

# Alexandre Ferreira Porfírio Ferreira

Alexandre Ferreira Porfírio Ferreira. Completed the Licenciatura in Licenciatura em Engenharia Química in 1997 by Universidade de Coimbra Faculdade de Ciências e Tecnologia and Doctor in Chemical Engineering in 2007 by Technische Universiteit Delft. Is Investigador Auxiliar in Universidade do Porto Faculdade de Engenharia. Works in the area(s) of Engineering and Technology with emphasis on Chemical Engineering. In his curriculum Ciência Vitae the most frequent terms in the context of scientific, technological and artistic-cultural output are: Separation Processes; Adsorption; Heterogeneous reactors.

## Identification

### Personal identification

Full name

Alexandre Ferreira Porfírio Ferreira

### Citation names

Ferreira, Alexandre

### Author identifiers

Ciência ID

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### Knowledge fields

Engineering and Technology - Chemical Engineering

### Languages

Language	Speaking	Reading	Writing	Listening	Peer-review
English	Upper intermediate (B2)	Advanced (C1)	Upper intermediate (B2)	Advanced (C1)	
Dutch	Beginner (A1)	Intermediate (B1)	Beginner (A1)	Beginner (A1)	
Portuguese	Advanced (C1)	Advanced (C1)	Advanced (C1)	Advanced (C1)	

## Education

Degree

Classification

2007 Concluded	Chemical Engineering (Doctor)	n/a
	Technische Universiteit Delft, Netherlands "Diffusion and Adsorption of Linear and Branched Alkanes in Zeolites" (THESIS/DISSERTATION)	
1997 Concluded	Licenciatura em Engenharia Química (Licenciatura)	15
	Universidade de Coimbra Faculdade de Ciências e Tecnologia, Portugal "N/A" (THESIS/DISSERTATION)	

## Affiliation

### Others

2016/01/01 - Current	Investigador Auxiliar Universidade do Porto Faculdade de Engenharia, Portugal
2015/09/01 - 2016/01/31	Professor Auxiliar Convidado Universidade do Porto Faculdade de Engenharia, Portugal
2009/07/01 - 2015/12/31	Investigador Auxiliar Universidade do Porto Faculdade de Engenharia, Portugal
2008/07/01 - 2009/06/30	Post-Doctoral Fellow Universidade do Porto Faculdade de Engenharia, Portugal
2005/10/15 - 2008/06/30	Post-Doctoral Fellow Technische Universiteit Delft, Netherlands
2000/11/01 - 2005/04/30	PhD Student / Research Assistant Universiteit van Amsterdam, Netherlands
1998/10/01 - 2000/05/31	Research Assistant Imperial College London Centre for Process Systems Engineering, United Kingdom

## Projects

### Grant

Designation

Funders

2019/09/01 - Current	Innovative Membrane Extraction of Lithium for Spent ERA-MIN/0004/2018  Researcher Universidade do Porto Faculdade de Engenharia, Portugal	Fundação para a Ciência e a Tecnologia, Portugal
2019/04/01 - Current	Valorización de subproductos y aguas residuales de la industria conservera en el espacio POCTEP 0679_CONSERVAL_1_E  Universidade do Porto Faculdade de Engenharia, Portugal	Fundação para a Ciência e a Tecnologia, Portugal
2013/01/01 - 2015/12/31	New Adsorption-Based Cyclic Reaction Separation Processes EXCL/QEQ-PRS/0308/2012 FCOMP-01-0124-FEDER- 027458  Researcher Universidade do Porto Faculdade de Engenharia, Portugal	Fundação para a Ciência e a Tecnologia, Portugal
2013/01 - 2015/12	New Adsorption-Based Cyclic Reaction Separation Processes EXCL/QEQ-PRS/0308/2012 FCOMP-01-0124-FEDER-027458	Fundação para a Ciência e a Tecnologia, Portugal
2012/03/01 - 2015/08/31	Multicomponent Chiral Separations by Simulated Moving Bed Based-Processes PTDC/EQU-EQU/119025/2010  Researcher Universidade do Porto Faculdade de Engenharia, Portugal	Fundação para a Ciência e a Tecnologia, Portugal
2014/03 - 2015/08	Air-2-Water: producing drinking water from thin air grant. Provided by PTCRIS: 135230 EXPL/AAG-TEC/2205/2013  Principal investigator	Fundação para a Ciência e a Tecnologia, Portugal
2009/07/01 - 2013/06/30	MACADEMIA: MOFs as catalysts and adsorbents: Discovery and engineering of materials for industrial applications 64087  Researcher Universidade do Porto Faculdade de Engenharia, Portugal	European Commission Seventh Framework Programme for Research and Technological Development Joint Technology Initiatives, Belgium

2010/04 - 2013/03	Eco-efficient Separation of Propane/Propylene by Gas Phase Simulated Moving Bed Provided by PTCRIS: 103756  Researcher	Fundação para a Ciência e a Tecnologia, Portugal
2005/09/30 - 2008/06/01	"INSIDE-PORES: In-Situ Study and Development of Processes involving Nano-Porous Solids INSIDE_PORES  Researcher Technische Universiteit Delft, Netherlands	European Commission Sixth Framework Programme, Belgium

## Contract

	Designation	Funders
2018/06/01 - Current	Development of package process of reaction and separation in refinery and petrochemical industry. FEUP/KRICT/2016  Principal investigator Universidade do Porto Faculdade de Engenharia, Portugal	Korea Research Institute of Chemical Technology, South Korea
2016/11/01 - Current	Light olefins/paraffins separations by gas-phase SMB FEUP/ExxonMobil/2016  Principal investigator Universidade do Porto Faculdade de Engenharia, Portugal	ExxonMobil Research and Engineering Company Annandale, United States

