

## **DR. GIUSEPPE MASCOLO – SHORT CV**

### **Current position**

Senior research scientist at Water Research Institute (IRSA) of Italian National Research Council (CNR).

### **Professional Interests:**

- Degradation of organic pollutants by advanced oxidation processes;
- Mechanisms of by-products formation during organic pollutants degradation;
- Liquid chromatography-mass spectrometry (LC-MS);
- Determination of organic pollutants in wastewater, sludge and soils;
- Thermal decomposition of hazardous materials for high temperature incineration;
- Understanding formation of products of incomplete combustion (PICs) during incineration;
- Process modifications for sewage sludge incineration to minimize PICs emissions.

### **Education:**

M. S., Chemistry, University of Bari, Italy, 1987.

### **Work experiences**

- 1988 Research fellowship at the Polymer Institute of Polytechnic of Zurich (E.T.H.) working in the field of the reverse micelles chemistry.
- 1992 Visiting scientist at the Water Research Centre (WRc) - Medmenham (UK) working on organic pollutants degradation by advanced oxidation processes.
- 1993 Visiting scientist at the Environmental Sciences and Engineering Laboratory of the University of Dayton – Research Institute working on the formation and destruction kinetics of bromo- and chloro-dioxins during incineration of bromo- and chloro-phenols.
- 1998 Visiting scientist at the Institute of Environmental Technology - Department of Water Quality Control of Technical University of Berlin working on the characterization of the toxic organic fraction of industrial wastewater.

### **Other activities (experience if any in Peer Review, Evaluation/Validation, Impact Assessment, Monitoring, Quality Assurance or Auditing)**

- Referee of international scientific journals (Industrial and Engineering Chemistry Research, Journal of the Air & Waste Management Association, Combustion and Flame, Chemosphere, Water Research, Environmental Science & Technology, J. Hazardous Materials, etc.).
- Referee of the Fonds de la Recherche Scientifique – FNRS, Belgium.
- Referee of Italian Ministry of University for the evaluation of research projects.
- Referee of Puglia Region for the evaluation of research projects.

## Affiliations:

International Ozone Association

## Publications

- 1 G. Mascolo, G. Laera, A. Pollice, D. Cassano, C. Salerno, A. Lopez  
Effective organics degradation from pharmaceutical wastewater by an integrated process including membrane bioreactor and ozonation.  
*Chemosphere*, 2010, 78, 1100–1109.
- 2 G. Mascolo, L. Balest, D. Cassano, G. Laera, A. Lopez, A. Pollice, C. Salerno  
Biodegradability of pharmaceutical industrial wastewater and formation of recalcitrant organic compounds during aerobic biological treatment.  
*Bioresource Technology*, 2010, 101, 2585–2591.
- 3 A. Pollice, G. Mascolo, G. Laera, D. Cassano, S. Diomede, A. Pinto, C. Salerno, A. Lopez  
Pharmaceutical wastewater treatment with integrated mbr-ozonation process.  
Proceeding:: MDIW 2010 - 9th conference in the series Membranes in the Production of Drinking and Industrial Water, Trondheim, Norway, 27-30 June 2010.
- 4 D. Cassano, S. Diomede, P. Ielpo, G. Laera, A. Lopez, G. Mascolo, N. Michel, I. Pariente, A. Pinto, A. Pollice  
Integrated MBR-ozonation system for pharmaceutical wastewater treatment.  
Proceeding: IWA World Water Congress, Montreal, 19-24 September 2010.
- 5 Mascolo G., Ciannarella R., Lopez A., Pagano M.  
Enhanced removal of halogenated organics from industrial groundwater by sequential UV/H<sub>2</sub>O<sub>2</sub> treatment and carbon adsorption  
AOP5 - 5th IWA-Conference on Oxidation Technologies for Water and Wastewater Treatment, Berlin, Germany, March 30 - April 2, 2009
- 6 G. Mascolo, R. Ciannarella, A. Lopez, M. Pagano  
Synergic effect of UV/H<sub>2</sub>O<sub>2</sub>-GAC treatment for the effective remediation of groundwater polluted by chlorinated organics  
Proceeding: XXIII Congresso Nazionale della Società Chimica Italiana, Sorrento, 5-10 Luglio 2009, pag. 56 (paper ABC-OR-21).
- 7 Mascolo G., Comparelli R., Panniello A., Curri M. L., Agostiano A., Licciulli A., Locaputo V., Lopez A.  
Nanocrystalline TiO<sub>2</sub> film on fibrous substrates as an efficient photocatalytic material for organics removal in water  
AOP5 - 5th IWA-Conference on Oxidation Technologies for Water and Wastewater Treatment, Berlin, Germany, March 30 - April 2, 2009
- 8 Mininni G., Braguglia C.M., Mascolo G., Gianico A.  
Separate processing of primary and secondary sludge for a sustainable sewage sludge management  
Proceeding: 5th Canadian Residuals and Biosolids Conference, Milton, Ontario, Canada, 13-15 September 2009.
- 9 Barra Caracciolo A., Grenni P., Falconi F., Mascolo G., Uricchio V.F.  
Ecological characterization of an abandoned open quarry used for disposal of pharmaceutical wastes.  
Proceeding: II International Conference on the Remediation of Polluted Sites SAPIENZA University of ROME - May 13-15 2009, paper B22, pag. 1-6, ISBN: 978-88-902263-1-1.
- 10 G. Mininni, G. Mascolo, G. Bagnuolo  
Perturbations studies on incineration of sewage sludge spiked with chlorinated hydrocarbons.  
Proceeding: 32nd Event of Italian Section of The Combustion Institute, Combustion Colloquia, Napoli, 26-28 April 2009, paper I5.

