Department, Amirkabir University, 2015-

Teaching:

Extractive metallurgy calculations, Mines & Metallurgical Eng. Dept., Amirkabir University, 1998-2007

Fluid mechanics, Chemical Eng. Dept., Amirkabir University, 2000-1

Statics and strength of materials, Chemical Eng. Dept., Amirkabir University, 2003-5

Petroleum and gas refining, Chemical Eng. Dept., Amirkabir University, 2003-15

Fluid mechanics, Mines & Metallurgical Eng. Dept., Amirkabir University, 2002-15

Heat transfer, Chemical Eng. Dept., Amirkabir University, 2004-15

Advanced refining processes, Chemical Eng. Dept., Amirkabir University, 2005-15

Advanced heat transfer, Chemical Eng. Dept., Amirkabir University, 2011-15

Kinetics and reactor design, Chemical Eng. Dept., Amirkabir University, 2012-14
Non-catalytic gas-solid reactions, Chemical Eng. Dept., Amirkabir University, 2014-15

Research Projects:

Reduction of zinc oxide by petroleum materials
Kinetic study, modeling and simulation of the non-catalytic gas-solid reactions
Study on the various methods for synthesis gas production from natural gas
Preparation of barium carbonate by barite reduction with methane
Preparation of strontium carbonate by celestite reduction with methane
Study on the kinetics of regenerative and throwaway flue gas desulphurization
Study on the kinetics of carbonation reaction for greenhouse gas concentration
Study on the various methods for hydrogen production
Study on the metals as energy carriers and new clean fuels

Industrial Supported Projects:

1-A new synthesis gas production method based on methane and zinc oxide reaction, Supported by Pars Oil and Gas Company, 2010

University M.S. Projects:

1-Solution of gas-solid partial differential equations by orthogonal collocation, Thesis of A. Afshar, 2006
2-Simulation of steam reformer of the methanol plant, Thesis of M. Talebi, 2007
3-Simulation of moving bed reactor of direct reduction process, Thesis of M.M. Nouri, 2007
4-Simulation of trickle bed reactor for gas-oil hydrotreating, Thesis of I. Soleimani, 2008
5-Simulation of refinery alkylation unit with solid catalyst, Thesis of A. Javooni, 2008
6-Simulation of fluid catalytic cracking reactor, Thesis of M. Heidari, 2008
7-Simulation of fluid catalytic cracking regenerator, Thesis of A. Sobhani, 2009
8-Simulation of autothermal reforming reactor, Thesis of H. Pour Tarrah, 2009
9-Simulation of CO₂ reforming reactor, Thesis of A. R. Rahimi, 2010
10-Simulation of pressure swing adsorption process for hydrogen separation,

Thesis of M. Yavari, 2010

11-Simulation of slurry reactor for low temperature Fischer-Tropsch reaction with cobalt catalyst, Thesis of A. adl, 2011

12- Removal of gaseous pollutants by a new dynamic scrubber, Thesis of A. Pourmohammadbagher, 2011

13- Kinetic modeling of hydrocracking system, Thesis of M. Aghvamipannah, 2011

14- Simulation of naphtha reformer reactor, Thesis of A. Etminan, 2011

15- Simulation of isomerization reactor for isobutylene production, Thesis of M. Khodabakhshi, 2011

16- Simulation of Tri-reforming reactor, Thesis of M.J. Azarhoosh, 2012

17- Simulation of direct reduction reactor with consideration of three iron oxides, Thesis of A. Mirzajani, 2012

18- Preparation of Ce/La/Cu and Ce/La/Ni three oxides catalysts and SO₂ reduction with methane by them to sulfur, Thesis of E. Mousavi, 2012

19- Simulation of ammonia synthesis reactor, Thesis of F. Farivar, 2013

20- Simulation of slurry reactor for direct dimethyl ether synthesis, Thesis of S. Zare, 2013

21- Simulation of acetylene hydrogenation reactor, Thesis of M. Samavati, 2014

22- Simulation of methanol synthesis reactor, Thesis of M. Gorbani, 2014

23- Simulation of palladium membrane reactor for steam reforming, Thesis of E. Nejati, 2014

24- Simulation of chemical looping combustion, Thesis of A. Shahbazi, 2015

25- Simulation of diesel hydrotrating reactor by a heterogeneous model, Thesis of A. Bakhshi, 2015

