

Research outputs

Microwave pre-treatment of model food waste to produce short chain organic acids and ethanol via anaerobic fermentation

Simonetti, S., Fernandez Martin, C. & Dionisi, D., 9 Jun 2022, (Accepted/In press) *Processes*.

Microwave Research at the School of Engineering University of Aberdeen

Fernandez Martin, C., 26 Apr 2022, *Ampere Newsletter: Trends in RF and Microwave Heating*, 110, p. 4-5.

Assessment of an integrated adsorption-regenerative catalytic oxidation process for the harnessing of lean methane emissions

Chaemwinyoo, U., Marín, P., Fernández Martín, C., Ordóñez García, S. & Díez, F. V., Feb 2022, In: *Journal of Environmental Chemical Engineering*. 10, 1, 11 p., 107013.

A systematic analysis of the dynamics of microwave- and conventionally-assisted swing adsorption on zeolite 13X and an activated carbon under post-combustion carbon capture conditions

Yassin, M. M., Biti, S., Afzal, W. & Fernández Martín, C., 1 Dec 2021, In: *Journal of Environmental Chemical Engineering*. 9, 6, 14 p., 106835.

Effects of the heating source on the regeneration performance of different adsorbents under post-combustion carbon capture cyclic operations: A comparative analysis

Yassin, M. M., Anderson, J. A., Dimitrakis, G. A. & F. Martin, C., 1 Dec 2021, In: *Separation and Purification Technology*. 276, 15 p., 119326.

Anaerobic fermentation for the production of short chain organic acids: product concentration, yield and productivity in batch experiments at high feed concentration

Simonetti, S., Fernandez Martin, C. & Dionisi, D., Oct 2021, In: *Journal of Environmental Chemical Engineering*. 9, 5, 106311.

A comparative analysis of microwave-assisted regeneration against conventional regeneration for post-combustion carbon capture

Yassin, M., Biti, S., Afzal, W. & Fernandez Martin, C., 15 Sep 2021, p. 2. 1 p.

Molecular Dynamics Simulation of the Interactions between Carbon Dioxide and a Natural-Based Carbonaceous Microporous Material

Moliner, C., Antonucci, B., Focacci, S., Heap, J. M., Martel, A. M., Hamzah, F., Martín, C. F. & Martinez-Felipe, A., 15 Jun 2021, In: *Chemical Engineering Transactions*. 86, p. 1111-1116 6 p.

Product Concentration, Yield and Productivity in Anaerobic Digestion to Produce Short Chain Organic Acids: A Critical Analysis of Literature Data

Simonetti, S., Saptorio, A., Fernandez Martin, C. & Dionisi, D., 25 Nov 2020, In: *Processes*. 8, 12, 17 p., 1538.

Dielectric properties assessment during dynamic microwave-assisted carbon capture cyclic operations

Fernandez Martin, C., Baños, B., Yassin, M. M. & Catala-Civera, J. M., 9 Sep 2019.

Microwave-assisted regeneration of solid adsorbents for CO₂ capture in post-combustion processes

Yassin, M. M., Anderson, J., Afzal, W. & Fernandez Martin, C., 9 Sep 2019.

Microwave swing regeneration of aqueous monoethanolamine for post-combustion CO₂ capture

McGurk, S. J., Martin, C. F., Brandani, S., Sweatman, M. B. & Fan, X., 15 Apr 2017, In: *Applied Energy*. 192, p. 126-133 8 p.

Dynamic assessment of dielectric properties of adsorbents during microwave-assisted carbon capture cyclic operations

Fernandez Martin, C., Baños, B. & Catala-Civera, J. M., 2017, *Proceedings: 6th ETP Annual Conference 2017*. Edinburgh, United Kingdom.

Wet impregnation of a commercial low cost silica using DETA for a fast post-combustion CO₂ capture process
Martin, C. F., Sweatman, M. B., Brandani, S. & Fan, X., 1 Dec 2016, In: Applied Energy. 183, p. 1705-1721 17 p.