- 11 G. Mascolo, P. Abbaticchio, D. Cassano, G. Laera, A. Lopez, A. Pollice, C. Salerno  
Integrated MBR-ozone system for pharmaceutical wastewater treatment.  
Proceeding: European Conference on Environmental Applications of Advanced Oxidation  
Processes - EAAOP2, Cyprus, 9-11 September 2009, ISBN: 978-9963-689-09-5.
- 12 G. Mascolo, R. Ciannarella, A. Lopez, M. Pagano  
Synergic effect of UV/H<sub>2</sub>O<sub>2</sub>-GAC treatment for the effective remediation of groundwater  
polluted by chlorinated organics  
Proceeding: European Conference on Environmental Applications of Advanced Oxidation  
Processes - EAAOP2, Cyprus, 9-11 September 2009, ISBN: 978-9963-689-09-5.
- 13 G. Mascolo, R. Ciannarella, A. Lopez, M. Pagano  
Remediation of groundwater polluted by chlorinated organics: the synergic effect of  
UV/H<sub>2</sub>O<sub>2</sub> – activated carbon  
Proceeding: 15th International Symposium on Environmental Pollution and its Impact on Life  
in the Mediterranean Region, 7-11 October, 2009 Bari, Italy, pag. 118.
- 14 Mininni G., Braguglia C.M., Mascolo G., Gianico A.  
Sustainable sewage sludge management based on separate processing of primary and  
secondary sludge.  
Proceeding: 14th Conference "European Biosolids and Organic Resources, 9th - 11th  
November 2009, The Royal Armouries, Leeds, 1-14.
- 15 McArdell C.S., Asmin J., Ayuso-Gabella M.N., Balest L., Fink G., Hollender J., Mascolo G.,  
Salgot M., Ternes T.A.  
Fate of Micropollutants in Two Artificial Recharge Sites with Reclaimed Wastewater  
Proceedings: IWA World Water Congress 2008, 7–12 September 2008, Vienna, XX
- 16 Panniello A., Comparelli R., Diso D., Licciulli A., Mascolo G., Locaputo V., Franzia A. S.,  
Striccoli M., Agostiano A., Curri M.L.  
Effect Of The Substrate Type/Composition And Deposition Techniques On The  
Photocatalytic Activity Of Nanocrystalline Semiconductor Films.  
Proceedings: 5th European Meeting on Solar Chemistry and Photocatalysis: Environmental  
Applications (SPEA 5), 4-8 October 2008
- 17 Mascolo G., Ciannarella R., Balest L., Lopez A.  
Effectiveness of UV-Based Advanced Oxidation Processes for the Remediation of  
Hydrocarbon Pollution in the Groundwater: a Laboratory Investigation.  
Journal of Hazardous Materials, 2008, 152/3, 1138-1145.
- 18 Pagano M., Lopez A., Volpe A., Mascolo G., Ciannarella R.  
Oxidation of nonionic surfactants by Fenton and H<sub>2</sub>O<sub>2</sub>/UV processes  
Environ. Technol., 2008, 29, 423-433.
- 19 Balest L., Mascolo G., Di Iaconi C., Lopez A.  
Removal of Endocrine Disrupter Compounds from Municipal Wastewater by an Innovative  
Biological Technology.  
Water Science & Technology 2008, 58(4), 953-956.
- 20 Balest L., Lopez A., Mascolo G., Di Iaconi C.  
Removal of endocrine disrupter compounds from municipal wastewater using an aerobic  
granular biomass reactor.  
Biochem. Eng. J. , 2008, 41, 288-294.
- 21 Lobasso S., Lopalco P., Mascolo G., Corcelli A.  
Lipids of the ultra-thin square microorganism *Haloquadratum walsbyi*.  
Archaea, 2008, 2, 177–183.
- 22 Angelico R., Ceglie A., Cuomo F., Colafemmina G., Cardelicchio C., Mascolo G.  
Catanionic Systems from Conversion of Nucleotides into Nucleo-Lipids  
Langmuir, 2008, 24, 2348-2355.
- 23 Mininni G., Di Iaconi C., Mascolo G., Pollice A.  
New perspectives for up-grading wastewater treatment plants to meet the standards of water  
framework directive and directives on wastes.  
Proceedings: Design, operation & economics of large wastewater treatment plants, IWA,  
Vienna 09/09/2007 - 13/09/2007, 109-112

