

## CURRICULUM VITAE di M. LUISA TESTA



### **Maria Luisa TESTA**

Researcher

Consiglio Nazionale delle Ricerche

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### ***Research Activities:***

The research concerns the sustainable synthesis of **nanomaterials** for energy and environmental applications spanning from **environmental heterogeneous catalysis**, design and synthesis of hybrid organic-inorganic catalysts, synthesis of functionalized material applied to the transformation of **biomass components**, both in the field of **biofuel** production and for the achievement of **added-value products**. Special attention is due to the **circular chemistry** on the 1) **use of waste** both for the synthesis of new materials and added value products 2) **use of sustainable procedure** and eco-compatible solvent 3) **process efficiency**. In particular, the research is focused on: Synthesis and catalytic activity of acid materials towards the etherification, esterification and transesterification reactions used in biofuel production; Production of acidic materials for conversion of cellulose part of biomass. Synthesis of metals doped mesoporous catalysts for hydrogenation of platform molecules and for hydrodesulfuration reactions; Synthesis of transition metals based heterogeneous catalysts for Fischer-Tropsch reaction; **MW assisted reactions** applied both to the synthesis of materials and their performance. Part of the research is oriented to the synthesis of hybrid materials for **wastewater purification**. Author of 46 peer reviewed scientific publications and about 60 among patents, invited presentations and poster communications.

### ***Education:***

She completed her undergraduate studies (*110/110 cum laude*) in Palermo (Italy), then she received her **European PhD** (*excellent cum laude*) at **Valencia University** (Spain), where she started the career working on organic chemistry and, in particular, on the design and synthesis of stereoselective polyols and aminoalcohols. During her PhD she spent 3 months at the Chemistry Department of the **University of Cork** (Ireland). Since 2001 she is a **Permanent Research Chemist** at **Institute for the Study of Nanostructured Materials** ISMN of the **Italian National Research Council**.

### **Research and Academic experience**

2021 -21 days at **Universidad de Cordoba (Spain)** in collaboration with Prof. F. Bautista, Dept Quimica Organica. This was a Short Term Mobility program financed by CNR (STM2020) about “Design of solid acid catalysts for glycerol transformations into biochemicals”.

2019 – **Person in charge** of Lab “Sintesi e Catalisi per la Valorizzazione della Biomassa” of ISMN PA

2017 - **Professor** of “Surface functionalization of materials for energy and environment” at MAT4TREAT Winter School: Innovative approaches for material synthesis and characterization 23-26 January **2017**, Torino, Italy.

2014-2015 - **Professor** of “Surface Functionalization for the achievement of advanced materials. Spectroscopic techniques (IR, UV)” Training Course “Nanomateriali e Nanotecnologie per lo Sviluppo Sostenibile ed il patrimonio culturale” SPIN OFF Projects fund by Sicilian Region (FSE Projects).

2013 – 21 days at **IRCELYON CNRS Lyon (France)** in collaboration with Dr. Catherine Pinel. This was a Short Term Mobility program financed by European COST Action CM0903 (UBIOCHEM) about “Pd and Pd-Au acid catalysts for hydrogenation of biobased acids”

2011- till now **Responsible** of Labs Equipment (GCMS, GCFID, MPAES) of ISMN PA

*Academic year 2006-2007* – **Professor** of “Design and Synthesis of Drugs” at the **Chemistry Faculty of the Palermo University** (Italy).

2005 – 21 days at **University of Valencia (Spain)** in collaboration with Prof. Jose Sepulveda. This was a Short Term Mobility program financed by CNR (STM2005) about “Synthesis and performance of chiral aminoalcohol as catalysts in asymmetric synthesis both in homogeneous and heterogeneous phase”.

*Academic year 2003-2004* – **Professor** of “Drugs Analysis III” at the **Pharmacy Faculty of the Palermo University** (Italy).

