



FRANCESCO DALENA

RICERCATORE  
SSD ING-IND/27 – CHIMICA INDUSTRIALE E TECNOLOGICA



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## CARRIERA

- 2019-oggi. Ricercatore a Tempo Determinato (RTD-A) presso il dipartimento DIAM dell'Università della Calabria;
- 2017-2018. Titolare di un assegno di ricerca presso il Laboratorio di Chimica Fisica – INABEC del Dipartimento di Chimica e Tecnologie Chimiche dell'Università della Calabria;
- 2013-2017. Dottorato di Ricerca in “Medicina Traslazionale”, XXIX Ciclo – con borsa e riconoscimento di “Doctor Europaeus”;
- 2012. Abilitazione alla professione di Chimico (I sessione);
- 2011. Laurea specialistica in Chimica indirizzo “Scienze chimiche” conseguita presso l'Università della Calabria.

## DIDATTICA

Attività di supporto e tutoraggio per tesisti e dottorandi nei corsi di laurea in Chimica presso il Dipartimento di Chimica e Tecnologie Chimiche dell'Università della Calabria;

Lezioni ed esercitazioni per l'insegnamento "Fonti Rinnovabili E Processi Di Valorizzazione Energetica" all'interno del corso di Ingegneria per l'Ambiente e il territorio presso l'Università della Calabria.

## INSEGNAMENTI

FONTI RINNOVABILI E PROCESSI DI VALORIZZAZIONE ENERGETICA

[https://www.unical.it/portale/portaltemplates/view/view\\_scheda\\_insegnamento.cfm?73577&LANG=ITA&73577&LANG=ITA](https://www.unical.it/portale/portaltemplates/view/view_scheda_insegnamento.cfm?73577&LANG=ITA&73577&LANG=ITA)

## RICERCA

- Caratterizzazione attraverso tecniche chimico-fisiche di catalizzatori di tipo zeolitico.
- Valutazione delle prestazioni catalitiche di catalizzatori zeolitici per la reazione di disidratazione da metanolo a DME.
- Studio sull'attività catalitica di catalizzatori di tipo zeolitico modificati con metalli nella reazione da metanolo a olefine.
- Studio sulla permeazione e sulla separazione di idrogeno attraverso membrane inorganiche.
- Studio e sperimentazione del metodo FENTON su rifiuti provenienti dalla raccolta differenziata per la produzione di ammendanti agricoli.
- Formulazione di un modello matematico atto ad ottimizzare le misurazioni effettuate mediante elettrodo a contatto.
- Caratterizzazione attraverso utilizzo di tecniche chimico-fisiche di fitofarmaci.
- Editor per case editrici internazionali (Elsevier, IET, Nova) di libri di divulgazione scientifica principalmente incentrati su biotecnologie e sulla *green chemistry*.

## PUBBLICAZIONI

### PAPERS

1. Aloise, A., Marino, A., **Dalena, F.**, Giorgianni, G., Migliori, M., Frusteri, L., ... & Giordano, G. (2020). Desilicated ZSM-5 zeolite: Catalytic performances assessment in methanol to DME dehydration. *Microporous and Mesoporous Materials*, 110198.
2. Migliori, M., Condello, A., **Dalena, F.**, Catizzone, E., & Giordano, G. (2020). CuZnZr-Zeolite Hybrid Grains for DME Synthesis: New Evidence on the Role of Metal-Acidic Features on the Methanol Conversion Step. *Catalysts*, 10(6), 671.
3. Giordani, B., Abruzzo, A., Prata, C., Nicoletta, F. P., **Dalena, F.**, Cerchiara, T., ... & Bigucci, F. (2020). Ondansetron buccal administration for paediatric use: a comparison between films and wafers. *International Journal of Pharmaceutics*, 119228.
4. Cerchiara, T., Giordani, B., Melgoza, L. M., Prata, C., Parolin, C., **Dalena, F.**, ... & Vitali, B. (2020). New spanish broom dressings based on vitamin E and *Lactobacillus plantarum* for superficial skin wounds. *Journal of Drug Delivery Science and Technology*, 56, 101499.
5. Fazio, A., La Torre, C., **Dalena, F.**, & Plastina, P. (2020). Screening of glucan and pectin contents in broad bean (*Vicia faba* L.) pods during maturation. *European Food Research and Technology*, 246(2), 333-347.
6. Iulianelli, A., Jansen, J. C., Esposito, E., Longo, M., **Dalena, F.**, & Basile, A. (2019). Hydrogen permeation and separation characteristics of a thin Pd-Au/Al<sub>2</sub>O<sub>3</sub> membrane: The effect of the intermediate layer absence. *Catalysis Today*, 330, 32-38.
7. Giordani, B., Abruzzo, A., Musazzi, U. M., Cilurzo, F., Nicoletta, F. P., Dalena, F., ... & Bigucci, F. (2019). Freeze-dried matrices based on polyanion polymers for chlorhexidine local release in the buccal and vaginal cavities. *Journal of Pharmaceutical Sciences*, 108(7), 2447-2457.
8. **Dalena, F.**, Senatore, A., Basile, M., Knani, S., Basile, A., & Iulianelli, A. (2018). Advances in Methanol Production and Utilization, with Particular Emphasis toward Hydrogen Generation via Membrane Reactor Technology. *Membranes*, 8(4), 98.
9. Giordani, B., Melgoza, L. M., Parolin, C., Foschi, C., Marangoni, A., Abruzzo, A., ... & Vitali, B. (2018). Vaginal Bifidobacterium breve for preventing urogenital infections: Development of delayed release mucoadhesive oral tablets. *International journal of pharmaceutics*, 550(1-2), 455-462.