- Balest L., Laera G., Lopez A., Mascolo G., Pollice A.  
 Pharmaceutical wastewater treatment by an integrated AOP-MBR system: preliminary tests.  
 Proceedings: TIWATMED 2007, Technologies for Industrial Wastewater Treatment and  
 Reuse in Mediterranean Region, Jerba, 24-26 May 2007, 182
- Mascolo G., Balest L., Guzzella L., Locaputo V., Lopez A.  
 Degradation of Carbofuran in groundwater by UV and UV/H<sub>2</sub>O<sub>2</sub>: comparison of by-products  
 formation and their toxicity  
 Proceedings: 5th IWA Specialized Conference on assessment and Control of  
 Micropollutants/Hazardous Substances in Water, 17-20 Giugno 2007, Francoforte, 454-455.
- De Tommaso B., Mascolo G., Malitesta C., Bagnuolo B., Uricchio V.F., Brunetti G.  
 Applicazione della tecnica TD/GC/MS per la determinazione diretta di PCB in campioni di  
 suolo contaminati.  
 Proceedings: X Congresso Nazionale di Chimica dell'ambiente e dei Beni Culturali, Acaya,  
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- Panniello A., Comparelli R., Diso D., Licciulli A., Mascolo G., Franzia A. S., Striccoli M.,  
 Agostiano A., Curri M.L.  
 Semiconducting nanocrystalline films for environmental photocatalysis: effect of the  
 substrate type/composition and deposition techniques.  
 Proceedings: International RILEM Symposium on Photocatalysis, Environment and  
 Construction Materials 8-9 October 2007, Florence, Italy, 65-75.
- Balest L., Mascolo G., Di Iaconi D., Lopez A.  
 Rimozione di sregolatori endocrini (EDC) mediante trattamenti biologici innovativi.  
 Proceedings: X Congresso Nazionale di Chimica dell'ambiente e dei Beni Culturali, Acaya,  
 Vernole (Lecce), 11 - 15 Giugno 2007.
- Comparelli R., Panniello A., Corriceli M., Canizza E., Striccoli M., Mascolo G., Locaputo V.,  
 Agostano A., Curri M.L.  
 Colloidal nanocrystal films as catalysts for environmental applications.  
 Proceedings: International RILEM Symposium on Photocatalysis, Environment and  
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- McArdell MC.S., Asmin J., Ayuso-Gabell M.N., Balest L., Fink G., Hollender J., Joss A.,  
 Kazner C., Krauss M., Mascolo G., Melin T., Salgot M., Siegrist H., Ternes T.A., Vanhoutte  
 E., Weemaes M., Wintgens T., L. Yu  
 The Importance of Micropollutants in Aquifer Recharge with Reclaimed Wastewater  
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- Volpe A., Mascolo G., Ciannarella R., Del Moro G., Tandoi V.  
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 Proceedings: Ambiente: tecnologie, controlli e certificazioni per il recupero e la  
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- G. Mascolo, R. Comparelli, M. L. Curri, G. Lovecchio, A. Lopez, A. Agostiano  
 Photocatalytic Degradation of Methyl-Red By TiO<sub>2</sub>: Comparison of the Efficiency of  
 Immobilized Nanoparticles vs Conventional Suspended Catalyst.  
*Journal of Hazardous Materials*, 2007, 142(1-2), 130-137.
- Tandoi V., Del Moro G., Mascolo G., Ciannarella R., Volpe A.  
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*Italian Journal of Engineering, Geology and Environment*, 2007 (Special Issue), (1) 79-84.
- Ventrella A., Catucci L., Mascolo G., Corcelli A., Agostiano A.  
 Isolation and characterization of lipids strictly associated to PSII complexes: focus on  
 cardiolipin structural and functional role.  
*Biochimica et Biophysica Acta*, 2007, 1768, 1620-1627.