## Outputs

### Publications

Book chapter	1	Regufe, Maria João; Ribeiro, Ana Mafalda; Ferreira, Alexandre F. P.; Rodrigues, Alírio. "CO2 Storage on Zeolites and Other Adsorbents". In <i>Nanoporous Materials for Gas Storage</i> , 359-381. Springer Singapore, 2019. 10.1007/978-981-13-3504-4_13
	2	Ferreira, A.F.P.; Ribeiro, A.M.; Santos, J.C.; Campo, M.C.; Rodrigues, A.E.. "Modeling adsorptive separations using metal-organic frameworks". 2015.
	3	Ferreira, Alexandre; Campo, Marta; Mendes, Adélio; Kapteijn, F.. "Membrane Processes". In <i>Nanoporous materials: advanced techniques for characterization, modeling, and processing</i> . Boca Raton, United States: CRC Press, 2011.  Published

- Conference paper
- 1 Martins, V.F.D.; Ribeiro, A.M.; Plaza, M.; Santos, J.C.; Loureiro, J.M.; Ferreira, A.; Rodrigues, A.. "Gas-PHASE simulated moving BED: LIGHT olefins paraffins separation". 2015.
  - 2 Ferreira, A.F.P.; Ribeiro, A.M.; Kulaç, S.; Rodrigues, A.E.. "Gas separation by adsorption on MIL-53(Al): Natural gas and biogas application". 2013.
  - 3 Okada, M.; Ferreira, A.; Ribeiro, A.M.; Lee, U.H.; Hwang, Y.K.; Chang, J.S.; Rodrigues, A.E.. "Pressure swing adsorption process for the separation of hydrogen, methane and ethane with the MOF". 2013.
  - 4 Granato, M.A.; Martins, V.F.D.; Ferreira, A.F.P.; Rodrigues, A.E.. "Adsorption of xylene isomers in mof uio-66 by molecular simulations". 2013.
- 
- Journal article
- 1 Silva, M. P.; Ribeiro, A. M.; Silva, C. G.; Nogueira, I. B. R.; Cho, Kyung-Ho; Lee, U.-Hwang; Faria, J. L.; et al. "MIL-160(Al) MOF's potential in adsorptive water harvesting". *Adsorption* 27 2 (2021): 213-226. <http://dx.doi.org/10.1007/s10450-020-00286-5>.  
10.1007/s10450-020-00286-5
  - 2 Seabra, R.; Martins, V.F.D.; Ribeiro, A.M.; Rodrigues, A.E.; Ferreira, A.P.. "Ethylene/ethane separation by gas-phase SMB in binderfree zeolite 13X monoliths". *Chemical Engineering Science* 229 (2021): <http://www.scopus.com/inward/record.url?eid=2-s2.0-85088942132&partnerID=MN8TOARS>.  
10.1016/j.ces.2020.116006
  - 3 Albertina G. Rios; Ana M. Ribeiro; Alírio E. Rodrigues; Alexandre F.P. Ferreira. "Bovine serum albumin and myoglobin separation by size exclusion SMB". *Journal of Chromatography A* 1628 (2020): 461431-461431. <https://doi.org/10.1016/j.chroma.2020.461431>.  
10.1016/j.chroma.2020.461431
  - 4 Maria João Regufe; Alexandre F. P. Ferreira; José Miguel Loureiro; Alírio Rodrigues; Ana Mafalda Ribeiro. "Development of Hybrid Materials with Activated Carbon and Zeolite 13X for CO<sub>2</sub> Capture from Flue Gases by Electric Swing Adsorption". *Industrial & Engineering Chemistry Research* (2020): <https://doi.org/10.1021/acs.iecr.0c00184>.  
10.1021/acs.iecr.0c00184
  - 5 Jonathan C. Gonçalves; Rui P. V. Faria; Alexandre F. P. Ferreira; Alírio E. Rodrigues. "Optimization of a Simulated Moving Bed Unit within an Existing and Revamped Aromatics Complex with Crystallization and Toluene Methylation Units". *Industrial & Engineering Chemistry Research* (2020): <https://doi.org/10.1021/acs.iecr.0c00983>.  
10.1021/acs.iecr.0c00983
  - 6 Paulo Carmo; Ana M. Ribeiro; Alírio E. Rodrigues; Alexandre Ferreira. "Recovery of vinyl chloride from by-streams of polyvinyl chloride production by TPSA in a multitubular adsorber". *AIChE Journal* 66 5 (2020): <https://doi.org/10.1002/aic.16899>.  
10.1002/aic.16899
  - 7 Martins, Vanessa Duarte; Seabra, Rute Agostinha; Silva, Paulo Melo; Ribeiro, Ana Mafalda; Cho, Kyung Ho; Lee, U-Hwang; Chang, Jong-San; et al. "C<sub>2</sub>/C<sub>3</sub> Hydrocarbon Separation by Pressure Swing Adsorption on MIL-100(Fe)". *Industrial & Engineering Chemistry Research* (2020): <http://dx.doi.org/10.1021/acs.iecr.0c00410>.