10. Iulianelli, A., Jansen, J. C., Esposito, E., Longo, M., **Dalena, F.**, & Basile, A. (2019). Hydrogen permeation and separation characteristics of a thin Pd-Au/Al<sub>2</sub>O<sub>3</sub> membrane: The effect of the intermediate layer absence. *Catalysis Today*, 330, 32-38.
11. Beneduci, A., **Dalena, F.**, De Simone, B. C., Lania, I., De Filpo, G., Gallucci, M. C., & Chidichimo, G. (2017). An Insightful Theoretical Interpretation of Paper pH Surface Electrode Data Reveals a New Paradigm for the Definition of Paper Acidity. *The Journal of Physical Chemistry C*, 121(45), 25180-25186.
12. Abruzzo, A., Nicoletta, F. P., **Dalena, F.**, Cerchiara, T., Luppi, B., & Bigucci, F. (2017). Bilayered buccal films as child-appropriate dosage form for systemic administration of propranolol. *International journal of pharmaceutics*, 531(1), 257-265.
13. Cerchiara, T., Abruzzo, A., Palomino, R. A. Ñ., Vitali, B., De Rose, R., Chidichimo, G., ... & Bigucci, F. (2017). Spanish Broom (*Spartium junceum* L.) fibers impregnated with vancomycin-loaded chitosan nanoparticles as new antibacterial wound dressing: Preparation, characterization and antibacterial activity. *European Journal of Pharmaceutical Sciences*, 99, 105-112.
14. Jokar, S., Rahimpour, M., Shariati, A., Iulianelli, A., Bagnato, G., Vita, A., ... & Basile, A. (2016). Pure hydrogen production in membrane reactor with mixed reforming reaction by utilizing waste gas: a case study. *Processes*, 4(3), 33.
15. Chidichimo, G., **Dalena, F.**, Rizza, A., & Beneduci, A. (2018). Insect-Infested Wood Remediation by Microwave Heating and Its Effects on Wood Dehydration: A Case Study of *Hylotrupes bajulus* Larva. *Studies in Conservation*, 63(2), 97-103.
16. Vitali, B., Abruzzo, A., Parolin, C., Palomino, R. A. Ñ., **Dalena, F.**, Bigucci, F., ... & Luppi, B. (2016). Association of *Lactobacillus crispatus* with fructo-oligosaccharides and ascorbic acid in hydroxypropyl methylcellulose vaginal insert. *Carbohydrate polymers*, 136, 1161-1169.
17. Chidichimo, G., **Dalena, F.**, & Beneduci, A. (2015). Woodworm Disinfestation of Wooden Artifacts by Vacuum Techniques. *Conservation Science in Cultural Heritage*, 15(1), 267-280.
18. Liguori, S., Iulianelli, A., **Dalena, F.**, Pinacci, P., Drago, F., Broglia, M., ... & Basile, A. (2014). Performance and long-term stability of Pd/PSS and Pd/Al<sub>2</sub>O<sub>3</sub> membranes for hydrogen separation. *Membranes*, 4(1), 143-162.

19. Liguori, S., Iulianelli, A., **Dalena, F.**, Piemonte, V., Huang, Y., & Basile, A. (2014). Methanol steam reforming in an Al<sub>2</sub>O<sub>3</sub> supported thin Pd-layer membrane reactor over Cu/ZnO/Al<sub>2</sub>O<sub>3</sub> catalyst. *international journal of hydrogen energy*, 39(32), 18702-18710.