Intensification of CO₂ capture processes using microwave heating

Fernandez Martin, C., Sweatman, M., Brandani, S. & Fan, X., 26 Sep 2016, *3rd Global Congress on Microwave Energy Applications: Book of Abstracts*. Fernández, J. F. & Cabrera, J. M. (eds.). Spain: Polytechnic University of Cartagena

CO₂ adsorption using TiO₂ composite polymeric membranes: A kinetic study

Hafeez, S., Fan, X., Hussain, A. & Martin, C. F., 1 Sep 2015, In: Journal of Environmental Sciences. 35, p. 163-171 9 p.

Dynamic cyclic performance of phenol-formaldehyde resin derived carbons for pre-combustion CO₂ capture: An experimental study

Garcia, S., F. Martin, C., Pis, J. J., Rubiera, F. & Pevida, C., 2013, In: Energy Procedia. 37, p. 127-133 7 p., GHGT-11.

Precombustion CO₂ capture by means of phenol-formaldehyde resin-derived carbons: from equilibrium to dynamic conditions

Martin, C. F., Garcia, S., Beneroso, D., Pis, J. J., Rubiera, F. & Pevida, C., 19 Sep 2012, In: Separation and Purification Technology. 98, p. 531-538 8 p.

Study of the CO₂ capture performance of two activated carbons in a bench scale PSA system

Fernandez Martin, C., Garcia, S., Pis, J. J., Rubiera, F. & Pevida, C., 2012, *Proceedings: International Conference on Chemical Engineering ANQUE-ICCE*. Seville, Spain

Breakthrough adsorption study of a commercial activated carbon for pre-combustion CO₂ capture

Garcia, S., Gil, M. V., Martin, C. F., Pis, J. J., Rubiera, F. & Pevida, C., 1 Jul 2011, In: Chemical Engineering Journal. 171, 2, p. 549-556 8 p.

Microporous phenol-formaldehyde resin-based adsorbents for pre-combustion CO₂ capture

Martin, C. F., Plaza, M. G., Garcia, S., Pis, J. J., Rubiera, F. & Pevida, C., May 2011, In: Fuel. 90, 5, p. 2064-2072 9 p.

Hypercrosslinked organic polymer networks as potential adsorbents for pre-combustion CO₂ capture

Martin, C. F., Stockel, E., Clowes, R., Adams, D. J., Cooper, A. I., Pis, J. J., Rubiera, F. & Pevida, C., 14 Apr 2011, In: Journal of Materials Chemistry. 21, 14, p. 5475-5483 9 p.

Doped phenol-formaldehyde resins as precursors for precombustion CO₂ capture adsorbents

Martin, C. F., Garcia, S., Pis, J. J., Rubiera, F. & Pevida, C., 2011, In: Energy Procedia. 4, p. 1222-1227 6 p.

On the limits of CO₂ capture capacity of carbons

Martin, C. F., Plaza, M. G., Pis, J. J., Rubiera, F., Pevida, C. & Centeno, T. A., 17 Aug 2010, In: Separation and Purification Technology. 74, 2, p. 225-229 5 p.

Developing almond shell-derived activated carbons as CO₂ adsorbents

Plaza, M. G., Pevida, C., Martin, C. F., Feroso, J., Pis, J. J. & Rubiera, F., 29 Jan 2010, In: Separation and Purification Technology. 71, 1, p. 102-106 5 p.

Doped phenol-formaldehyde resins as precursors for precombustion CO₂ capture adsorbents

Fernandez Martin, C., Garcia, S., Pis, J. J., Rubiera, F. & Pevida, C., 2010, *Proceedings: 10th International Conference on Greenhouse Gas Control Technologies*. Amsterdam, Holland, p. 1222-1227

Regeneration strategies of carbon capture adsorbents in cyclic operation

Garcia, S., Junco, S., Plaza, M. G., Fernandez Martin, C., Pevida, C. & Rubiera, F., 2010, *Proceedings: 8th European Conference on Coal Research and Its Applications*. Leeds, United Kingdom

Development of low-cost biomass-based adsorbents for postcombustion CO₂ capture

Plaza, M. G., Pevida, C., Arias, B., Feroso, J., Casal, M. D., Martin, C. F., Rubiera, F. & Pis, J. J., Dec 2009, In: *Fuel*. 88, 12, p. 2442-2447 6 p.