26- Simulation of a packed bed ZnO reactor for H₂S removal, Thesis of S. Sarmadi, 2015

27- Simulation of combined CO₂ and steam reformer reactor, Thesis of N. Lotfi, 2015

University Ph.D. Projects:

1-Synthesis gas production from ZnO reduction by methane in a bench scale reactor, Thesis of A. Afshar, 2011

2- Modeling and experimental study of NiO reduction by methane to synthesis

gas, Thesis of H. Rashidi, 2013

3- Modeling and experimental investigation of activation of pistachio shell by steam, Thesis of A.H. Faramarzi, 2013

4- Modeling and experimental study of carbon dioxide reaction with lime, Thesis of M.M. Nouri, 2014

5- Modeling and experimental study of SO₂ adsorption reaction by CuO, Thesis of R. Bahrami, 2014

6- Modeling and experimental study of SO₂ adsorption reaction by a macro-porous lime, Thesis of H. Moshiri, 2015

ISI Papers:

1-‘An incremental analytical solution for gas-solid reactions, application to the grain model’ (E. Jamshidi and H. Ale Ebrahim) Chem. Eng. Sci., Vol. 51, 4253-4257, 1996, (17 Cit.)

2-‘A new solution technique of moving boundary problems for gas-solid reactions, application to half order volume reaction model’ (E. Jamshidi and H. Ale Ebrahim) Chem. Eng. J., Vol. 63, 79-83, 1996, (14 Cit.)

3-‘A quantized solution for nucleation model in gas-solid reactions’, (E. Jamshidi and H. Ale Ebrahim) Chem. Eng. J., Vol. 68, 1-6, 1997, (13 Cit.)

4-‘A new solution technique for gas-solid reactions with structural changes’ (E. Jamshidi and H. Ale Ebrahim) Chem. Eng. Sci., Vol. 54, 859-864, 1999, (14 Cit.)

5-‘Kinetic study of the zinc oxide reduction by methane’ (H. Ale Ebrahim and E. Jamshidi) Chem. Eng. Res. & Des., Vol. 79, 62-70, 2001, (32 Cit.)

6-‘Effect of mass transfer and bulk flow on the zinc oxide reduction by methane’ (H. Ale Ebrahim and E. Jamshidi) Ind. Eng. Chem. Res., Vol. 41, 2630-2636, 2002, (14 Cit.)

7-‘Synthesis gas production by zinc oxide reaction with methane: elimination of greenhouse gas emission from a metallurgical plant’ (H. Ale Ebrahim and E. Jamshidi) Energy Conversion & Management, Vol. 45, 345-363, 2004, (30 Cit.)

8-‘Kinetic study and mathematical modeling of the reduction of ZnO-PbO mixtures by methane’ (H. Ale Ebrahim and E. Jamshidi) Ind. Eng. Chem. Res., Vol. 44, 495-504, 2005, (14 Cit.)

9-‘Kinetic study of nickel oxide reduction by methane’ (R. Alizadeh, E. Jamshidi and H. Ale Ebrahim) Chem. Eng. Technol., Vol. 30, 1123-8, 2007, (30 Cit.)

10-‘Catalytic effect of zinc oxide on the reduction of barium sulfate by methane’

(R. Alizadeh, E. Jamshidi and H. Ale Ebrahim) *Thermochimica Acta*, Vol. 460, 44-9, 2007

11-‘A new solution technique for fluid-solid reactions’ (A. Shiravani, E. Jamshidi and H. Ale Ebrahim) *Chem. Eng. J.*, Vol. 140, 264-77, 2008

12-‘Solving partial differential equations of gas-solid reactions by orthogonal collocation’ (A. Afshar, H. Ale Ebrahim and E. Jamshidi) *Comput. Chem. Eng.*, Vol. 32, 1746-59, 2008, (16 Cit.)

13-‘A study on the kinetics of hydrogen reduction of molybdenum disulfide powders’ (M.M. Afsahi, M. Sohrabi, R.V. Kumar and H. Ale Ebrahim) *Thermochimica Acta*, Vol. 473, 61-7, 2008, (10 Cit.)