#### EDITORIALS

1. Basile, A., & **Dalena, F.** (Eds.). (2019). *Second and Third Generation of Feedstocks: The Evolution of Biofuels*. Elsevier. ISBN: 9780081026564
2. Basile, A.; Iulianelli, A.; **Dalena, F.**; NejatVeziroglu, T. (Eds.). (2018) *Ethanol: Science and Engineering*, Elsevier. ISBN: 9780128114582
3. Basile, A., & **Dalena, F.** (Eds.). (2017). *Methanol: science and engineering*. Elsevier. ISBN: 978-0-444-63903-5
4. **Dalena, F.**; Basile, A.; Rossi, C. (Eds.) (2017). *Bioenergy: Systems for the Future*, Woodhead Publishing. ISBN: 9780081010310
5. Basile, A.; **Dalena, F.**; Tong, J.; Veziroglu, N. (2017) *Hydrogen production, separation and purification*, The Institution of Engineering and Technology, London, United Kingdom. ISBN: 978-1-78561-100-1
6. Basile, A. A. B., & **Dalena, F.** (2015). *Alcohols and bioalcohols*. Nova Science. ISBN: 978-1-63321-934-2.

#### PATENTS

1. Chidichimo, G., Aloise, A., Chidichimo, A., Maltese, V., Beneduci, A., Senatore, A., **Dalena, F.**, Corace, G., Gabriele, B., Bonifati, M. (2015) Functionalised natural composites fibres and processes for their production; CS 102015000012480, 21/04/2015

*BOOK'S CHAPTERS*

1. Senatore, A., **Dalena, F.**, & Basile, A. (2019). Novel bioethanol production processes and purification technology using membranes. In *Studies in Surface Science and Catalysis* (Vol. 179, pp. 359-384). Elsevier.
2. **Dalena, F.**, Senatore, A., Basile, M., Marino, D., & Basile, A. (2019). From sugars to ethanol—from agricultural wastes to algal sources: An overview. In *Second and Third Generation of Feedstocks* (pp. 3-34). Elsevier.
3. Senatore, A., **Dalena, F.**, Sola, A., Marino, A., Valletta, V., & Basile, A. (2019). First-generation feedstock for bioenergy production. In *Second and Third Generation of Feedstocks*(pp. 35-57). Elsevier.
4. **F. Dalena**, A. Basile, (2019) Preface. In *Second and Third Generation of Feedstocks*(pp. 35-57). Elsevier
5. **Dalena, F.**, Senatore, A., Iulianelli, A., Di Paola, L., Basile, M., & Basile, A. (2019). Ethanol from biomass: future and perspectives. In *Ethanol* (pp. 25-59). Elsevier.
6. Basile, A., Iulianelli, A., **Dalena, F.**, NejatVeziroglu, T., (2019) Preface, In *Ethanol*. Elsevier.
7. **Dalena, F.**, Senatore, A., Marino, A., Gordano, A., Basile, M., & Basile, A. (2018). Methanol Production and Applications: An Overview. In *Methanol* (pp. 3-28). Elsevier.
8. Basile, A., **Dalena, F.** (2018) Preface, In *Methanol*. Elsevier
9. **Dalena, F.**, Senatore, A., Tursi, A., & Basile, A. (2017). Bioenergy production from second-and third-generation feedstocks. In *Bioenergy Systems for the Future* (pp. 559-599). Woodhead Publishing.
10. Iulianelli, A., **Dalena, F.**, & Basile, A. (2017). H<sub>2</sub> production from bioalcohols and biomethane steam reforming in membrane reactors. In *Bioenergy Systems for the Future* (pp. 321-344). Woodhead Publishing.
11. **Dalena, F.**, Basile, A., Rossi, C. (2017) Preface. , in *Bioenergy Systems for the Future* (pp. 321-344). Woodhead Publishing.

12. **Dalena, F.**, Veziroglu, N., Tong, J., Basile, A. (2017) Preface. In: Hydrogen production, separation and purification. IET
13. Basile, A., Iulianelli, A., Bagnato, G., & **Dalena, F.** (2015). Hydrogen production for PEM fuel cells. In *Production of hydrogen from renewable resources* (pp. 339-356). Springer, Dordrecht.
14. Iulianelli, A., **Dalena, F.**, Liguori, S., Calabrò, V., & Basile, A. (2015). Membrane reactors for steam reforming of glycerol and acetic acid to produce hydrogen. In *Membrane Reactors for Energy Applications and Basic Chemical Production* (pp. 249-266). Woodhead Publishing.
15. **Dalena, F.**, Basile, A. (2014) Bioalcohol production. In: Alcohols and Bio-alcohols: Characteristics, Production and Use, Nova Sci. Pub.
16. Basile, A., **Dalena, F.** (2014) Preface. In: Alcohols and Bio-alcohols: Characteristics, Production and Use, Nova Sci. Pub.
17. Iulianelli, A., Liguori, S., **Dalena, F.**, Basile, A. (2013) Hydrogen production via acetic acid steam reforming reaction using membrane reactors. in: Acetic Acids: Chemical Properties, Production and Applications, Nova Sci. Pub.

