

Publication list

Cormos Calin-Cristian

1. Books

1. C.C. Cormos, *Solid fossil fuels decarbonisation by gasification* (published in Romanian: *Decarbonizarea combustibililor fosili solizi prin gazeificare*), Cluj University Press, 2008, 345 pp.
2. C.C. Cormos, *Chemical Reaction Engineering, Practical applications for homogenous and gas-liquid heterogenous reactors* (published in Romanian: *Ingineria Reacțiilor Chimice, Aplicații practice pentru studiul reactoarelor omogene și eterogene gaz-lichid*), Cluj University Press, 2014, 128 pp.

2. Articles

1. C.C. Cormos, L. Petrescu, A.M. Cormos, S. Agachi, *Process design and integration of various carbon capture approaches into the energy sector and other energy-intensive industrial applications*, 26-th European Symposium on Computer Aided Process Engineering - ESCAPE26, Portoroz, Slovenia, 12-15 June 2016, published in *Computer-Aided Chemical Engineering*, 38, 2016, 265-270
2. C.C. Cormos, A.M. Cormos, *Innovative energy conversion systems by chemical looping: Conceptual design, modeling and simulation, thermal integration and performance evaluation*, 12th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics - HEFAT2016, Malaga, Spain, 11-13 June 2016
3. L. Petrescu, C.C. Cormos, *Life Cycle Analysis applied to acrylic acid production process with different fuels for steam generation*, *Journal of Cleaner Production*, 133, 2016, 294-303
4. C.C. Cormos, *Evaluation of reactive absorption and adsorption systems for post-combustion CO₂ capture applied to iron and steel industry*, *Applied Thermal Engineering*, 105, 2016, 56-64
5. C.C. Cormos, *Oxy-combustion of coal, lignite and biomass: A techno-economic analysis for a large scale Carbon Capture and Storage (CCS) project in Romania*, *Fuel*, 169, 2016, 50-57

6. L. Petrescu, C.C. Cormos, *Waste reduction (WAR) algorithm applied for environmental impact assessment of coal gasification with carbon capture and storage*, Journal of Cleaner Production, 104, 2015, 220-235
7. S. Fogarasi, C.C. Cormos, *Technico-economic assessment of coal and sawdust co-firing power generation with CO₂ capture*, Journal of Cleaner Production, 103, 2015, 140-148
8. Z. Tasnadi-Asztalos, C.C. Cormos, A.M. Cormos, D. Lazar, P.S. Agachi, *Dynamic simulation of hydrogen production from bioglycerol steam reforming in a continuous flow tubular reactor*, 10th Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, September 27 - October 2, 2015
9. Z. Tasnadi-Asztalos, C.C. Cormos, P.S. Agachi, *Hydrogen-based power generation from bioethanol steam reforming*, 10th International Conference Processes in Isotopes and Molecules, Cluj-Napoca, Romania, 23 - 25 September 2015
10. C.C. Cormos, A.M. Cormos, *Techno-economic and environmental analysis of oxy-combustion power plants*, 10th European Congress of Chemical Engineering, Nice, France, 27 September - 1 October 2015
11. L. Petrescu, C.R. Müller, C.C. Cormos, *Life Cycle Assessment (LCA) of Integrated Gasification Combined Cycle plants with pre-combustion CO₂ capture by chemical & calcium looping*, 6th High Temperature Solid Looping Cycles Network Meeting, Milan, Italy, 1 - 2 September 2015
12. S. Fogarasi, C.C. Cormos, *Clean Power Generation Based on Coal and Sawdust co-firing with Carbon Capture and Storage (CCS)*, 19th Romanian International Conference on Chemistry and Chemical Engineering, Sibiu, Romania, 2 - 5 September 2015
13. C.C. Cormos, A.M. Cormos, *Assessment of CO₂ capture by calcium looping from Natural Gas Combined Cycle (NGCC) power plants*, 18th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction - PRES 2015, Kuching, Sarawak, Malaysia, 23 - 27 August 2015
14. C.C. Cormos, *Post-combustion CO₂ capture technologies*, International Sulcis CCS Summer School, 13 - 17 July 2015
15. C.C. Cormos, A.M. Cormos, P.S. Agachi, *Evaluation of energy integration aspects for advanced chemical looping systems applied for energy vectors poly-generation*, Computer Aided Chemical Engineering, 37, 2015, 2237-2242