2000 - 3 months at Chemistry Department of **University College Cork** (Cork- Ireland) in collaboration with Prof. W.B. Jennings on “Investigation of N-phosphinoyl oxaziridines in enolate oxidations” fund by Generalitat Valenciana (Spain)

### ***Scientific Project and Cooperation: (last 5 years)***

- Co-Investigator **European Project NanoTheC-Aba** “CECs and AMR bacteria pre-concentration by ultra nano filtration and Abatement by thermoCatalytic Nono-powders implementing circular economy solution” fund by JPI Aquatic Pollutants and MUR for Italy - 930284 € (2021-2024)
- Co-Investigator **European Project NanoPerWater** “Fabrication of a novel Water filtration membrane based on NanoPerovskite for abatement of CECs” Fund by Eurostars 1,560,620.84 € (2020-2023)
- Co-Investigator **European Project Raw Matters** Ambassador at Schools 4.0 financed by EIT/EIT Raw Materials 1.569.672 € (2021-2023)
- Co-Investigator **Italian Project CNR-ENEA** “Piattaforma Italiana Accelerata per i Materiali per l’Energia (IEMAP) fund by Programm MISSION INNOVATION (POA 2021-2023) € 100.000,00 (2021-2024)
- Co-Investigator **Italian Project NAUSICA** “NAvi efficienti tramite l’Utilizzo di Soluzioni tecnologiche Innovative e low CARbon” fund by Italian PON «R&I» 2014-2020. € 522.000,00. (2018-2023)
- Co-Investigator **Spanish Project** Transición energética basada en la biomasa empleando catálisis heterogénea fund by Ministerio de Ciencia, Innovación y Universidades (Spain) 143.990 € (2020-2023)
- Co-Investigator **Spanish Project TREMBIO2G** “TRansición Energética Mediante BIOMasa de Segunda generación” fund by Junta de Andalusia (Spain) 122.968 € (2020-2022)
- Co-Investigator **CNR Project CHANGEGAME** “Change the Game: Playing to be prepared for the challenges of a sustainable society” fund by CNR Progetti@CNR 83.962€ 2022-2024
- Co-Investigator **Italian Project SETI** “Sicilia Eco Technologie Innovative” fund by POR Azione 1.1.5 Regione Siciliana € 350.000 (2019-2022)
- Co-Investigator **Italian Project SIMARE** Soluzioni Innovative per Mezzi navali ad Alto Risparmio Energetico fund by PO FESR 2014/2020 € 360.060,16 (2019-2022)
- Co-Investigator **Italian Project THALASSA** TechNology And materials for safe Low consumption And low life cycle cost veSSels And crafts fund by PON Miur-PNR 2015-2020 €419.400 (2019-2022)
- Co-Investigator **Bilateral Project CNR-BAS** “Sviluppo di catalizzatori innovativi e sostenibili per processo di produzione di H2 puro integrato con l'utilizzo della CO2” €12.000 (2019-2022)
- Co-Investigator **Italian Project TARANTO** Energie per l’Ambiente - Tecnologie e processi per l’Abbattimento di inquinanti e la bonifica di siti contaminati con Recupero di mAterie prime e produzioNe di energia TOtally green fund by PON Miur-PNR 2015-2020 € 220.000 (2018-2022)
- Co-Investigator **Italian Project MatISSE** (Materiali Innovativi e Sostenibili per la Salute e L’Energia) fund by PO FESR 2014/2020 € 526.265,43 (2017-2019)
- Co-Investigator **Italian Project** “Dalla Ricerca alla Scuola... e ritorno” - Metodo, linguaggio e approccio scientifico per una scuola di qualità” € 97.990,00 (2017-2019)

### ***Editorial Board / Congress Commitee***

- Topical Advisory Panel member of the Material (MDPI) journal;

- Organizer of 1th Sustainable Chemistry webinar "Efficient and Ecofriendly Chemical Synthesis of Advanced Materials for Energy and Environment" <https://suschem-1.sciforum.net/> Chairs F. Deganello, S. Gonzalez Cortes, M.L. Testa. Invited speakers Prof. L. De Cola, Prof. S. Gross, S.T. Aruna, 03.06.2021
- Editor di special issue "'Efficient and Ecofriendly Chemical Synthesis of Advanced Materials for Energy and Environment" in Sustainable Chemistry - MPDI (ISSN 2673-4079) 2021
- Editor di special issue "Heterogeneous Catalysts for Energy and Environmental Applications" in Materials - MPDI (ISSN 1996-1944) 2019
- Component of International Advisory Committee of the International Congress Nanomaterials for Energy, Environment and Sustainability (ICNEES-2019) Bhubaneswar, India, 20-22.12.2019
- Scientific Board of Mat4Treat Winter School: Innovative approaches for material synthesis and characterization Torino (Italy), 23-26.01.2017 <http://www.mat4treat.unito.it/winterschool>
- Organizer of International Workshop "Molecules, methods and metrics"- UBIOCHEM - European COST Action CM0903, Palermo (Italy) 24-25.01.2013