#### CONFERENCES

- 1.A. Abruzzo, F. P., Nicoletta, F., **Dalena, F.** Spedicato, T. Cerchiara, B. Luppi, F. Bigucci, Buccalmatrics for drugadministration in paediatricpopulation, XVII Giornata Di Chimica Dell'Emilia Romagna (1st December), Bologna (Italy) (Poster presentation).
2. G. Bagnato, A. Iulianelli, A.Vita, K. Ghasemzadeh, **F. Dalena**, A. Basile, Pure hydrogen production from biogas steam reforming in a membrane reactor, Symposium on heterogeneous catalysis for fine chemicals (FineCat 2017), 5<sup>th</sup> April 2017, Palermo (Italy) (Poster presentation).
3. G. Bagnato, A. Iulianelli, Y. Huang, V. Palma, K. Ghasemzadeh, **F. Dalena**, A. Sanna, A. Basile, From biomass to high grade hydrogen generation for low-temperature PEM fuel cells, Symposium on heterogeneous catalysis for fine chemicals (FineCat 2017), 5<sup>th</sup> April 2017, Palermo (Italy) (Poster presentation).
4. G. Bagnato, A. Iulianelli, S. Liguori, J. Wilcox, Y.H. Ma, I.P. Mardilovich, K. Ghasemzadeh, **F. Dalena**,

- A. Sanna, A. Basile, Supported Pd-Au membrane reactor for hydrogen production, Symposium on heterogeneous catalysis for fine chemicals (FineCat 2017), 5<sup>th</sup> April 2017, Palermo (Italy) (poster presentation)
5. A. Iulianelli, S. Liguori, Y. Huang, **F. Dalena**, A. Basile, “Hydrogen generation from model biogas steam reforming in a supported Pd-membrane reactor”, EmHyTeC2014, 2nd Euro-Mediterranean Hydrogen Technologies Conference, Dec. 9-12, 2014, Taormina (Italy), Book of Abstracts, Nov. 2014, p. 44-45, O-007, ISBN 978 88 8080 141 2, (Oral presentation).
6. S. Liguori, G. Bagnato, S. Curcio, A. Iulianelli, Y. Huang, **F. Dalena**, A. Basile, “Water gas shift in membrane reactors: dense vs supported Pd-based membranes”, EmHyTeC2014, 2nd Euro-Mediterranean Hydrogen Technologies Conference, Dec. 9-12, 2014, Taormina (Italy), Book of Abstracts, Nov. 2014, p. 254-255, P-025, ISBN 978 88 8080 141 2, (Poster presentation).
7. G. Chidichimo, A. Beneduci, C. Gattuso, A. Senatore, **F. Dalena**, V. Roviello, “New Fiber Composite Materials For Cultural Heritage Conservation”, in: Heritage and Technology, XIII International Forum, Le vie dei Mercanti, Aversa, Capri (Italy) June 2015
8. A. Abruzzo, B. Vitali, M. Ceccolini, C. Parolin, R.A. Ñahui Palomino, **F. Dalena**, F. Bigucci, T. Cerchiara, B. Luppi, “Synbiotic vaginal insert containing Lactobacillus crispatus, fructo-oligosaccharides and ascorbic acid: technological and microbiological characterization”, Int. Conf. on “From food to pharma: the polyhedral nature of polymers”, May 25-27, 2015 Milan, Italy, Book of abstracts, (2015) 34-35 (Poster presentation).
9. G. Chidichimo, **F. Dalena**, Datazione degli affreschi della chiesa ipogea di Sotterra (Paola). Un contributo fornito dall’analisi chimica dei pigmenti, Atti del V Convegno internazionale sulla Civiltà rupestre, Savelletri di Fasano (BR), 17-19 novembre 2011, a cura di E. Menestò [Fondazione del Centro Italiano di Studi sull’alto Medioevo-Spoleto], Spoleto 2013, pp. 420-437.

#### REVIEWER

- Reviewer of the journal: “Nature”;
- Reviewer of the journal: “Fuel”;
- Reviewer of the journal: “International Journal of Hydrogen Energy”;
- Reviewer of the journal: “Chemical Engineering Science”;
- Reviewer of the journal: “Biomass and Bioenergy”;





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