16. C.C. Cormos, *Assessment of energy vectors poly-generation concepts based on solid fuel direct chemical looping systems*, 7th Clean Coal Technologies Conference - CCT 2015, Krakow, Poland, 17-21 May 2015
17. C.C. Cormos, *Biomass direct chemical looping for hydrogen and power co-production: Process configuration, simulation, thermal integration and techno-economic assessment*, Fuel Processing Technology, 137, 2015, 16-23
18. Z. Tasnadi-Asztalos, P.S. Agachi, C.C. Cormos, *Evaluation of energy efficient low carbon hydrogen production concepts based on glycerol residues from biodiesel production*, International Journal of Hydrogen Energy, 40, 2015, 7017-7027
19. C.C. Cormos, *Assessment of chemical absorption/adsorption for post-combustion CO₂ capture from Natural Gas Combined Cycle (NGCC) power plants*, Applied Thermal Engineering, 82, 2015, 120 - 128
20. A.M. Cormos, C. Dinca, C.C. Cormos, *Multi-fuel multi-product operation of IGCC power plants with carbon capture and storage (CCS)*, Applied Thermal Engineering, 74, 2015, 20 - 27
21. C.C. Cormos, *Economic evaluations of coal-based combustion and gasification power plants with post-combustion CO₂ capture using calcium looping cycle*, Energy, 78, 2014, 665 - 673
22. C.C. Cormos, L. Petrescu, *Evaluation of calcium looping as carbon capture option for combustion and gasification power plants*, Energy Procedia, 51, 2014, 154-160
23. C.C. Cormos, C. Dinca, *Transition to low carbon economy: Carbon capture approaches to be applied in energy-intensive industrial applications*, Romanian Chemical Engineering Society Bulletin, 1, 2014, 53 - 65
24. M. Muresan, C.C. Cormos, P.S. Agachi, *Biomass gasification-based hydrogen supply chain analysis under demand variability*, Studia UBB Chemia, LIX, 3, 2014, 29 - 42
25. L. Petrescu, C.C. Cormos, *Waste reduction (WAR) algorithm applied for environmental impact assessment of coal gasification with carbon capture and storage*, Journal of Cleaner Production, 2014, accepted in press
26. S. Fogarasi, C.C. Cormos, *Technico-economic assessment of coal and sawdust co-firing power generation with CO₂ capture*, Journal of Cleaner Production, 2014, accepted in press
27. C.C. Cormos, A.M. Cormos, L. Petrescu, *Assessment of hydrogen and power co-generation based on biomass direct chemical looping systems*, Chemical Engineering Transactions, 39, 2014, 247-252

28. C.C. Cormos, L. Petrescu, A.M. Cormos, *Assessment of hydrogen production systems based on natural gas conversion with carbon capture and storage*, *Computer Aided Chemical Engineering*, 33, 2014, 1081-1086
29. Z. Tasnadi-Asztalos, A. Imre-Lucaci, C.C. Cormos, A.M. Cormos, M.D. Lazar, P.S. Agachi, *Thermodynamic study of hydrogen production via bioglycerol steam reforming*, *Computer Aided Chemical Engineering*, 33, 2014, 1735-1740
30. C.C. Cormos, *Economic implications of pre- and post-combustion calcium looping configurations applied to gasification power plants*, *International Journal of Hydrogen Energy*, 39, 2014, 10507-10516
31. C.C. Cormos, *Techno-economic and environmental analysis of hydrogen and power co-generation based on co-gasification of coal and biomass / solid wastes with carbon capture*, *Chemical Engineering Transactions*, 37, 2014, 139-144
32. C.C. Cormos, *Renewable hydrogen production concepts from bioethanol reforming with carbon capture*, *International Journal of Hydrogen Energy*, 39, 2014, 5597-5606
33. M. Muresan, C.C. Cormos, S. Agachi, *Comparative life cycle analysis for gasification-based hydrogen production systems*, *Journal of Renewable and Sustainable Energy*, 6, 2014, 013131
34. A.M. Cormos, C.C. Cormos, *Investigation of hydrogen and power co-generation based on direct coal chemical looping systems*, *International Journal of Hydrogen Energy*, 39, 2014, 2067-2077
35. C.C. Cormos, *Techno-economic and environmental evaluations of large scale gasification-based CCS project in Romania*, *International Journal of Hydrogen Energy*, 39, 2014, 13-27
36. C.C. Cormos, A.M. Cormos, L. Petrescu, *Assessment of chemical looping-based conceptual designs for high efficient hydrogen and power co-generation applied to gasification processes*, *Chemical Engineering Research and Design*, 92, 2014, 741-751
37. I.M. Bodea, C.C. Cormos, *Applications of chemical looping combustion to energy conversion processes*, *Studia Chemia*, 4, 2013, 7-22
38. C. Dinca, C.C. Cormos, H. Necula, *Environmental impact assessment of GHG emissions generated by coal life cycle and solutions for reducing CO₂*, *Journal of Environmental Protection*, 4, 2013, 5-15
39. C.C. Cormos, A.M. Cormos, P.S. Agachi, *Assessment of carbon capture options for super-critical coal-based power plants*, 16th Conference Process Integration,