### **Tutoring**

- Supervisor of PhD Laura Aguado Deblas of Cordoba University at ISMN-PA, during her foreign stay. (2021-2022)
- External expert for the evaluation of PhD thesis of H.R. Pawar "Catalytic Activity of Ru-based heterogeneous Catalyst towards organic transformation" at Savitribai Phule Pune University, PUNE 2020
- Supervisor of Post Doc at ISMNPA PhD. Marco Russo working on "Materiali innovativi ed ecosostenibili per la valorizzazione delle biomasse" in the MatISSE "Materiali Innovativi e Sostenibili per la Salute e l'Energia" Project, fund by Sicilian Region (FSE Projects). (2017-2019)
- Co-supervisor Degree Thesis for students from Industrial Chemistry of Torino University (a.y. 2012/13; 2016/17; 2018/19)
- Supervisor of Post degree Training (20h) on SPIN OFF Projects fund by Sicilian Region (FSE Projects).
- Supervisor Degree Thesis for students from Pharmacy of Palermo University (2 Thesis, 2004/05)
- Tutoring activity of undergraduate students (>15) in Chemistry or Material Engineering at Palermo University (2011-till now). All research are focused on synthesis of materials and their application in biomass valorization.
- Scientific Tutor of several dissemination project at Schools: 2019 "PON Orient@Experience - Field research: laboratorio orientativo ISMN CNR" (30h for 60 students of high school); 2018-2019 "Alternanza Scuola Lavoro (80 hours for 20 students of high school); 2018 "La chimica attraverso gli alimenti" (20 hours for 242 students at secondary school); 2016 "Tecnico di Laboratorio Chimico-Fisico" (100h for 15 students of high school)

### **Scientific Production**

Co-authors of 47 publications, including articles in peer-reviewed internal journals, reviews, 1 book chapters, 1 PCT Int. Appl. WO patent.; n. 100 communications (oral/poster) to conferences (*only recent communications are here reported*)

1. L. Aguado-Deblas, R. Estevez, V. La Parola, M. Russo, F.M. Bautista, M. L. Testa "Sustainable Microwave-assisted solketal synthesis over sulfonic silica-based catalysts" *Journal of Environmental Chemical Engineering*, **2022**, 10, 108628-108637
2. V. La Parola, L. F. Liotta, G. Pantaleo, M. L. Testa, A. M. Venezia "CO<sub>2</sub> reforming of CH<sub>4</sub> over Ni supported on SiO<sub>2</sub> modified by TiO<sub>2</sub> and ZrO<sub>2</sub>: effect of the support synthesis procedure" *Applied Catalysis A: General*, **2022**, 642,118704