Different approaches for the development of low-cost CO₂ adsorbents

Plaza, M. G., Pevida, C., Arias, B., Casal, M. D., Martin, C. F., Feroso, J., Rubiera, F. & Pis, J. J., Jun 2009, In: *Journal of Environmental Engineering*. 135, 6, p. 426-432 7 p.

Carbon adsorbents for post-combustion CO₂ capture

G. Plaza, M., Pevida, C., Fernandez Martin, C., Casal, M. D., Feroso, J., Rubiera, F. & Pis, J. J., 2009, *Proceedings of the Fourth International Conference on Clean Coal Technology*. Dresden, 9 p.

Microporous adsorbents from phenol formaldehyde resins for precombustion CO₂ capture

Fernandez Martin, C., Pevida, C., Casal, M. D., Plaza, M. G., Feroso, J., Rubiera, F. & Pis, J. J., 2009, *Proceedings: Carbon'09. The Annual World Conference on Carbon*. Biarritz, 6 p.

Microporous resin adsorbents for pre-combustion CO₂ capture

Fernandez Martin, C., Pevida, C., Casal, M. D., G. Plaza, M., Feroso, J., Rubiera, F. & Pis, J. J., 2009, *Proceedings of the Fourth International Conference on Clean Coal Technology*. Dresden, 9 p.

Pressurised gasification of coal and biomass for the production of H₂-rich gas

Feroso, J., Arias, B., G. Plaza, M., Pevida, C., Casal, M. D., Fernandez Martin, C., Rubiera, F. & Pis, J. J., 2009, *Proceedings of the Fourth International Conference on Clean Coal Technology*. Dresden, 9 p.

Production of carbon adsorbents for pre-combustion CO₂ capture

Rubiera, F., Pevida, C., Plaza, M. G., Fernandez Martin, C., Casal, M. D., Arias, B., Feroso, J. & Pis, J. J., 2008, *Proceedings: International Symposium about Capture and Storage of CO₂*. Seville, Spain

Activities

Ampere (Association for Microwave Power in Europe for Research and Education) (External organisation)

Claudia Fernandez Martin (Member)

2021 → ...

Processes (Journal)

Claudia Fernandez Martin (Peer Review)

Oct 2020 → Jul 2021

CCS Deputy Champion for the University of Aberdeen.

Claudia Fernandez Martin (Contributor)

2020 → ...

Environment and Biodiversity (Organisational unit)

Claudia Fernandez Martin (Member)

2020 → ...

Centre for Energy Transition (Organisational unit)

Claudia Fernandez Martin (Member)

2019 → ...

Supervision of Rutherford Fellow: Dr Ghulam Hussain

Claudia Fernandez Martin (Supervisor)

Jun 2018 → Mar 2019

Supervision of Rutherford Fellow: Dr Heriberto Diaz-Velazquez

Claudia Fernandez Martin (Supervisor)

Jun 2018 → Mar 2019

Supervision of Rutherford Fellow: Dr Yu Liu

Claudia Fernandez Martin (Supervisor)

Jun 2018 → Mar 2019

Chemical Engineering Journal (Journal)

Claudia Fernandez Martin (Peer Review)

May 2018

Supervision of Rutherford Fellow: Dr Osiry Hernandez-Silva

Claudia Fernandez Martin (Supervisor)

May 2018 → Feb 2019

The Promising Application of Microwaves in Carbon Capture and Storage

Claudia Fernandez Martin (Author)

10 Oct 2016

Energies (Journal)

Claudia Fernandez Martin (Peer Review)

2016 → 2018

Chemical Engineering and Materials Research Group (Organisational unit)

Claudia Fernandez Martin (Member)

1 Jan 2015 → Feb 2019

UK Carbon Capture and Storage Research Centre (UKCCSRC) (External organisation)

Claudia Fernandez Martin (Member)

1 Jan 2015

Scottish Carbon Capture and Storage (SCCS) (External organisation)

Claudia Fernandez Martin (Member)

Jan 2013

University of South Carolina

Claudia Fernandez Martin (Visiting Researcher), Armin Ebner (Collaborator) & James Ritter (Collaborator)

1 Sep 2010 → 23 Dec 2010

University of Liverpool

Claudia Fernandez Martin (Visiting Researcher) & Andrew I Cooper (Collaborator)

1 Jun 2009 → 30 Jul 2009