10.1021/acs.iecr.0c00410

- 8 Matos, Luís Carlos; Eulálio, Ana; Antunes, Tiago; Loureiro, José Miguel; Ferreira, Alexandre; Mendes, Adélio. "Project and Implementation of an Educational Large-Scale Water Distillation Unit with a Closed-Circuit Condenser". *Sustainability* 12 8 (2020): 3239. <http://dx.doi.org/10.3390/su12083239>.  
10.3390/su12083239
- 9 Ferreira, Alexandre. "Water vapor harvesting by a (P)TSA process with MIL-125 (Ti)-NH<sub>2</sub> as adsorbent". *Separation and Purification Technology* (2020): <http://dx.doi.org/10.1016/j.seppur.2019.116336>.  
10.1016/j.seppur.2019.116336
- 10 Albertina G. Rios; Luis Carlos Matos; Yaidelin A. Manrique; José Miguel Loureiro; Adélio Mendes; Alexandre F. P. Ferreira. "Adsorption of anionic and cationic dyes into shaped MCM-41". *Adsorption* (2020): <https://doi.org/10.1007/s10450-019-00176-5>.  
10.1007/s10450-019-00176-5
- 11 Shi, Q.; Gonçalves, J.C.; Ferreira, A.F.P.; Rodrigues, A.E.. "Simulated moving bed reactor for p-xylene production: Modeling, simulation, and optimization". *Chemical Engineering Science* 225 (2020): <http://www.scopus.com/inward/record.url?eid=2-s2.0-85085750124&partnerID=MN8TOARS>.  
10.1016/j.ces.2020.115802
- 12 Matos, C.; Eulálio, A.; Antunes, T.; Loureiro, M.; Ferreira, A.; Mendes, A.. "Project and implementation of an educational large-scale water distillation unit with a closed-circuit condenser". *Sustainability (Switzerland)* 12 8 (2020): <http://www.scopus.com/inward/record.url?eid=2-s2.0-85084545347&partnerID=MN8TOARS>.  
10.3390/SU12083239
- 13 Shi, Qian; Gonçalves, Jonathan C.; Ferreira, Alexandre F. P.; Rodrigues, Alírio E.. "Adsorption of C<sub>6</sub>–C<sub>8</sub> Aromatics over Ba-Exchanged Zeolite X at High Temperature". *Chemical Engineering & Technology* 42 11 (2019): 2410-2418. <http://dx.doi.org/10.1002/ceat.201900353>.  
10.1002/ceat.201900353
- 14 Vanessa F. D. Martins; Ana M. Ribeiro; Pavel Kortunov; Alexandre Ferreira; Alírio E. Rodrigues. "High purity ethane/ethylene separation by gas phase simulated moving bed using ZIF-8 adsorbent". *AIChE Journal* (2019): e16619-e16619. <https://doi.org/10.1002/aic.16619>.  
10.1002/aic.16619
- 15 Mota, Maria Inês F.; Barbosa, Sílvia; Pinto, Paula C. Rodrigues; Ribeiro, Ana Mafalda; Ferreira, Alexandre; Loureiro, José Miguel; Rodrigues, Alírio E.. "Adsorption of vanillic and syringic acids onto a macroporous polymeric resin and recovery with ethanol:water (90:10 %V/V) solution". *Separation and Purification Technology* 217 (2019): 108-117. <http://dx.doi.org/10.1016/j.seppur.2019.02.008>.  
10.1016/j.seppur.2019.02.008
- 16 M. A. Moreira; R. O. M. Dias; U.-Hwang Lee; Jong-San Chang; A. M. Ribeiro; A. F. P. Ferreira; A. E. Rodrigues. "Adsorption Equilibrium of Carbon Dioxide, Methane, Nitrogen, Carbon Monoxide, and Hydrogen on UiO-66(Zr)-(COOH)<sub>2</sub>". *Journal of Chemical & Engineering Data* (2019): <https://doi.org/10.1021/acs.jced.9b00053>.  
10.1021/acs.jced.9b00053