3. L. Aguado-Deblas, R. Estevez, V. La Parola, A. Marinas, F.M. Bautista, M. L. Testa Sulfonic Silica-based catalysts for the Microwave-assisted solketal synthesis." 20th International Zeolite Conference., Valencia (Spain), 03-08 July **2022**
4. C. Calabrese, V. La Parola, M. L. Testa, L. F. Liotta "Antifouling and antimicrobial activity of Ag, Cu and Fe nanoparticles supported on silica and titania" *Inorganica Chimica Acta*, **2022**, 120-636-120649
5. **Invited talk** M.L. Testa, "Sulfonic Acid Catalysts for Biomass derived valuated chemicals", 2nd Global Virtual Summit on Catalysis & Chemical Engineering, 14-16 March **2022**
6. R. Sadraei, F. Cucchiara, G. Magnacca, M. L. Testa "Surface functionalization of handleable silica-based mesoporous materials for CO<sub>2</sub> sequestration: synthesis, characterization and performance" *Surfaces and Interfaces*, **2021**, 101542-101552
7. M. L. Testa, V. La Parola "Sulfonic Acid-Functionalized Inorganic Materials as Efficient Catalysts in Various Applications: A Minireview" *Catalysts*, **2021**, 11(10), 1143-1170
8. G. Pantaleo, V. La Parola, M. L. Testa, A. M. Venezia "CO<sub>2</sub> Reforming of CH<sub>4</sub> over SiO<sub>2</sub>-Supported Ni Catalyst: Effect of Sn as Support and Metal Promoter", *Ind. Eng. Chem. Res.* **2021**, 60, 51, 18684–18694
9. E.I. García-López, F.R.Pomilla, B. Megna, M. L. Testa, L.F. Liotta, G. Marci "Catalytic Dehydration of Fructose to 5-Hydroxymethylfurfural in Aqueous Medium over Nb<sub>2</sub>O<sub>5</sub>-Based Catalysts" *Nanomaterials* **2021**, 11, 1821-1842
10. A. Bianco-Prevot, M.L. Testa, E. Laurenti, M.L. Tummino, G. Magnacca, "Chapter 35: Soluble bio-based substances from compost as photosensitizers for a sustainable homogeneous and heterogeneous photocatalysis" **2021**, Chp 35, pg 589-601 in "Materials Science in Photocatalysis" Authors: E. Garcia-Lopez, L. Palmisano, Ed. Elsevier ISBN 9780128218594
11. M.L. Testa, M.L. Tummino "Lignocellulose biomass as a multifunctional tool for sustainable catalysis and chemicals: an overview", *Catalysts* **2021**, 11, 125-152.
12. M. L. Testa "Functionalized nanomaterials for biomass conversion" *Materials Today: Proceedings*, **2021**, Volume 35, Part 2, 156-163
13. **Oral talk** M.L. Testa, P. Alletto; C. Vineis; V. La Parola; E. Laurenti; M.L. Tummino, "Functionalized waste cellulose with antimicrobial activity" Waste2Value International Congress, Portugal, 17 Nov **2021**
14. M. Russo, V. La Parola, G. Pantaleo, M. L. Testa, A. Bordoloi, R. Gupta, R. Bal, A.M. Venezia, "The Effect of Potassium on TiO<sub>2</sub> Supported Bimetallic Cobalt-Iron Catalysts" *Topics in Catalysis*, **2020**, 63(15-18), 1424–1433
15. M. Russo, V. La Parola, G. Pantaleo, M. L. Testa, A.M. Venezia, R. Gupta, A. Bordoloi, R. Bal "Structural insight in TiO<sub>2</sub> supported CoFe catalysts for Fischer -Tropsch synthesis at ambient pressure" *Applied Catalysis A: General*, 600, **2020**, 117621
16. L. Aguado-Deblas, R. Estevez, M. Russo, V. La Parola, F.M. Bautista, M. L. Testa "Microwave assisted glycerol etherification over sulfonic acid catalysts" *Materials*, **2020**, 13, 1584-1600
17. M. L. Testa, G. Miroddi, M. Russo, V. La Parola, G. Marci "Dehydration of Fructose to 5-HMF over Acidic TiO<sub>2</sub> Catalysts" *Materials*, **2020**, 13, 1178-1189
18. A. Emamdoust, V. La Parola, G. Pantaleo, M.L. Testa, S. Farjami Shayesteh, A.M. Venezia "Partial oxidation of methane over SiO<sub>2</sub> supported Ni and NiCe Catalysts", *Journal of Energy Chemistry*, **2020**, 47, 1-9.
19. **Invited Lecture** M.L. Testa, "Characterization of Functionalized SiO<sub>2</sub> and TiO<sub>2</sub> catalysts" in Five Days International Faculty Techno-Improvement Programme (FDIFTIP) On Instrumental Techniques For Characterization, Dept. Of Physics and Life Sciences of Bose College, Maharashtra, India, 22-26 June **2020**
20. **Invited Lecture** M.L. Testa, "Functionalized silica and titania nanocatalysts for sustainable chemicals" in iNano2020, 15-17 June, **2020**

