

## **Prof. Eng. Luca Di Palma, Ph.D.**

Associate Professor in the field of Materials Science and Technology, Department of Chemical Engineering Materials Environment, Faculty of Engineering, Sapienza University of Rome.

Full professor qualification (Materials Science and Technology, obtained April 5th 2017).

Since 1993 he collaborates to the research activity of the Chemical Engineering Materials and Environment Department of the Sapienza University, and the Interuniversity Centre on Technology and Chemistry for the Environment, in the field of Applied Chemistry and Technology for Environmental protection. He is the author of more than 170 publications on international journal or national and/or international conferences proceedings.

His main research fields are:

- Technologies for chemical and electro-chemical oxidation in the treatment of high strength or hazardous wastewater;
- Hazardous materials encapsulation in cementitious matrix and solidification/stabilization of hazardous wastes;
- Energy and materials recovery from industrial wastes;
- Contaminated soil and sediment remediation.

Teacher of:

- Materials Technology and Applied Chemistry (Bachelor in Energetic Engineering, 9 CFU)
- Wastewater treatment processes (Master Sc. in Chemical Engineering, 9 CFU).

He is evaluator of research or mobility projects submitted to National or International funding Institutions or Agencies. He has been the tutor of about 50 Master Degree Thesis in Chemical Engineering, more than 100 Bachelor Degree Thesis in Chemical Engineering, Energetic Engineering and Environmental Engineering, and five PhD thesis, as well as member of several national panels for the admission to the PhD course, the final PhD exam, and for the allocation of Research Scholarship and Grants.

### **Recent Research Grant as coordinator, P.I.**

- Coordinator (Grant-holder) of the TEMPUS project Econano – Curriculum reform and the modernization of Ecology Engineering based in nanotechnology in Azerbaijan (543924-TEMPUS-1-2013-1-IT-TEMPUS-JPCR)
- Unit partner responsible (Sapienza University) of the EU funded ERANETMED project CrITERIA - Cr(VI) Impacted water bodies in the Mediterranean: Transposing management options for Efficient water Resources use through an Interdisciplinary Approach, ERANETMED\_WATER-13-051 CRITERIA (2016-2019)
- Unit Partner Responsible (Sapienza University) of the EU funded project ETP-EABiofilms - Techniques for investigating Electron Transfer Processes in ElectroActive Biofilms nell'ambito del FP7-PEOPLE-2009-IRSES.
- Coordinator of research project funded by MIUR (Italian Ministry of University and Reserch) in the field of PRIN projects
- He was the PI of several Research Project funded by private companies or public agencies, including INAIL (Italian Workers' Compensation Authority) and ISPESL (National Agency for Occupational Health and Safety).

### **Conference organization**

He has been the member of The Steering and Organizing Committe of the following International Conferences:

- International Conference on the Remediation of Polluted Sites (BOSICON), Roma, 14-15 febbraio 2006, Sapienza University, Interuniversity Center of Technology and Chemistry for the Environment.
- 2nd International Conference on the Remediation of Polluted Sites (BOSICON 2009), Roma, 13-15 maggio 2009, Sapienza University, Interuniversity Center of Technology and Chemistry for the Environment.
- 3rd International Congress on Soil and Sediment Remediation (BOSICON-2012), Roma, 11-14 settembre 2012, organized jointly by the AIDIC (Italian Association of Chemical Engineering), the Interuniversity Center of Technology and Chemistry for the Environment, and the Civil and Environmental Engineering Department of Sapienza University.
- Chairman, and member of the Steering Committe of International Conference of Nanotechnology Application for the Environment, NINE 2016, Roma, Italy, 21-23 March, 2016, organized by the AIDIC (Italian Association of Chemical Engineering).
- Chairman, and member of the Organizing Committe Second International Conference of Nanotechnology Application for the Environment, NINE 2017, Roma, Italy, 24-26 September, 2017 organized by the AIDIC (Italian Association of Chemical Engineering).