14-‘A model for the intrinsic kinetic parameters of the direct reduction of MoS₂ with hydrogen’ (M.M. Afsahi, M. Sohrabi, and H. Ale Ebrahim) *Intern. J. Materials Res.*, Vol. 99, 1032-8, 2008

15-‘A new clean process for barium carbonate preparation by barite reduction with methane’ (E. Jamshidi and H. Ale Ebrahim) *Chem. Eng. Proces.*, Vol. 47, 1567-77, 2008, (18 Cit.)

16-‘Finite element solution for gas-solid reactions: application to the moving boundary problems’ (A. Afshar, H. Ale Ebrahim, M. Hatam and E. Jamshidi) *Chem. Eng. J.*, Vol. 144, 110-8, 2008, (12 Cit.)

17-‘Finite element solution of fluid-solid reaction equations with structural changes’ (A. Afshar, H. Ale Ebrahim, M. Hatam and E. Jamshidi) *Chem. Eng. J.*, Vol. 148, 533-8, 2009, (10 Cit.)

18-‘Kinetic study of celestite reduction by methane’ (H. Ale Ebrahim and E. Jamshidi) *Mineral Proc. Extractive Metal.*, Vol. 118, 194-200, 2009

19-‘Application of random pore model to SO₂ capture by lime’ (H. Ale Ebrahim) *Ind. Eng. Chem. Res.*, Vol. 49, 117-122, 2010, (15 Cit.)

20-‘Study of seven lump kinetic model in the fluid catalytic cracking unit’ (M. Heidari, H. Ale Ebrahim and B. Dabir) *American J. Applied Sci.*, Vol. 7, 71-6, 2010

21-‘Modeling of an industrial riser in the fluid catalytic cracking unit’ (M. Heidari, H. Ale Ebrahim and B. Dabir) *American J. Applied Sci.*, Vol. 7, 221-6, 2010

22-‘Synthesis gas and zinc production in a noncatalytic packed-bed reactor’ (A. Afshar, H. Ale Ebrahim, E. Jamshidi and A.H. Faramarzi) *Chem. Eng. Technol.*, Vol. 33, 1989-98, 2010

- 23-‘Simulation of direct reduction reactor by the grain model’ (S.M.M. Nouri, H. Ale Ebrahim and E. Jamshidi) *Chem. Eng. J.*, Vol. 166, 704-709, 2011
- 24-‘The effect of reliable prediction of final pressure during pressure equalization steps on the performance of PSA cycles’ (M. Yavary, H. Ale Ebrahim and C. Falamaki) *Chem. Eng. Sci.*, Vol. 66, 2587-2595, 2011
- 25-‘Study on simultaneous removal of NO_x and SO₂ with NaClO₂ in a novel swirl wet system’ (A. Pourmohammadbagher, E. Jamshidi, H. Ale Ebrahim and B. Dabir) *Ind. Eng. Chem. Res.*, Vol. 50, 8278-8284, 2011, (11 Cit.)
- 26-‘Simultaneous removal of gaseous pollutants with a novel swirl wet scrubber’ (A. Pourmohammadbagher, E. Jamshidi, H. Ale Ebrahim and B. Dabir) *Chem. Eng. Process.*, Vol. 50, 773-779, 2011
- 27-‘Estimation of mid-distillates production rate in a low temperature Fischer-Tropsch process’ (A. Adl, H. Ale Ebrahim and M. Sohrabi) *J. Chem. Technol. Biotechnol.*, Vol. 87, 73-79, 2012
- 28-‘Noncatalytic synthesis gas production by reduction of ZnO with methane in a dilute phase pneumatic conveying reactor’ (A. Afshar, H. Ale Ebrahim and A.H. Faramarzi) *Ind. Eng. Chem. Res.*, Vol. 51, 3271-3278, 2012
- 29-‘The best screw shape for fine zinc oxide particles feeding’ (M. Barati, E. Jamshidi and H. Ale Ebrahim) *Adv. Powder Technol.*, Vol. 23, 372-379, 2012
- 30-‘A novel modeling, simulation and optimization approach of crude oil cold stripping process’ (K. Hezaveh and H. Ale Ebrahim) *China Petroleum Process. Petrochemical Technol.*, Vol. 15, 78-84, 2013
- 31-‘Reduction kinetics of nickel oxide by methane as reducing agent based on thermogravimetry’ (H. Rashidi, H. Ale Ebrahim and B. Dabir) *Thermochimica Acta*, Vol. 561, 41-48, 2013
- 32-‘Application of random pore model for synthesis gas production by nickel oxide reduction with methane’ (H. Rashidi, H. Ale Ebrahim and B. Dabir) *Energy Conversion Manag.*, Vol. 74, 249-260, 2013
- 33- ‘Modeling, simulation and configuration improvement of horizontal ammonia synthesis reactor’ (F. Farivar and H. Ale Ebrahim) *Chem. Product Process Model.*, Vol. 9, 89-95, 2014
- 34- ‘Preparation of high surface area Ce/La/Cu and Ce/La/Ni ternary metal oxides as catalysts for the SO₂ reduction by CH₄’ (E. Mousavi, H. Ale Ebrahim and M. Edrissi) *Synth. React. Inorganic Metalorganic Nanometal Chem.*, Vol. 44, 881-890, 2014