- 17 Gonçalves, Jonathan C.; Ferreira, Alexandre F. P.; Rodrigues, Alírio E.. "Minimum Cross Diameter for C6–C10 Aromatic Compounds". *Chemical Engineering & Technology* 42 5 (2019): 1169-1173. <http://dx.doi.org/10.1002/ceat.201800406>.  
10.1002/ceat.201800406
- 18 Maria João Regufe; Alexandre F.P. Ferreira; José Miguel Loureiro; Alírio Rodrigues; Ana Mafalda Ribeiro. "Electrical conductive 3D-printed monolith adsorbent for CO<sub>2</sub> capture". *Microporous and Mesoporous Materials* 278 (2019): 403-413. <https://doi.org/10.1016/j.micromeso.2019.01.009>.  
10.1016/j.micromeso.2019.01.009
- 19 Rute Seabra; Ana Mafalda Ribeiro; Kristin Gleichmann; Alexandre F.P. Ferreira; Alírio E. Rodrigues. "Adsorption equilibrium and kinetics of carbon dioxide, methane and nitrogen on binderless zeolite 4A adsorbents". *Microporous and Mesoporous Materials* 277 (2019): 105-114. <https://doi.org/10.1016/j.micromeso.2018.10.024>.  
10.1016/j.micromeso.2018.10.024
- 20 Jose F. Vivo-Vilches; Agustín F. Pérez-Cadenas; Francisco J. Maldonado-Hódar; Francisco Carrasco-Marín; Christophe Siquet; Ana M. Ribeiro; Alexandre F.P. Ferreira; Alirio E. Rodrigues. "From Carbon Molecular Sieves to VOCs filters: Carbon gels with tailored porosity for hexane isomers adsorption and separation". *Microporous and Mesoporous Materials* 270 (2018): 161-167. <https://doi.org/10.1016/j.micromeso.2018.05.010>.  
10.1016/j.micromeso.2018.05.010
- 21 Paulo Carmo; Ana M. Ribeiro; Alírio E. Rodrigues; Alexandre Ferreira. "Modeling and Simulation of a TPSA System for a Vinyl Chloride/Nitrogen Separation from Industrial Streams". *Industrial & Engineering Chemistry Research* (2018): <https://doi.org/10.1021/acs.iecr.8b03483>.  
10.1021/acs.iecr.8b03483
- 22 Moreira, Mariana A.; Santos, Mónica P. S.; Silva, Cláudia G.; Loureiro, José M.; Chang, Jong-San; Serre, Christian; Ferreira, Alexandre F. P.; Rodrigues, Alírio E.. "Adsorption equilibrium of xylene isomers and ethylbenzene on MIL-125(Ti)<sub>2</sub>NH<sub>2</sub>: the temperature influence on the para-selectivity". *Adsorption* 24 8 (2018): 715-724. <http://dx.doi.org/10.1007/s10450-018-9976-8>.  
10.1007/s10450-018-9976-8
- 23 Lucas C.D. Coelho; Nelson M.L. Filho; Rui P.V. Faria; Alexandre F.P. Ferreira; Ana M. Ribeiro; Alírio E. Rodrigues. "Separation of tartronic and glyceric acids by simulated moving bed chromatography". *Journal of Chromatography A* 1563 (2018): 62-70. <https://doi.org/10.1016/j.chroma.2018.05.052>.  
10.1016/j.chroma.2018.05.052
- 24 Shi, Qian; Gonçalves, Jonathan C.; Ferreira, Alexandre F.P.; Plaza, Marta G.; Rodrigues, Alírio E.. "Xylene isomerization side reactions over Beta zeolite: Disproportionation and transalkylation of C<sub>8</sub> aromatics and toluene". *Applied Catalysis A: General* 562 (2018): 198-205. <http://dx.doi.org/10.1016/j.apcata.2018.06.011>.  
10.1016/j.apcata.2018.06.011
- 25 Shi, Qian; Gonçalves, Jonathan C.; Ferreira, Alexandre F. P.; Plaza, Marta G.; Rodrigues, Alírio E.. "Xylene Isomerization over Beta Zeolites in Liquid Phase". *Industrial & Engineering Chemistry Research* 57 16 (2018): 5568-5579. <http://dx.doi.org/10.1021/acs.iecr.8b00585>.  
10.1021/acs.iecr.8b00585
- 26 Maria João Regufe; Alexandre F. P. Ferreira; José Miguel Loureiro; Yixiang Shi; Alírio Rodrigues; Ana Mafalda Ribeiro. "New hybrid composite honeycomb monolith with 13X zeolite and activated carbon for CO<sub>2</sub> capture". *Adsorption* 24 3 (2018): 249-265. <https://doi.org/10.1007/s10450-018-9938-1>.

10.1007/s10450-018-9938-1

- 27 Martins, V.F.D.; Ribeiro, A.M.; Chang, J.-S.; Loureiro, J.M.; Ferreira, A.; Rodrigues, A. E.. "Towards polymer grade ethylene production with Cu-BTC: gas-phase SMB versus PSA". *Adsorption* (2018): 1-17. <http://www.scopus.com/inward/record.url?eid=2-s2.0-85040077358&partnerID=MN8TOARS>.  
10.1007/s10450-017-9930-1
- 28 Vivo-Vilches, J.F.; Pérez-Cadenas, A.F.; Maldonado-Hódar, F.J.; Carrasco-Marín, F.; Regufe, M.J.; Ribeiro, A.M.; Ferreira, A.F.P.; Rodrigues, A.E.. "Resorcinol-formaldehyde carbon xerogel as selective adsorbent of carbon dioxide present on biogas". *Adsorption* (2018): 1-9. <http://www.scopus.com/inward/record.url?eid=2-s2.0-85040865569&partnerID=MN8TOARS>.  
10.1007/s10450-018-9933-6
- 29 Moreira, M.A.; Ribeiro, A.M.; Ferreira, A.F.P.; Rodrigues, A.E.. "Cryogenic pressure temperature swing adsorption process for natural gas upgrade". *Separation and Purification Technology* 173 (2017): 339-356. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84991384084&partnerID=MN8TOARS>.  
10.1016/j.seppur.2016.09.044
- 30 Vivo-Vilches, J.F.; Pérez-Cadenas, A.F.; Maldonado-Hódar, F.J.; Carrasco-Marín, F.; Faria, R.P.V.; Ribeiro, A.M.; Ferreira, A.F.P.; Rodrigues, A.E.. "Biogas upgrading by selective adsorption onto CO<sub>2</sub> activated carbon from wood pellets". *Journal of Environmental Chemical Engineering* 5 2 (2017): 1386-1393. <http://www.scopus.com/inward/record.url?eid=2-s2.0-85014145876&partnerID=MN8TOARS>.  
10.1016/j.jece.2017.02.015
- 31 Mendes, P.A.P.; Ribeiro, A.M.; Gleichmann, K.; Ferreira, A.F.P.; Rodrigues, A.E.. "Separation of CO<sub>2</sub> /N<sub>2</sub> on binderless 5A zeolite". *Journal of CO<sub>2</sub> Utilization* 20 (2017): 224-233. <http://www.scopus.com/inward/record.url?eid=2-s2.0-85020314247&partnerID=MN8TOARS>.  
10.1016/j.jcou.2017.05.003
- 32 Martins, V.F.D.; Ribeiro, A.M.; Santos, J.C.; Loureiro, J.M.; Gleichmann, K.; Ferreira, A.; Rodrigues, A.E.. "Development of gas-phase SMB technology for light olefin/paraffin separations". *AIChE Journal* 62 7 (2016): 2490-2500. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84961707828&partnerID=MN8TOARS>.  
10.1002/aic.15238
- 33 Coelho, J.A.; Ribeiro, A.M.; Ferreira, A.F.P.; Lucena, S.M.P.; Rodrigues, A.E.; De Azevedo, D.C.S.. "Stability of an Al-Fumarate MOF and Its Potential for CO<sub>2</sub> Capture from Wet Stream". *Industrial and Engineering Chemistry Research* 55 7 (2016): 2134-2143. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84959419848&partnerID=MN8TOARS>.  
10.1021/acs.iecr.5b03509
- 34 Campo, M.C.; Ribeiro, A.M.; Ferreira, A.F.P.; Santos, J.C.; Lutz, C.; Loureiro, J.M.; Rodrigues, A.E.. "Carbon dioxide removal for methane upgrade by a VSA process using an improved 13X zeolite". *Fuel Processing Technology* 143 (2016): 185-194. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84950144965&partnerID=MN8TOARS>.  
10.1016/j.fuproc.2015.11.024
- 35 Cunha, Adelino F.; Moreira, Miguel N.; Mafalda Ribeiro, Ana; Ferreira, Alexandre P.; Loureiro, José M.; Rodrigues, Alírio E.. "How to Overcome the Water-Gas-Shift Equilibrium using a Conventional Nickel Reformer Catalyst". *Energy Technology* 3 12 (2015): 1205-1216. <http://dx.doi.org/10.1002/ente.201500175>.