### **Selected publication list**

- M. A. Ramazanov, F. V. Hajiyeva, A. M. Maharramov, H. A. Shirinova, **L. Di Palma** (2018) The Effect of the Temperature–Time Mode of Crystallization on the Morphology and Thermal Properties of Nanocomposites Based on Polypropylene and Magnetite (Fe<sub>3</sub>O<sub>4</sub>), Journal of Inorganic and Organometallic Polymers and Materials, 28(3), 1171-1177. DOI: 10.1007/s10904-017-0767-6
- M. A. Ramazanov, F. V. Hajiyeva, A. M. Maharramov, **Luca Di Palma**, Diana Sannino, Makoto Takafuji, H. M. Mammadov, U. A. Hasanova, H. A. Shirinova, and Z. A. Bayramova, 2018, New magnetic polymer nanocomposites on the basis of isotactic polypropylene and magnetite nanoparticles for adsorption of ultra high

- Chinh, V.D., Broggi, A., **Di Palma, L.**, Scarsella, M., Speranza, G., Vilardi, G., Thang, P.N., 2018, XPS Spectra Analysis of Ti<sup>2+</sup>, Ti<sup>3+</sup> Ions and Dye Photodegradation Evaluation of Titania-Silica Mixed Oxide Nanoparticles, *Journal of Electric Material*, 47(4), 2215-2224, doi: 10.1007/s11664-017-6036-1.
- **Di Palma, L.**, Bavasso, I., Sarasini, F., Tirillò, J., Puglia, D., Dominici, F., Torre, L., 2018, Synthesis, characterization and performance evaluation of Fe<sub>3</sub>O<sub>4</sub>/PES nano composite membranes for microbial fuel cell, *European Polymer Journal*, 99, February 2018, Pages 222-229.
- Maharramov, M. A. Ramazanov, **Luca Di Palma**, H. A. Shirinova, F. V. Hajiyeva (2018) Influence of Magnetite Nanoparticles on the Dielectric Properties of Metal Oxide/Polymer Nanocomposites Based on Polypropylene, *Russian Physics Journal*, 60(9), 1572-1576.
- Vilardi, G., Sebastiani, D., Miliziano, S., Verdone, N., **Di Palma, L.** (2018) Heterogeneous nZVI-induced Fenton oxidation process to enhance biodegradability of excavation by-products, *Chemical Engineering Journal*, 335, pp. 309-320, doi: 10.1016/j.cej.2017.10.152.
- **Di Palma, L.**, Bavasso, I., Sarasini, F., Tirillò, J., Puglia, D., Dominici, F., Torre, L., Galluzzi, A., Polichetti, M., Ramazanov, M.A., Hajiyeva, F.V., Shirinova, H.A. (2018) Effect of nano-magnetite particle content on mechanical, thermal and magnetic properties of polypropylene composites, *Polymer Composite*, 39, S3, E1742-E1750.
- Giorgio Vilardi, **Luca Di Palma**, Nicola Verdone (2018) On the critical use of zero valent iron nanoparticles and Fenton processes for the treatment of tannery wastewater, *Journal of Water Process Engineering*, 22, 109-122.
- Giorgio Vilardi, Thanasis Mpouras, Dimitris Dermatas, Nicola Verdone, Angeliki Polydera, **Luca Di Palma** (2018) Nanomaterials application for heavy metals recovery from polluted water: the combination of nano zero-valent iron and carbon nanotubes. Competitive adsorption non-linear modeling, *Chemosphere*, 201, 716-729.
- Bavasso, D. Montanaro, E. Petrucci, **L. Di Palma** (2018) Shortcut Biological Nitrogen Removal (SBNR) in an MFC anode chamber under microaerobic conditions: The effect of C/N ratio and kinetic study, *Sustainability*, 10, 4, 1062, 10.3390/su10041062. SCOPUS 2-s2.0-85045073639
- G. Vilardi, J. Ochando Pulido, N. Verdone, M. Stoller, **L. Di Palma** (2018) On the removal of Hexavalent Chromium by olive stones coated by iron-based nanoparticles: equilibrium study and Chromium recovery, *Journal of Cleaner Production*, 190, 200-210.