- Modelling and Optimisation for Energy Saving and Pollution Reduction - PRES'13, Rhodes Island, Greece, 29 September - 2 October, 2013, published in Chemical Engineering Transactions, 35, 2013, 367-372
40. F. Goga, R. Dudric, C.C. Cormos, F. Imre, L. Bizo, Radu Misca, *Fly ash from thermal power plant, raw material for glass-ceramic*, Environmental Engineering and Management Journal 12 (2), 2013, 337-342
 41. C.C. Cormos, A.M. Cormos, S. Agachi, *Evaluation of chemical looping systems as carbon capture option to be applied to gasification processes*, Computer Aided Chemical Engineering, 32, 2013, 199-204
 42. C.C. Cormos, A. Imre-Lucaci, A.M. Cormos, Z. Tasnadi-Asztalos, M.D. Lazar, *Conceptual design of hydrogen production process from bioethanol reforming*, Computer Aided Chemical Engineering, 32, 2013, 19-24
 43. C.C. Cormos, L. Petrescu, *Evaluation of calcium looping as carbon capture option for combustion and gasification power plants*, 7th Trondheim CCS Conference, TCCS-7, June 5-6 2013, Trondheim, Norway (published in Energy Procedia)
 44. C.C. Cormos, *Assessment of flexible energy vectors poly-generation based on coal and biomass/solid wastes co-gasification with carbon capture*, International Journal of Hydrogen Energy, 38, 2013, 7855-7866
 45. C.C. Cormos, C. Dinca, *Assessment of mass and energy integration aspects for IGCC power plants with carbon capture and storage (CCS)*, Studia Universitatis Chemia, LVIII, 1, 2013, 117-131
 46. M. Muresan, C.C. Cormos, P.S. Agachi, *Techno-economical assessment of coal and biomass gasification-based hydrogen production supply chain system*, Chemical Engineering Research and Design, 91, 2013, 1527-1541
 47. C.C. Cormos, K. Vatopoulos, E. Tzimas, *Assessment of the consumption of water and construction materials in state-of-the-art fossil fuel power generation technologies involving CO₂ capture*, Energy, 51, 2013, 37-49
 48. C.C. Cormos, A.M. Cormos, *Assessment of calcium-based chemical looping options for gasification power plants*, International Journal of Hydrogen Energy, 38, 2013, 2306-2317
 49. A. Padurean, C.C. Cormos, P.S. Agachi, *Techno-economic evaluation of pre- and post-combustion carbon dioxide capture methods applied for an IGCC plant for power generation*, Environmental Engineering and Management Journal, 12, 2013, 2191- 2202