10.1002/ente.201500175

- 36 Martins, V.F.D.; Ribeiro, A.M.; Ferreira, A.; Lee, U.-H.; Hwang, Y.K.; Chang, J.-S.; Loureiro, J.M.; Rodrigues, A.E.. "Ethane/ethylene separation on a copper benzene-1,3,5-tricarboxylate MOF". *Separation and Purification Technology* 149 (2015): 445-456. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84934969659&partnerID=MN8TOARS>.  
10.1016/j.seppur.2015.06.012
- 37 Silva, J.A.C.; Ferreira, A.; Mendes, P.A.P.; Cunha, A.F.; Gleichmann, K.; Rodrigues, A.E.. "Adsorption Equilibrium and Dynamics of Fixed Bed Adsorption of CH<sub>4</sub>/N<sub>2</sub> in Binderless Beads of 5A Zeolite". *Industrial and Engineering Chemistry Research* 54 24 (2015): 6390-6399. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84933056033&partnerID=MN8TOARS>.  
10.1021/acs.iecr.5b01608
- 38 Martins, V.F.D.; Ribeiro, A.M.; Plaza, M.G.; Santos, J.C.; Loureiro, J.M.; Ferreira, A.F.P.; Rodrigues, A.E.. "Gas-phase simulated moving bed: Propane/propylene separation on 13X zeolite". *Journal of Chromatography A* 1423 (2015): 136-148. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84947742278&partnerID=MN8TOARS>.  
10.1016/j.chroma.2015.10.038
- 39 Constantino, D.S.M.; Pereira, C.S.M.; Faria, R.P.V.; Ferreira, A.F.P.; Loureiro, J.M.; Rodrigues, A.E.. "Synthesis of butyl acrylate in a fixed-bed adsorptive reactor over Amberlyst 15". *AIChE Journal* 61 4 (2015): 1263-1274. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84925271603&partnerID=MN8TOARS>.  
10.1002/aic.14701
- 40 Ferreira, A.F.P.; Ribeiro, A.M.; Kulaç, S.; Rodrigues, A.E.. "Methane purification by adsorptive processes on MIL-53(Al)". *Chemical Engineering Science* 124 (2015): 79-95. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84923865596&partnerID=MN8TOARS>.  
10.1016/j.ces.2014.06.014
- 41 Regufe, M.J.; Tamajon, J.; Ribeiro, A.M.; Ferreira, A.; Lee, U.-H.; Hwang, Y.K.; Chang, J.-S.; et al. "Syngas Purification by Porous Amino-Functionalized Titanium Terephthalate MIL-125". *Energy and Fuels* 29 7 (2015): 4654-4664. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84937149230&partnerID=MN8TOARS>.  
10.1021/acs.energyfuels.5b00975
- 42 Granato, M.A.; Martins, V.D.; Ferreira, A.F.P.; Rodrigues, A.E.. "Adsorption of xylene isomers in MOF UiO-66 by molecular simulation". *Microporous and Mesoporous Materials* 190 (2014): 165-170. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84896830656&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2014.02.014
- 43 Campo, M.C.; Baptista, M.C.; Ribeiro, A.M.; Ferreira, A.; Santos, J.C.; Lutz, C.; Loureiro, J.M.; Rodrigues, A.E.. "Gas phase SMB for propane/propylene separation using enhanced 13X zeolite beads". *Adsorption* 20 1 (2014): 61-75. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84895057819&partnerID=MN8TOARS>.  
10.1007/s10450-013-9549-9
- 44 Miguel, C.V.; Trujillano, R.; Rives, V.; Vicente, M.A.; Ferreira, A.F.P.; Rodrigues, A.E.; Mendes, A.; Madeira, L.M.. "High temperature CO<sub>2</sub> sorption with gallium-substituted and promoted hydrotalcites". *Separation and Purification Technology* 127 (2014): 202-211. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84897454166&partnerID=MN8TOARS>.