- G. Vilardi, M. Stoller, J. Ochando Pulido, N. Verdone, **L. Di Palma** (2018) Large Laboratory-Plant application for the treatment of a real Tannery wastewater by Fenton oxidation: Fe(II) and nZVI catalysts comparison and kinetic modelling, *Process Safety and Environmental Protection*, 117, 629-638.
- Coppola, L., Bellezze, T., Belli, A., Bignozzi, M.C., Bolzoni, F.,.....**Di Palma, L.**, et al. (2018) Binders alternative to Portland cement and waste management for sustainable construction—part 1, *Journal of Applied Biomaterials and Functional Materials*, 16 (3), 1 July 2018, 186-202.
- G. Vilardi, J. Ochando Pulido, M. Stoller, N. Verdone, **L. Di Palma** (2018) Fenton oxidation and Chromium recovery from Tannery wastewater by means of iron-based coated biomass as heterogeneous catalyst in fixed-bed columns, *Chemical Engineering Journal*, 351, 1-11.
- **L. Di Palma**, N. Verdone, G. Vilardi (2018) Kinetic Modeling of Cr(VI) Reduction by nZVI in Soil: The Influence of Organic Matter and Manganese Oxide, *Bull Environ Contam Toxicol*, 101(6), 692-697. DOI 10.1007/s00128-018-2394-5
- Bavasso, N. Verdone, L. Di Palma (2018) Cr(VI) removal by green-synthesized iron-based nanoparticles: Effect of Cr(VI) concentration and pH condition on adsorption process, *Chemical Engineering Transactions*, 70, 469-474.
- Coppola, L., Bellezze, T., Belli, A., Bignozzi, M.C., Bolzoni, F.,.....**Di Palma, L.**, et al. (2018) Binders alternative to Portland cement and waste management for sustainable construction—part 2, *Journal of Applied Biomaterials and Functional Materials*, 16(4), 2017-221.
- Stoller, M., **Di Palma, L.**, Vuppala S., Verdone, N., Vilardi, G. (2018) Process intensification techniques for the production of nano- and submicronic particles for food and medical applications, *Current Pharmaceutical Design*, 24, 2329-2338. DOI: 10.2174/1381612824666180523125144
- Stoller, M., Sacco, O., Vilardi, G., Ochando Pulido, J. M., **Di Palma, L.**, (2018) Technical-economic evaluation of chromium recovery from tannery wastewater streams by means of membrane processes, *Desalination and Water Treatment*, 127, 57-63. DOI: 10.5004/dwt.2018.22533
- M. A. Ramazanov, A. A. Maharramov, H. A. Shirinova, **Luca Di Palma** (2018) Structure and electrophysical properties of polyvinylidene fluoride (PVDF)/magnetite nanocomposites, *Journal of Thermoplastics Composites Materials*, IN PRESS.
- Chinh, V. D., Hung, L. X., **Di Palma, L.**, Hanh, V.T.H., Vilardi, G., (2019) Effect of Carbon Nanotubes and Carbon Nanotubes/Gold Nanoparticles Composite on the Photocatalytic Activity of TiO<sub>2</sub> and TiO<sub>2</sub>-SiO<sub>2</sub>, *Chemical Engineering and Technology*, 42, 2, 2019, 308-315. DOI: 10.1002/ceat.201800265
- Vilardi, G., Rodriguez-Rodriguez, J.M Ochando Pulido, J.M., **Di Palma, L.**, Verdone, N. (2019) Fixed-bed reactor scale-up and modelling for Cr(VI) removal using nano iron-based coated biomass as packing material, *Chemical Engineering Journal*, 361, 1, 990-998. DOI: 10.1016/j.cej.2018.12.166.
- Vilardi, G., **Di Palma, L.**, Verdone, N., (2019) A physical-based interpretation of mechanism and kinetics of Cr(VI) reduction in aqueous solution by zero-valent iron nanoparticles, 220, 590-599. DOI: 10.1016/j.chemosphere.2018.12.175