21. Elisa I. García-López, Francesca Rita Pomilla, Maria Luisa Testa, Leonardo Palmisano, Giuseppe Marci “Fructose dehydration to 5-hydroxymethylfurfural in the presence of Nb<sub>2</sub>O<sub>5</sub> based (photo)catalysts” ENERCHEM-2 (Chemistry for Renewable Energy) Padova 12-14 February **2020**
22. M. L. Tummino, M. L. Testa, M. Malandrino, R. Gamberini, A. Bianco Prevot, G. Magnacca, E. Laurenti “Green waste-derived substances immobilized on SBA-15 silica: surface properties, adsorbing and photosensitizing activities towards organic and inorganic substrates” *Nanomaterials*, **2019**, 9, 2, 162
23. M.L. Testa, V. La Parola, F. Mesrar, F. Ouanji, M. Kacimi, M. Ziyad L. Liotta, “Use of Zirconium Phosphate-Sulphate as acid catalysts for synthesis of glycerol-based fuel additives” *Catalysts*, **2019**, 9(2), 148
24. **Invited Lecture** M.L. Testa, “Functionalized nanomaterials for biomass conversion” in Recent advances in Chemical Sciences, Goa, India, 17 December **2019**
25. **Invited Lecture** M.L. Testa, “Surface functionalization of nanomaterials for energy and environment applications” in Nanomaterials for Energy, Environment and Sustainability (ICNEES-2019), Bhubaneswar, India, 20-22 December **2019**
26. M.L. Testa, G. Miroddi, M. Russo, V. La Parola, G. Marci “Fructose Dehydration to 5-HMF over TiO<sub>2</sub> acid catalysts” CATBIOR V, **2019**, 23-27 September, Turku, Finland
27. M. Russo, V. La Parola, A. M. Venezia, M.L. Testa “Interesterificazione degli oli vegetali come metodica alternativa per la produzione di Biodiesel” Congresso congiunto delle sezioni Sicilia e Calabria della SCI, 1-2 Marzo **2019** Palermo, Italy
28. M. Russo, V. La Parola, A.M. Venezia, M.L. Testa “Solid acid catalysts for interesterification of C8-triglyceride to one-pot FAEE derivatives and its additives” CATBIOR V, **2019** 23-27 September, Turku, Finland
29. M. Russo, M.L. Testa, V. La Parola, G. Pantaleo, R. Bal, A. M. Venezia “Effect of Fe/Co wt ratio on TiO<sub>2</sub> supported catalysts for Fischer-Tropsch synthesis using syngas with H<sub>2</sub>/CO ratio < 2” EuropaCat **2019**, 18-23 August, 2019 Aachen, Germany
30. M. Russo, V. La Parola, A. M. Venezia, M.L. Testa “Interesterification: an alternative route towards sustainable and greener biofuel”, Innovative Catalysis and Sustainability- International Winter School, 7-11 Gennaio **2019**, Bardonecchia, Torino, Italy
31. **International Patent**: “One-pot process for the production of biodiesel and glycerol ether mixtures useful as biofuels”. Titolarità CNR. Inventori: G. Nicolosi, M.L. Testa, V. La Parola, L.F. Liotta, C. Drago, United States Patent and Trademark Office Pre-Granted Publication US20160024408, **2016 - US Patent** 9,873,843, **2018**; **European Patent** Application EP2953921, **2015**
32. N. Date, V. La Parola, C.V. Rode, M. L. Testa “Ti-doped PdAu catalysts for one-pot hydrogenation and ring opening of furfural” *Catalysts*, **2018**, 8(6), 252-268.
33. F. Deganello, D. N. Oko, M. L. Testa, V. La Parola, M.L. Tummino, C.O. Soares, J. G. Rivera, G. Orozco, D. Guay, A. C. Tavares “Perovskite-Type Catalysts Prepared by Nanocasting: Effect of Metal Silicates on the Electrocatalytic Activity Towards Oxygen Evolution and Reduction Reactions” *ACS Applied Energy Materials*, **2018**, (6), pp 2565–2575.
34. M.L. Testa “Materiali funzionalizzati per Ambiente ed Energia” Workshop ISMN18, 12-14 December **2018**, Cinisi (PA), Italy.
35. M. Russo, M.L. Testa, V. La Parola, G. Pantaleo, A. M. Venezia “Microwave-Assisted Synthesis of Fe/Co catalysts for the Fischer-Tropsch synthesis on biomass-derived syngas”, GIC-DiChIn2018, 2-5 September **2018** Milano, Italy
36. F. Mesrar, M. Kacimi, L. Liotta, M.L. Testa, V. La Parola, M. Ziyad “Acetylation of Glycerol over mixed Zirconium Phosphate- Sulphate catalysts” in **2017** International Renewable and Sustainable Energy Conference (IRSEC); INSPEC Accession Number: 18161813 doi:10.1109/IRSEC.2017.8477345 ISSN: 2380-7393