50. I.M. Bodea, C.C. Cormos, *Evaluation of iron and nickel-based oxygen carriers for natural gas chemical looping combustion systems*, Studia Universitatis Chemia, LVII, 2, 2012, 47 - 57
51. C.C. Cormos, *Evaluation of carbon capture and storage (CCS) technologies for Integrated Gasification Combined Cycle (IGCC) power plants*, Energy and Climate Change Conference, Atena, Grecia, 12-14 Octombrie 2012
52. F. Goga, R. Dudric, C.C. Cormos, F. Imre, L. Bizo, Radu Misca, *Fly ash from thermal power plant, raw material for glass-ceramic*, 9-th International conference: Environmental Legislation, Safety Engineering and Disaster Management - ELSSEDIMA, Cluj-Napoca, Romania, 25-27 Octombrie 2012
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55. C.C. Cormos, *Hydrogen and power co-generation based on coal and biomass/solid wastes co-gasification with carbon capture and storage*, International Journal of Hydrogen Energy, 37, 2012, 5637-5648
56. C.C. Cormos, P.S. Agachi, *Integrated assessment of carbon capture and storage technologies in coal-based power generation using CAPE tools*, Computer Aided Chemical Engineering, 30, 2012, 56-60
57. M. Muresan, C.C. Cormos, P.S. Agachi, *Multiproduct, multiechelon supply chain analysis under demand uncertainty and machine failure risk*, Computer Aided Chemical Engineering, 30, 2012, 462-466
58. A. Padurean, C.C. Cormos, P.S. Agachi, *Pre-combustion carbon dioxide capture by gas-liquid absorption for Integrated Gasification Combined Cycle power plants*, International Journal of Greenhouse Gas Control, 7, 2012, 1-11
59. M. Badaluta, C.C. Cormos, P.S. Agachi, *Hydrogen Production through CO-Gasification of Coal and Biomass with Carbon Dioxide Capture*, Studia Universitatis Chemia, LVII, 1, 2012, 167-174
60. F. Starr, C.C. Cormos, *Materials challenges and gasifier choices in IGCC processes for clean and efficient energy conversion*, Materials Research Innovations 15, 2011, 428-446

61. V. Goia, C.C. Cormos, P.S. Agachi, *Influence of temperature and heating rate on biomass pyrolysis in a fixed-bed reactor*, Studia Universitatis Babes-Bolyai, Chemia, LVI, 2, 2011, 49 – 56
62. C.C. Cormos, *Hydrogen production from fossil fuels with carbon capture and storage based on chemical looping systems*, International Journal of Hydrogen Energy, 36, 2011, 5960-5971
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65. C.C. Cormos, A. Padurean, A.M. Cormos, P.S. Agachi, *Power generation based on coal and low-grade fuels co-gasification with carbon capture and storage*, Clean Coal Conference – CCT2011, Zaragoza, Spain, 2011
66. C.C. Cormos, A.M. Cormos, P.S. Agachi, *Techno-economical and environmental evaluations of IGCC power generation process with carbon capture and storage (CCS)*, European Symposium on Computer Aided Process Engineering – ESCAPE 21, Porto Carras, Greece, 2011
67. V. Maxim, C.C. Cormos, P.S. Agachi, *Design of Integrated Gasification Combine Cycle plant with Carbon Capture and Storage based on co-gasification of coal and biomass*, European Symposium on Computer Aided Process Engineering – ESCAPE 21, Porto Carras, Greece, 2011
68. C.C. Cormos, *Evaluation of energy integration aspects for IGCC-based hydrogen and electricity co-production with carbon capture and storage*, International Journal of Hydrogen Energy, 35, 2010, 7485-7497
69. C.C. Cormos, A. Padurean, P.S. Agachi, *Technical evaluations of carbon capture options for power generation from coal and biomass based on integrated gasification combined cycle scheme*, 10th International Conference on Greenhouse Gas Control Technologies – GHGT10, Amsterdam, The Netherlands, 2010
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71. V. Maxim, C.C. Cormos, P.S. Agachi, *Mathematical modeling and simulation of coal co-gasification with waste/biomass in an entrained-flow gasifier*, Studia Universitatis Babes-Bolyai, Chemia, LV, 2, 2010, 51 – 62
72. C.C. Cormos, *Evaluation of iron based chemical looping for hydrogen and electricity co-production by gasification process with carbon capture and storage*, International Journal of Hydrogen Energy, 35, 2010, 2278 – 2289
73. C.C. Cormos, F. Starr, E. Tzimas, *Use of lower grade coals in IGCC plants with carbon capture for the co-production of hydrogen and electricity*, International Journal of Hydrogen Energy, 35, 2010, 556 – 567
74. C.C. Cormos, P.S. Agachi, *Energy integration issues for hydrogen and electricity co-production based on gasification process with Carbon Capture and Storage (CCS)*, European Symposium on Computer Aided Process Engineering – ESCAPE 20, Ischia, Naples, Italy, 2010
75. A.M. Cormos, C.C. Cormos, J. Gaspar, A. Padurean, S. Agachi, *Techno-economical analysis of carbon dioxide absorption in mono-ethanolamine by mathematical modeling and simulation*, European Symposium on Computer Aided Process Engineering – ESCAPE 20, Ischia, Naples, Italy, 2010
76. V. Maxim, C.C. Cormos, A.M. Cormos, S. Agachi, *Mathematical modeling and simulation of gasification processes with carbon capture and storage (CCS) for energy vectors poly-generation*, European Symposium on Computer Aided Process Engineering – ESCAPE 20, Ischia, Naples, Italy, 2010
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 83. C.C. Cormos, A.M. Cormos, V. Goia, S. Agachi, *Evaluation of energy vectors poly-generation schemes based on solid fuel gasification processes with Carbon Capture and Storage (CCS)*, European Symposium on Computer Aided Process Engineering – ESCAPE 19, Krakow, Poland, 2009
 84. C.C. Cormos, *Hydrogen and electricity co-production based on gasification process with Carbon Capture and Storage (CCS)*, Enlargement and Integration Workshop: “Clean and efficient power generation from coal”, European Commission, Gliwice, Poland, 24-25 September 2009
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 86. E. Tzimas, C.C. Cormos, F. Starr, C. Garcia-Cortes, *Major issues in the design of carbon capture IGCC-based plants with hydrogen co-production*, 9th International Conference on Greenhouse Gas Control Technologies – GHGT-9, 2008
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 89. S. Bandyopadhyay, C.C. Cormos, *Water Management in Process Industries Incorporating Regeneration and Recycle through a Single Treatment Unit*, Industrial and Engineering Chemistry Research, 2008, 47(4), 1111 – 1119
 90. F. Starr, C.C. Cormos, E. Tzimas, A. Brown, *Advanced IGCC – HYPOGEN concepts for a developing hydrogen market*, 8-th European Gasification Conference, Antwerp, Belgium, September 2007
 91. F. Starr, V. Tzimas, C.C. Cormos, S. Peteves, *IGCC: coal-based processing technology for the future*, Hydrocarbon Processing, May 2007