- 35- 'Simulation and optimization of a horizontal ammonia synthesis reactor using genetic algorithm' (M.J. Azarhoosh, F. Farivar and H. Ale Ebrahim) RSC Adv., Vol. 4, 13419-13429, 2014
- 36- 'Simulation of an axial-radial ammonia synthesis reactor by linking Comsol-Matlab software' (Farivar and H. Ale Ebrahim) RSC Adv., Vol. 4, 48293-48298, 2014
- 37- 'Applying the random pore model in a packed bed reactor for the regenerative SO₂ removal reaction by CuO' (R. Bahrami, H. Ale Ebrahim, R. Haladj and M.A. Ale Ebrahim) Ind. Eng. Chem. Res., Vol. 53, 16285-16292, 2014
- 38- 'Application of random pore model for SO₂ removal reaction by CuO' (R. Bahrami, H. Ale Ebrahim and R. Haladj) Process Safety Environ. Protec., Vol. 92, 938-947, 2014
- 39- 'A comprehensive kinetic study of the reaction of SO₂ with CaO by the random pore model' (H. Moshiri, B. Nasernejad and H. Ale Ebrahim) Chem. Eng. Technol., Vol. 37, 1-11, 2014
- 40- 'The effect of number of pressure equalization steps on the performance of pressure swing adsorption process' (M. Yavary, H. Ale Ebrahim and C. Falamaki) Chem. Eng. Process., Vol. 87, 35-44, 2015
- 41- 'A mathematical model for prediction of pore size distribution development during activated carbon preparation' (A.H. Faramarzi, T. Kaghazchi, H. Ale Ebrahim and A. Afshar) Chem. Eng. Communic., Vol. 202, 131-143, 2015
- 42- 'Solution of coupled partial differential equations of a packed bed reactor for SO₂ removal by lime using the finite element method' (H. Moshiri, B. Nasernejad and H. Ale Ebrahim) RSC Adv., Vol. 5, 18116-18127, 2015
- 43- 'Preparation of a nano CaO sorbent for improvement the capacity for CO₂ capture reaction' (M.M. Nouri, H. Ale Ebrahim and B. Nasernejad) Synth. React. Inorganic Metalorganic Nanometal Chem., Vol. 45, 828-833, 2015
- 44- 'Simulation of direct di-methyl ether synthesis in a slurry reactor by recirculation and axial dispersion models' (S. Zare and H. Ale Ebrahim) Energy Technol., Vol. 3, 587-600, 2015
- 45- 'Simulation and multi-objective optimization of a trickle bed reactor for diesel hydrotreating by a heterogeneous model using non-dominated sorting genetic algorithm II' (A. Bakhshi, H. Ale Ebrahim and M.J. Azarhoosh) Energy & Fuels, Vol. 29, 3041-3051, 2015