37. C. Drago, A. Camalleri, N. D'Antona, R. La Mattina, V. La Parola, L.F. Liotta, M. L. Testa, G. Nicolosi "Processo Sostenibile per la produzione di biodiesel da oli vegetali esausti", *La Chimica e l'Industria*, **5**, Settembre- Ottobre **2017**
38. H. A. Beejapur, V. La Parola, L.F. Liotta, M.L. Testa "Glycerol Acetylation over Organic-Inorganic Sulfonic or Phosphonic Silica Catalysts", *Chemistry Select* **2017**, *2*, 4934-4941
39. M. L. Testa, F. Deganello, M. L. Tummino "Chimica alla scuola primaria", *Chimica nella scuola*, **2016**, *3*, 23-33 ISSN 0392-8942 Aracne editrice
40. M. L. Testa, M. L. Tummino, S. Agostini, P. Avetta, F. Deganello, E. Montoneri, G. Magnacca and A. Bianco Prevot "Synthesis, characterization and environmental application of silica grafted photoactive substances isolated from urban biowaste" *RSC Adv.*, **2015**, *5*, 47920-47927
41. F. Deganello, M.L. Tummino, C. Calabrese, M. L. Testa, P. Avetta, D. Fabbri, A. Bianco Prevot, G. Magnacca "A new sustainable LaFeO<sub>3</sub> material prepared from biowaste sourced soluble substances" *New Journal of Chemistry*, **2015**, *39*, 877-885
42. M. L. Testa, L. Corbel-Demilly, V. La Parola, A.M. Venezia, C. Pinel "Effect of Au and Pd supported over HMS and Ti doped HMS as catalysts for the hydrogenation of levulinic acid to g-valerolactone" *Catalysis Today*, **2015**, *257*, 291-296
43. F. Deganello, M. L. Testa, V. La Parola, A. Longo, A. C. Tavares "LaFeO<sub>3</sub>-based nanopowders prepared by a soft-hard templating approach: the effect of silica texture" *Journal of Material Chemistry A*, **2014**, *2* (22), 8438-8447
44. M. L. Testa, V. La Parola, A.M. Venezia "Transesterification of short chain esters using sulfonic acid-functionalised hybrid silica" *Catalysis Today*, **2014**, *223*, 115-121
45. G. Magnacca, G. Spezzati, F. Deganello, M. L. Testa, "A new in situ methodology for the quantification of the oxygen storage potential in perovskite-type materials" *RSC Advances*, **2013**, *3* (48) 26352-26360
46. C. Drago, L.F. Liotta, V. La Parola, M. L. Testa, G. Nicolosi "One-pot microwave assisted catalytic transformation of vegetable oil into glycerol-free biodiesel" *Fuel*, **2013**, *113*, 707-711
47. M. L. Testa, V. La Parola, L.F. Liotta, A.M. Venezia "Screening of different solid acid catalysts for glycerol acetylation" *Journal of Molecular Catalysis A*, **2013**, *367*, 69-76
48. M. L. Testa, E. Zaballos-Garcia, R. J. Zaragoza "Reactivity of  $\beta$ -amino alcohols against dialkyl oxalate: synthesis and mechanism study in the formation of substituted oxalamide *and/ or* morpholine-2,3-dione derivatives" *Tetrahedron*, **2012**, *68*, 9583-9591
49. V. La Parola, M. L. Testa, A.M. Venezia "Pd and PdAu catalysts supported over 3-MPTES grafted HMS used in the HDS of thiophene" *Applied Catalysis B: Environmental*, **2012**, *119-120*, 248-255
50. A. Ciaravella, D. Bongiorno, C. Cecchi-Pestellini, M. L. Testa, S. Indelicato, M. Barbera, A. Collura, A. La Barbera, F. Mingoia "The Young Hard Active Sun: Soft X-ray Irradiation of Tryptophan in Water Solutions" *International Journal of Astrobiology*, **2011**, *10*(1) 67-75
51. M. L. Testa, V. La Parola, A.M. Venezia "Esterification of acetic acid with butanol over sulfonic acid-functionalized hybrid silicas" *Catalysis Today*, **2010**, *158*, 109-113
52. M. L. Testa, L. Antista, F. Mingoia, E. Zaballos-Garcia "Synthesis of new polydentate oxalamide based ligands as chiral catalysts for the enantioselective addition of diethylzinc to benzaldehyde" *Journal of Chemical Research*, **2006**, *3*, 182-184
53. P. Gancitano, R. Ciriminna, M. L. Testa, A. Fidalgo, L. M. Ilharco, M. Pagliaro "Enhancing Selectivity in Oxidation Catalysis with Sol-Gel Nanocomposites" *Organic & Biomolecular Chemistry*, **2005**, *3*, 2389-2392
54. C. Hajji, M. L. Testa, E. Zaballos-Garcia, J. Sepulveda-Arques "Study of cyclic derivatives of 1,2- and 1,3-aminoalcohols as chiral catalysts in additions of diethylzinc to benzaldehyde" *Journal of Chemical Research*, **2005**, *7*, 420-421