10.1016/j.seppur.2014.03.007

- 45 Narin, G.; Ribeiro, A.M.; Ferreira, A.; Hwang, Y.K.; Lee, U.-H.; Loureiro, J.M.; Chang, J.-S.; Rodrigues, A.E.. "Propylene/nitrogen separation in a by-stream of the polypropylene production: From pilot test and model validation to industrial scale process design and optimization". *Industrial and Engineering Chemistry Research* 53 22 (2014): 9199-9213. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84901922684&partnerID=MN8TOARS>.  
10.1021/ie4031727
- 46 Narin, G.; Martins, V.F.D.; Campo, M.; Ribeiro, A.M.; Ferreira, A.; Santos, J.C.; Schumann, K.; Rodrigues, A.E.. "Light olefins/paraffins separation with 13X zeolite binderless beads". *Separation and Purification Technology* 133 (2014): 452-475. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84905377733&partnerID=MN8TOARS>.  
10.1016/j.seppur.2014.06.060
- 47 Moreira, M.A.; Ferreira, A.F.P.; Santos, J.C.; Loureiro, J.M.; Rodrigues, A.E.. "Hybrid process for o- and p-xylene production in aromatics plants". *Chemical Engineering and Technology* 37 9 (2014): 1483-1492. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84906785860&partnerID=MN8TOARS>.  
10.1002/ceat.201300724
- 48 Ribeiro, A.M.; Campo, M.C.; Narin, G.; Santos, J.C.; Ferreira, A.; Chang, J.-S.; Hwang, Y.K.; et al. "Pressure swing adsorption process for the separation of nitrogen and propylene with a MOF adsorbent MIL-100(Fe)". *Separation and Purification Technology* 110 (2013): 101-111. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84876098806&partnerID=MN8TOARS>.  
10.1016/j.seppur.2013.03.009
- 49 Ferreira, A.F.P.; Mittelmeijer-Hazeleger, M.C.; Granato, M.A.; Martins, V.F.D.; Rodrigues, A.E.; Rothenberg, G.. "Sieving di-branched from mono-branched and linear alkanes using ZIF-8: Experimental proof and theoretical explanation". *Physical Chemistry Chemical Physics* 15 22 (2013): 8795-8804. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84878292450&partnerID=MN8TOARS>.  
10.1039/c3cp44381g
- 50 Campo, M.C.; Ribeiro, A.M.; Ferreira, A.; Santos, J.C.; Lutz, C.; Loureiro, J.M.; Rodrigues, A.E.. "New 13X zeolite for propylene/propane separation by vacuum swing adsorption". *Separation and Purification Technology* 103 (2013): 60-70. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84868703465&partnerID=MN8TOARS>.  
10.1016/j.seppur.2012.10.009
- 51 Ferreira, A.F.P.; Mittelmeijer-Hazeleger, M.C.; Bergh, J.V.D.; Aguado, S.; Jansen, J. C.; Rothenberg, G.; Rodrigues, A.E.; Kapteijn, F.. "Adsorption of hexane isomers on MFI type zeolites at ambient temperature: Understanding the aluminium content effect". *Microporous and Mesoporous Materials* 170 (2013): 26-35. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84871740432&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2012.11.020
- 52 Moreira, M.A.; Santos, J.C.; Ferreira, A.F.P.; Loureiro, J.M.; Ragon, F.; Horcajada, P.; Yot, P.G.; Serre, C.; Rodrigues, A.E.. "Effect of ethylbenzene in p-xylene selectivity of the porous titanium amino terephthalate MIL-125(Ti)-NH<sup>2</sup>". *Microporous and Mesoporous Materials* 158 (2012): 229-234. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84859936611&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2012.03.039