92. E. Tzimas, A. Mercier, C.C. Cormos, S. Peteves, *Trade-off in emissions of acid gas pollutants and of carbon dioxide in fossil fuels power plants with carbon capture*, Energy Policy, 35, 2007, 3991 – 3998
93. C.C. Cormos, S. Bandyopadhyay, *Process water management with regeneration and recycle*, 17-th European Symposium on Computer Aided Process Engineering, ESCAPE-17, Bucharest, Romania, May 2007
94. S. Bandyopadhyay, C.C. Cormos, *Minimum reflux in liquid – liquid extraction*, 17-th European Symposium on Computer Aided Process Engineering, ESCAPE-17, Bucharest, Romania, May 2007
95. A.M. Cormos, C.C. Cormos, S. Agachi, *Making soda ash manufacture more sustainable – A modeling study using Aspen Plus*, 17-th European Symposium on Computer Aided Process Engineering, ESCAPE-17, Bucharest, Romania, May 2007
96. C.C. Cormos, F. Starr, E. Tzimas, S. Petves, A. Brown, *Gasifier concept for hydrogen and electricity co-production with CO₂ capture*, 3-rd International Conference on Clean Coal Technologies, Cagliari, Sardinia, Italy, May 2007
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102. C.C. Cormos, S. Agachi, *Advanced process control of pantolactone synthesis using nonlinear model predictive control (NMPC)*, 15th European Symposium on Computer Aided Process Engineering, ESCAPE-15, Barcelona, Spain, 29 May – 1 June 2005
103. A.M. Cormos, C.C. Cormos, S. Agachi, *Modeling and simulation of thermal decomposition of limestone in a vertical lime kiln*, CAPE Forum 2005, Cluj – Napoca, Romania, 25 – 26 February 2005

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3. Patents

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4. Research projects in energy field

1. *FReSMe - From residual steel gasses to methanol*, Horizon 2020, Call: H2020-LCE-2016-RES-CCS-RIA, Project code: 727504, 2016 - 2020
2. *SEWGS - Technology platform for cost effective CO₂ reduction in the iron & steel industry*, Horizon 2020, Call: H2020-LCE-2014-1, Project code: 640769, 2015 - 2019
3. *Advanced thermo-chemical looping cycles for the poly-generation of decarbonised energy vectors: Material synthesis and characterisation, process modelling and life cycle analysis*, Romanian-Swiss Research Programme (RSRP), 2013 - 2015
4. *Technical-economic and environmental optimization of CCS technologies integration in power plants based on solid fossil fuel and renewable energy sources (biomass)*, Partnership research project, 2012 - 2016
5. *Hydrogen production from hydroxylic compounds resulted as biomass processing wastes*, Partnership research project, 2012 - 2016
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