55. A. Hamdach, E.M. El Hadrami, M.L. Testa, S. Gil, E. Zaballos-García, J. Sepúlveda-Arques, P. Arroyo and L.R. Domingo “Novel examples of N-methyl effect on cyclisation of N-Boc derivatives of amino alcohols. A theoretical study” *Tetrahedron*, **2004**, *60*, 12071-12077.
56. M. L. Testa, L. Lamartina, F.M. Mingoa “A new entry to the substituted Pyrrolo[3,2-c]quinoline derivatives of biological interest by intramolecular heteroannulation of internal imines” *Tetrahedron*, **2004**, *60*, 5873-5880.
57. M. L. Testa, R. Ciriminna, C. Hajji, E. Zaballos Garcia, M. Ciclosi, J. Sepulveda Arques, M. Pagliaro “Oxidation of amino diols mediated by homogeneous and heterogeneous TEMPO” *Advanced Synthesis and Catalysis*, **2004**, *6*, 655-660.
58. W.B. Jennings, A. Scheppe, M. L. Testa, E. Zaballos-Garcia, J. Sepúlveda-Arques "Applications of N-phosphinoyloxaziridines in the conversion of alkenes to epoxides and esters to  $\alpha$ -hydroxyesters" *Synlett*, **2003**, *1*, 121-123.
59. M. L. Testa, M. Akssira, E. Zaballos-Garcia, P. Arroyo, L. R. Domingo, J. Sepúlveda-Arques "Experimental and theoretical investigations for the regio and stereoselective transformation of 1,2,3-trisubstituted aziridines into *trans* oxazolidin-2-ones" *Tetrahedron*, **2003**, *59*, 677-683.
60. C. Hajji, M. L. Testa, E. Zaballos-García, R. J. Zaragoza, J. Server-Carrió, J. Sepúlveda-Arques “Chemoselective reactions of *N*-methyl-2-hydroxy-3-methylamino-3-phenylpropanamide with electrophiles. Synthesis of chiral hexahydro-4-pyrimidones and oxazolidines” *Tetrahedron*, **2002**, *58*, 3281-3285.
61. M. L. Testa, C. Hajji, E. Zaballos-García, A. B. García-Segovia, J. Sepúlveda-Arques “Asymmetric synthesis of (-)-pseudoephedrine from (2*S*,3*S*)-3-phenyloxiran-2-ylmethanol. Stereospecific interchange of amino and alcohol function.” *Tetrahedron: Asymmetry*, **2001**, *12*, 1369-1372.
62. C. Hajji, M. L. Testa, R. de la Salud-Bea, E. Zaballos-García, J. Server-Carrió, J. Sepúlveda-Arques “Reactions of 3-methylamino-1,2-diols with dihalomethanes. Synthesis of chiral 4-substituted 3-methyltetrahydro-1,3-oxazin-5-ols.” *Tetrahedron*, **2000**, *56*, 8173-8177.
63. L. Rodriguez-Salvador, E. Zaballos-García, E. Gonzalez-Rosende, M. L. Testa, J. Sepúlveda-Arques, R. A. Jones “Thermolysis of 3-(Carbazol-3-yl)-2-azidopropenoates” *Tetrahedron*, **2000**, *56*, 4511-4514.
64. M. L. Testa, M. L. Rodriguez-Salvador, M. E. Gonzalez-Rosende, E. Zaballos-García, J. Sepúlveda-Arques “Synthesis of Ellipticine Analogues”, *Methods Find. Exp. Clin. Pharmacol*, **1999**, *21*(A), 142.