- 53 Silva, M.S.P.; Moreira, M.A.; Ferreira, A.F.P.; Santos, J.C.; Silva, V.M.T.M.; Sá Gomes, P.; Minceva, M.; Mota, J.P.B.; Rodrigues, A.E.. "Adsorbent Evaluation Based on Experimental Breakthrough Curves: Separation of p-Xylene from C8 Isomers". *Chemical Engineering and Technology* 35 10 (2012): 1777-1785. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84866745333&partnerID=MN8TOARS>.  
10.1002/ceat.201100672
- 54 Moreira, M.A.; Santos, J.C.; Ferreira, A.F.P.; Loureiro, J.M.; Ragon, F.; Horcajada, P.; Shim, K.-E.; et al. "Reverse shape selectivity in the liquid-phase adsorption of xylene isomers in zirconium terephthalate MOF UiO-66". *Langmuir* 28 13 (2012): 5715-5723. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84859453686&partnerID=MN8TOARS>.  
10.1021/la3004118
- 55 Plaza, M.G.; Ribeiro, A.M.; Ferreira, A.; Santos, J.C.; Lee, U.-H.; Chang, J.-S.; Loureiro, J.M.; Rodrigues, A.E.. "Propylene/propane separation by vacuum swing adsorption using Cu-BTC spheres". *Separation and Purification Technology* 90 (2012): 109-119. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84858738122&partnerID=MN8TOARS>.  
10.1016/j.seppur.2012.02.023
- 56 Plaza, M.G.; Ribeiro, A.M.; Ferreira, A.; Santos, J.C.; Hwang, Y.K.; Seo, Y.-K.; Lee, U.-H.; et al. "Separation of C3/C4 hydrocarbon mixtures by adsorption using a mesoporous iron MOF: MIL-100(Fe)". *Microporous and Mesoporous Materials* 153 (2012): 178-190. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84856041291&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2011.12.043
- 57 Plaza, M.G.; Ferreira, A.F.P.; Santos, J.C.; Ribeiro, A.M.; Müller, U.; Trukhan, N.; Loureiro, J.M.; Rodrigues, A.E.. "Propane/propylene separation by adsorption using shaped copper trimesate MOF". *Microporous and Mesoporous Materials* 157 (2012): 101-111. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84861201135&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2011.06.024
- 58 Moreira, M.A.; Santos, J.C.; Ferreira, A.F.P.; Loureiro, J.M.; Ragon, F.; Horcajada, P.; Yot, P.G.; Serre, C.; Rodrigues, A.E.. "Toward understanding the influence of ethylbenzene in p-xylene selectivity of the porous titanium amino terephthalate MIL-125(Ti): Adsorption equilibrium and separation of xylene isomers". *Langmuir* 28 7 (2012): 3494-3502. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84859469757&partnerID=MN8TOARS>.  
10.1021/la204969t
- 59 Moreira, M.A.; Santos, J.C.; Ferreira, A.F.P.; Loureiro, J.M.; Rodrigues, A.E.. "Influence of the eluent in the MIL-53(Al) selectivity for xylene isomers separation". *Industrial and Engineering Chemistry Research* 50 12 (2011): 7688-7695. <http://www.scopus.com/inward/record.url?eid=2-s2.0-79958805234&partnerID=MN8TOARS>.  
10.1021/ie200206n
- 60 Moreira, M.A.; Santos, J.C.; Ferreira, A.F.P.; Müller, U.; Trukhan, N.; Loureiro, J.M.; Rodrigues, A.E.. "Selective liquid phase adsorption and separation of ortho-xylene with the microporous MIL-53(Al)". *Separation Science and Technology* 46 13 (2011): 1995-2003. <http://www.scopus.com/inward/record.url?eid=2-s2.0-80053464745&partnerID=MN8TOARS>.  
10.1080/01496395.2011.594481
- 61 Ferreira, A.F.P.; Santos, J.C.; Plaza, M.G.; Lamia, N.; Loureiro, J.M.; Rodrigues, A.E.. "Suitability of Cu-BTC extrudates for propane-propylene separation by adsorption processes". *Chemical Engineering Journal* 167 1 (2011): 1-12. <http://www.scopus.com/inward/record.url?eid=2-s2.0->

79651470404&amp;partnerID=MN8TOARS.

10.1016/j.cej.2010.07.041

- 62 Bárcia, P.S.; Ferreira, A.; Gascon, J.; Aguado, S.; Silva, J.A.C.; Rodrigues, A.E.; Kapteijn, F.. "Zeolite Beta membranes for the separation of hexane isomers". *Microporous and Mesoporous Materials* 128 1-3 (2010): 194-202. <http://www.scopus.com/inward/record.url?eid=2-s2.0-71849099065&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2009.08.023
- 63 Ramos-Fernández, E.V.; Ferreira, A.F.P.; Sepúlveda-Escribano, A.; Kapteijn, F.; Rodríguez-Reinoso, F.. "Enhancing the catalytic performance of Pt/ZnO in the selective hydrogenation of cinnamaldehyde by Cr addition to the support". *Journal of Catalysis* 258 1 (2008): 52-60. <http://www.scopus.com/inward/record.url?eid=2-s2.0-47749133752&partnerID=MN8TOARS>.  
10.1016/j.jcat.2008.05.025
- 64 Gascon, J.; Blom, W.; van Miltenburg, A.; Ferreira, A.; Berger, R.; Kapteijn, F.. "Accelerated synthesis of all-silica DD3R and its performance in the separation of propylene/propane mixtures". *Microporous and Mesoporous Materials* 115 3 (2008): 585-593. <http://www.scopus.com/inward/record.url?eid=2-s2.0-50349099600&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2008.02.038
- 65 Ferreira, A.F.P.; Mittelmeijer-Hazeleger, M.C.; Blik, A.; Moulijn, J.A.. "Influence of Si/Al ratio on hexane isomers adsorption equilibria". *Microporous and Mesoporous Materials* 111 1-3 (2008): 171-177. <http://www.scopus.com/inward/record.url?eid=2-s2.0-41649107559&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2007.07.043
- 66 Ferreira, A.F.P.; Mittelmeijer-Hazeleger, M.C.; Blik, A.. "Can alkane isomers be separated? Adsorption equilibrium and kinetic data for hexane isomers and their binary mixtures on MFI". *Adsorption* 13 2 (2007): 105-114. <http://www.scopus.com/inward/record.url?eid=2-s2.0-36048995284&partnerID=MN8TOARS>.  
10.1007/s10450-007-9010-z
- 67 Ferreira, A.F.P.; Mittelmeijer-Hazeleger, M.C.; Blik, A.. "Adsorption and differential heats of adsorption of normal and iso-butane on zeolite MFI". *Microporous and Mesoporous Materials* 91 1-3 (2006): 47-52. <http://www.scopus.com/inward/record.url?eid=2-s2.0-33645077908&partnerID=MN8TOARS>.  
10.1016/j.micromeso.2005.11.012
- 68 Ferreira, A.F.P.; Boelens, H.F.M.; Westerhuis, J.A.. "Inline monitoring of butane isomers adsorption on MFI using near-infrared spectroscopy: Drift correction in time based experiments". *Langmuir* 21 15 (2005): 6830-6835. <http://www.scopus.com/inward/record.url?eid=2-s2.0-23144459066&partnerID=MN8TOARS>.  
10.1021/la050507t
- 69 Ferreira, A.F.P.; Mittelmeijer, M.; Blik, A.. "Time resolved multicomponent sorption of linear and branched alkane isomers on zeolites, using NIR spectroscopy". *Studies in Surface Science and Catalysis* 154 B (2004): 1971-1977. <http://www.scopus.com/inward/record.url?eid=2-s2.0-11844260022&partnerID=MN8TOARS>.
- 70 Mittelmeijer-Hazeleger, M.C.; Ferreira, A.F.P.; Blik, A.. "Influence of helium and argon on the adsorption of alkanes in zeolites". *Langmuir* 18 25 (2002): 9613-9616. <http://www.scopus.com/inward/record.url?eid=2-s2.0-0037059129&partnerID=MN8TOARS>.  
10.1021/la025993o