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A New Analytical Method for Determination of Secondary Alkanolamines Impurities in Primary and Tertiary Alkanolamines  
Söfw-Journal, 2007, 133, 28-32
- 36 G. Mascolo, G. Lovecchio, R. Ciannarella, A. Lopez  
Remediation of MTBE and hydrocarbons polluted groundwater by UV/H<sub>2</sub>O<sub>2</sub> and UV/TiO<sub>2</sub>.  
Proceedings: 4rd International Conference on Oxidation Technologies for Water and Wastewater Treatment, Goslar (Germany), 15-17 May 2006, 474-479.
- 37 Ventrella A., Catucci L., Depalo N., Mascolo G., Corcelli A., Agostiano A.  
Structural and functional characterization of cardiolipin from spinach PSII-enriched membrane fractions.  
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Proceedings: XIXth International Symposium on Bioelectrochemistry and Bioenergetics, Toulouse (F), 1-4 April 2007, 136.
- 39 G. Mascolo, R. Rausa, G. Bagnuolo, G. Mininni, L. Tinucci  
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Journal of Analytical and Applied Pyrolysis, 2006, 75 (2), 167-173.
- 40 Lionetti N., Rigano L., Mascolo G., Ciannarella R.  
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- 41 G. Mascolo, A. Detomaso, A. Lopez  
Structure elucidation of carbofuran photodegradation by-products by LC/ESI-qQTOF-MS.  
Proceedings: Liquid Chromatography-Tandem Mass Spectrometry for Screening and Trace Level Quantitation in Environmental and Food Samples, Barcelona 20- 21 Giugno 2005, 36-40.
- 42 C. Di Iaconi, L. Balest, G. Mascolo, A. Lopez  
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Proceedings: Liquid Chromatography-Tandem Mass Spectrometry for Screening and Trace Level Quantitation in Environmental and Food Samples, Barcelona 20- 21 Giugno 2005, 93-94.
- 43 R. Comparelli, E. Fanizza, M. L. Curri, P. D. Cozzoli, G. Mascolo, R. Passino, A. Agostiano  
Photocatalytic Degradation of Azo Dyes by Organic-Capped Anatase TiO<sub>2</sub> Nanocrystals Immobilized onto Substrates.  
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- 44 Lopez A., Mascolo G., Detomaso A., Lovecchio G., Villani G.  
Temperature activated degradation (mineralization) of 4-chloro-3-methyl phenol by Fenton's reagent.  
Chemosphere, 2005, 59(3), 397-403.
- 45 G. Mascolo, A. Lopez, A. Detomaso, G. Lovecchio  
Ion chromatography/electrospray mass spectrometry for the identification of low molecular weight organic acids during the 2,4-dichloro-phenol degradation.  
Journal of Chromatography A, 2005, 1067(1-2), 191-196.
- 46 P. Raja, A. Bozzi, W. F Jardim, G. Mascolo, R. Renganathan, J. Kiwi  
Reductive/Oxidative Treatment with Superior Performance Relative to Oxidative Treatment During the Degradation of 4-Chlorophenol.  
Applied Catalysis B: Environmental, 2005, 59, 249-257.

- 47 R. Comparelli, E. Fanizza, M. L. Curri, P. D. Cozzoli, G. Mascolo, A. Agostiano  
UV-Induced Photocatalytic Degradation of Azo Dyes by Organic-Capped ZnO Nanocrystals  
Immobilized onto Substrates.  
Applied Catalysis B: Environmental, 2005, 60, 1–11.
- 48 A. Detomaso, G. Mascolo, A. Lopez  
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chromatography/hybrid quadrupole time-of-flight/mass spectrometry.  
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- 49 Volpe, A., G. Mascolo, A. Lopez  
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The gas phase decomposition of fire-resistant lubricants under pyrolytic conditions.  
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- 51 Comparelli R., Cozzoli P. D., Curri M. L., Agostiano A., Mascolo G., Lovecchio G.  
Photocatalytic degradation of methyl-red by immobilized nanoparticles of TiO<sub>2</sub> and ZnO.  
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