### **Dissemination Activity:**

- **Training Course for School Teachers:** Fiera DIDACTA ITALIA 2022: “Percepire la Chimica attraverso I cinque sensi: Percorso per la scuola primaria”, Firenze 20-22 Maggio **2022**
- **Scientific Events:** Project SHARPER (Sharing Researchers’ Passion for Evidence and Resilience) - The European Researchers’ Night in Italy **2020** (“Chimica verde per un mondo pulito”); **2019** (“Chimica e Ambiente: un legame indissolubile”); **2018** (“Nanomateriali da rifiuti e spazzini nanomolecolari: un ciclo virtuoso per l’ambiente”); Esperienza InSegna – Palermo University **2020** (“Processi chimici verdi per un pianeta verde”); **2019** (Chimica verde: una nuova rotta verso ecosostenibilità e nanomateriali); **2018** (Chimica, materiali e futuro sostenibile) **2017** (“Materiali dall’Ambiente per l’Ambiente: Energia, acque reflue a Beni culturali”); **2016** (Chimica: ecco la soluzione!); **2015** (Le molecole del cibo e i loro colori); **2014** (Dai rifiuti urbani il risanamento ambientale); **2013** (Dai rifiuti urbani il risanamento ambientale); **2012** (“Come utilizzare i rifiuti per risanare l’ambiente.”); Event Pint of Science M.L. Testa, “Spazzini nanomolecolari”, Palermo, 15 May **2018**; Event Light **2012** “Dai rifiuti urbani, il risanamento ambientale” - Light: Accendi la luce sulla scienza edizione 2012, evento che rientra nelle azioni Marie Curie – Researchers’ Night, 28 September **2012**
- **Projects for Schools:** Progetto Linguaggio della Ricerca (LdR) del CNR-ENEA (<https://ricerca-scuola.ism.cnr.it/course/view.php?id=14>); Progetto Alternanza Scuola-Lavoro with ITC Majorana

- (Palermo) -Tutor scientifico del Progetto **2018-2019-2020**; Scuola Media A.Gentili, Palermo “La chimica attraverso gli alimenti” Formazione: lezioni-laboratorio Gennaio-Maggio (20h) **2018** and “Impariamo la chimica col cibo” 10-26 Novembre (12h) **2015**; Istituto Minutoli, Palermo “Chimica ... è naturale!” Formazione: lezioni-laboratorio 23 Marzo- 26 Maggio (6h) **2015** and “La Chimica alla Scuola Primaria” Formazione: lezioni-laboratorio 10-11 Aprile **2014**;
- **Conference for Schools:** M.P. Casaletto, M.L. Testa, F. Deganello, M.L.Bondi “Chimica...tutto intorno a noi!” CNR, Palermo 15 Marzo **2016** con I.I.S.S. “G. Salerno” sez. Liceo Scientifico e Liceo Classico di Gangi (PA); M.P. Casaletto, M.L. Testa, F. Deganello, M.L.Bondi “Chimica: alla ricerca di materiali innovativi” CNR, Palermo 18 Marzo **2016** con I.I.S.S. “Mottura” di Caltanissetta; M.P. Casaletto, M.L. Testa, F. Deganello, M.L.Bondi “Chimica: Risorsa e Tutela per l’Uomo e l’Ambiente” CNR, Palermo 15 Aprile **2016** con I.I.S.S. “Don Michele Arena” Sciacca (AG); M.L. Testa, F. Deganello “Le molecole del cibo e i loro colori” - CNR, Palermo 7 Maggio **2015** con Scuola Media “A.Gentili” – Palermo; G. Chiazzese, V. Dal Grande, S. Ottaviano, M. Arrigo, M. Gentile, G. Todaro, D. La Guardia, F. Deganello, M. L. Testa, M. L. Tummino, M. Di Carlo, D. Nuzzo, P. Picone, L. Caruana, G. Capasso, M. Martelli, T. Mineo, A. La Barbera “ScienceLab: Un giorno da scienziato al Consiglio Nazionale delle Ricerche di Palermo. Un viaggio esplorativo tra le scienze matematiche, informatiche, fisiche e naturali” CNR, Palermo 17 December **2014**

### ***Other Information***

Reviewer at several catalysis-related international journals.

External evaluator for projects selection at NWO Talent Programme – Vici scheme (Netherlands) **2021**

Use of MP-AES, GC-MS, GC-FID, TGA, BET, XRD, HPLC, FTIR, UV-Vis and NMR. MW-assisted reactions and High pressure reactors.

Language skills: Italian (mother tongue); English (intermediate level); Spanish (advanced level).