## Activities

### Supervision

	Thesis Title Role	Degree Subject (Type) Institution / Organization
2019/03/01 - Current	Separation of Light Hydrocarbons Supervisor	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de Engenharia, Portugal
2018/10/04 - Current	Water-energy nexus: adsorptive water generators and adsorption heat pumps/chillers Supervisor	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de Engenharia, Portugal
2018/09/03 - Current	Separation and Recovery of Vinyl Chloride in Industrial Streams by Adsorption Methods Supervisor	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de Engenharia, Portugal
2018/04/01 - Current	Proteins Separation and Purification by Cyclic Adsorption Processes Supervisor	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de Engenharia, Portugal
2017/06/14 - 2019/10/01	Light Olefin/Paraffin Separation By Cyclic Adsorption Processes Supervisor	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de Engenharia, Portugal
2016/08/31 - 2019/09/12	New Processes and Adsorbents for p-Xylene production Co-supervisor	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de Engenharia, Portugal
2016/08/30 - 2019/07/31	CO <sub>2</sub> Capture from Flue Gases by Electric Swing Adsorption Co-supervisor	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de Engenharia, Portugal
2019/02/01 - 2019/07/24	Decreasing Caustic Soda Use in Biological Gas Desulfurization Supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal

2019/02/01 - 2019/07/24	Intensification of ozonation processes for water treatment: ozone/oxygen separation by membrane Supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2019/02/01 - 2019/07/19	Tratamento seletivo de um efluente industrial por adsorção Supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2019/02/01 - 2019/07/18	Shaping, characterization, and measurement of adsorption properties of ZIF-8 and MIL-53(Al) adsorbents Supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2019/02/01 - 2019/07/17	Gas-phase simulated moving bed for methane and nitrogen separation Co-supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2019/02/01 - 2019/07/15	Xylene Isomerization Studies over Acid Catalysts in the Liquid Phase Co-supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2018/02/01 - 2018/07/12	Development of a Pressure Swing Adsorption biogas upgrading plant for CO <sub>2</sub> removal Supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2017/02/01 - 2017/07/18	Carbon Dioxide Separation from Industrial Streams Co-supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2017/02/01 - 2017/07/11	Chromatographic Separation of Dyes in a Fixed Bed Adsorber Supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2015/02/01 - 2015/07/07	Development of a reduced-order model for oil and gas reservoirs Supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2014/02/01 - 2014/07/15	Syngas purification using MIL-125(Ti) <sub>-NH<sub>2</sub></sub> Co-supervisor	Mestrado Integrado em Engenharia Química (Master) Universidade do Porto Faculdade de Engenharia, Portugal
2011/09/06 - 2013/08/14	Separation of Xylene Isomers with Metal-Organic Framework (MOF) Adsorbents	Programa Doutoral em Engenharia Química e Biológica (PhD) Universidade do Porto Faculdade de

**Association member**

	Society Organization	Role
2017/09/01 - Current	Sociedade Portuguesa de Química	Member
2017/09/01 - Current	The International Adsorption Society	Member

**Course / Discipline taught**

	Academic session	Degree Subject (Type)	Institution / Organization
2014/09/01 - Current	Engenharia das Reações III	Mestrado Integrado em Engenharia Química (Mestrado integrado)	Universidade do Porto Faculdade de Engenharia, Portugal
2012/09/01 - Current	Práticas de Engenharia Química III	Mestrado Integrado em Engenharia Química (Mestrado integrado)	Universidade do Porto Faculdade de Engenharia, Portugal
2011/09/01 - 2012/01/31	Práticas de Engenharia Química V	Mestrado Integrado em Engenharia Química (Mestrado integrado)	Universidade do Porto Faculdade de Engenharia, Portugal

**Evaluation committee**

	Activity description Role	Institution / Organization	Funding entity
2014/07/01 - 2018/12/31	Projects and Grants Reviewer Specialist	Fonds Wetenschappelijk Onderzoek Vlaanderen, Belgium	
2013/07/01 - 2013/12/30	Project reviewer for the Division for Chemical Sciences (CW) Specialist	Nederlandse Organisatie voor Wetenschappelijk Onderzoek, Netherlands	