- 46- 'A modified random pore model for carbonation reaction of calcium oxide with carbon dioxide' (M.M. Nouri, H. Ale Ebrahim and B. Nasernejad) *Chem. Industry*, Vol. 69, 209-217, 2015
- 47- 'A screw-brush feeding system for uniform fine zinc oxide powder feeding and obtaining a homogeneous gas-particle flow' (M. Barati, E. Jamshidi and H. Ale Ebrahim) *Adv. Powder Technol.*, Vol. 26, 303-308, 2015
- 48- 'Experimental investigation and mathematical modeling of physical activated carbon preparation from pistachio shell' (A.H. Faramarzi, T. Kaghazchi, H. Ale Ebrahim and A. Afshar) *J. Anal. Appl. Pyrolysis*, Vol. 114, 143-154, 2015
- 49- 'Comparison of random pore model, modified grain model, and volume reaction model predictions with experimental results of SO₂ removal reaction by CuO' (R. Bahrami, H. Ale Ebrahim and R. Haladj) *J. Ind. Eng. Chem.*, Vol. 30, 372-378, 2015
- 50- 'Enhancing SO₂ capture capacity by preparation of a nano CaO sorbent with the modified structural parameters' (H. Moshiri, H. Ale Ebrahim and B. Nasernejad) *Micro & Nano Letters*, Vol. 10, 577-579, 2015
- 51- 'Investigation of CO₂ reaction with CaO and an acid washed lime in a packed bed reactor' (M.M. Nouri, H. Ale Ebrahim, B. Nasernejad and A. Afshar) *Chem. Eng. Communic.*, Vol. 203, 1-7, 2016
- 52- 'Simulating and optimizing auto-thermal reforming of methane to synthesis gas using non-dominated sorting genetic algorithm II method' (M.J. Azarhoosh, H. Ale Ebrahim and H. Pourtarah) *Chem. Eng. Communic.*, Vol. 203, 53-63, 2016
- 53- 'Kinetic study of CO₂ reaction with CaO by a modified random pore model' (M.M. Nouri, H. Ale Ebrahim and B. Nasernejad) *Polish J. Chem. Technol.*, Vol. 18, 93-98, 2016
- 54- 'Various methods to prepare high efficiency CaO sorbents for improved SO₂ capture capacity' (H. Moshiri, H. Ale Ebrahim and B. Nasernejad) *Int. J. Coal Preparation Utilization*, Vol. 36, 231-240, 2016
- 55- 'Effect of sorbent pore volume on the carbonation reaction of lime with CO₂' (M.M. Nouri, H. Ale Ebrahim and B. Nasernejad) *Brazilian J. Chem. Eng.*, Vol. 33, 1-7, 2016
- 56- 'Comprehensive kinetic study of SO₂ removal reaction by pure CuO with random pore model' (R. Bahrami, H. Ale Ebrahim, R. Haladj and A. Afshar) *Accepted in Progress Reaction Kinetics Mechanism*

Books:

- 1-‘Syngas production, applications, and environmental impact, Chapter 2: New syngas production method based on noncatalytic methane reaction with metal oxides’ Editors A. Indarto and J. Palguandi, Nova Science Publishers, New York, 2013
- 2-‘Simulation and optimization of various hydrogen and synthesis gas production methods, Chapter 9 in Hydrogen Volume (Volume 11) of Studium Press Energy Science and Technology Book, Houston, 2015

Patents:

- 1-‘Omitting of lead splash condensers in the zinc producing furnaces’ (H. Ale Ebrahim and E. Jamshidi) Patent No. 25993, 1998
- 2-‘Preparation of synthesis gas and zinc by zinc oxide reduction with methane and complete kinetic study of the reaction’ (E. Jamshidi and H. Ale Ebrahim) Patent No. 25994, 1998
- 3-‘New method for lead preparation from lead concentrate by methane’ (H. Ale Ebrahim and E. Jamshidi) Patent No. 26996, 2001
- 4-‘Preparation of barium carbonate by barite reduction with methane’ (E. Jamshidi and H. Ale Ebrahim) Patent No. 26997, 2001
- 5-‘Preparation of strontium carbonate by celestite reduction with methane’ (H. Ale Ebrahim and E. Jamshidi) Patent No. 27890, 2002
- 6-‘A new method for copper preparation by thermal decomposition of copper sulfide or oxide (E. Jamshidi and H. Ale Ebrahim) Patent No. 27889, 2002
- 7-‘A new method for hydrogen production from natural gas without carbon dioxide emission and energy transport by metallic zinc’ (E. Jamshidi and H. Ale Ebrahim) Patent No. 31321, 2005
- 8- ‘A process for hydrated ferrous sulfate production from blast furnace converter slag’ (E. Mousavi, S. Abbasizadeh, H. Alimoradi and H. Ale Ebrahim) Patent No. 85225, 2015