

CURRICULUM VITAE

Francesca Celsa Giacobbo.

1996 - Degree in Environmental Physics at the Università degli Studi di Milano. Title of the thesis: 'Identification of flow parameters of confined aquifers'

1996-98 professional activity in the field of oil and gas processing plants: pressure vessel design, study and modelling of acoustic pollution due to industrial plants.

1998-2001 - Ph.D. in Science and Technology in Nuclear Plants at the Politecnico di Milano. Title of the thesis: 'Transport of contaminants in porous media: models and experiments'.

2002-2003 post-doc fellowship at the Nuclear Engineering Department of the Politecnico di Milano.

2003 - winner of a permanent position as assistant professor in Nuclear Reactor Physics at the Nuclear Engineering Department of the Politecnico di Milano.

since 2004 – member of the Teaching Board of the PhD course in Radiation Science and Technology, at the Nuclear Engineering Department of the Politecnico di Milano.

Since 2007 tenure as Assistant Professor in Nuclear Reactor Physics at the Energy Department of the Politecnico di Milano

2003-2010 lecturer of the courses 'Computational methods for signal analysis' and 'Particles transport in nuclear plants' of the Master Degree in Nuclear Engineering.

Since 2011 lecturer of the courses 'Fission Reactor Physics II' (5CFU) and 'Radioactive contaminants transport' (5CFU) of the Master Degree in Nuclear Engineering.

Since 2006 Scientific Responsible of the Laboratory 'Contaminants Migration and Nuclear Safeguards' of the Energy Department at the Politecnico di Milano.

Member of the Teaching Board of the PhD course 'Energetic and Nuclear Science and Technology'.

RESEARCH ACTIVITY: Experimental studies at laboratory scale of toxic and radioactive contaminant transport through natural and artificial porous media; Batch and column experiments to investigate adsorption processes on porous solid matrices; Leaching tests on matrices for conditioning of nuclear waste; Gamma spectrometry and plasma mass spectrometry (ICP-MS) for the determination of natural radionuclides in environmental samples; Development of a non invasive experimental technique for the detection of water infiltration through concrete engineered barriers, based upon the use of a fast neutron source and a set of three He-3 detectors; Development of stochastic models and Monte Carlo codes of contaminant transport in groundwater porous media. Stochastic modelling has regarded: fractured media, unsaturated porous media under unsteady flow field, saturated porous media in presence of non linear processes, unsaturated porous media under unsteady flow field in presence of exchanging processes with the solid matrix governed by linear and non linear kinetics and heterogeneous media. Participation in research contracts with ENEA (2002-2003) regarding Monte Carlo simulation of contaminant transport through engineered barriers of a radioactive waste repository for low and intermediate level waste. Application of the Genetic Algorithms technique to the solution of the inverse problem of the determination of the model parameters. Participation in the National Research Projects PRIN named 'Groundwater transport of toxic and/or radioactive contaminants: modelling and experimental validation for the solution of the direct and inverse problem' (2002-2004) and 'Transport of toxic and/or

radioactive contaminants through natural and artificial porous media: models and experiments' (2004-2006). 2006 Scientific Responsible, after the retirement of Prof Marseguerra, of the Research Unit of the Politecnico di Milano of the PRIN named 'Transport of toxic and/or radioactive contaminants through natural and artificial porous media: models and experiments'. Scientific responsible of a research contract with JRC-Ispra concerning the evaluation of the radiological impact on population due to release of radionuclides following severe accident in an interim-storage facility (2009-2010). Participation in the European Commission Project FP7 'ACSEPT' (2008-2012) work package "Assessment of sodalite as a matrix for conditioning chloride waste" (2010-2011); Participation in the research project ENEA-CIRTEN-Politecnico di Milano "Matrici di contenimento per rifiuti radioattivi da processi pirometallurgici" (2010-2011). (2013-2016) Participation to the National Research Projects PRIN named 'Development and application of new dosimetric materials for ionizing radiation. Participation in the European Commission Project FP7 'SACSESS' (2013-2016) work package " Conditioning of chloride salt by SAP matrix ".

PUBLICATIONS

1. Malavasi I., Consolati G., Quasso F., Soccio M., Gigli M., Negrin M., Macerata E., Giacobbo F., Lotti N., Munari A., Mariani M. (2016). Effect of gamma irradiation on poly(butylene naphthalate) based polyesters. *RADIATION PHYSICS AND CHEMISTRY*, vol.124, p. 58-61, ISSN: 0969806X, doi: 10.1016/j.radphyschem.2015.11.034.
2. Gambarini G., Liosi G.M., Artuso E., Giacobbo F., Mariani M., Brambilla L., Castiglioni C., Carrara M., Pignoli E. (2016). Study of the absorption spectra of Fricke xylenol orange gel dosimeters. 4th International Conference on Advancements in Nuclear Instrumentation Measurement Methods and their Applications, ANIMMA 2015. Lisbon; Portugal; 20-24 April 2015. ISBN: 978-147999918-7, doi:10.1109/ANIMMA.2015.7465579.
3. Liosi G.M., Gambarini G., Artuso E., Benedini S., Macerata E., Giacobbo F., Gargano M., Ludwig N., Carrara M., Pignoli E., Mariani M. (2016) Study of Fricke-gel dosimeter calibration for attaining precise measurements of the absorbed dose. 4th International Conference on Advancements in Nuclear Instrumentation Measurement Methods and their Applications, ANIMMA 2015; Lisbon; Portugal; 20-24 April 2015; ISBN: 978-147999918-7; doi: 10.1109/ANIMMA.2015.7465581.
4. Comunian A., De Micheli L., Lazzati C, Felletti F., Giacobbo F., Giudici M., Bersezio R. (2016) Hierarchical simulation of aquifer heterogeneity: implications of different simulation settings on solute-transport modelling. *HYDROGEOLOGY JOURNAL*. Volume 24, Issue 2, 1 March 2016, Pages 319-334. ISSN: 14312174 doi: 10.1007/s10040-015-1343-1
5. Caccin M., Giorgi M., Giacobbo F., Da Ros M., Besozzi L., Mariani M. (2016) Removal of lead (II) from aqueous solutions by adsorption onto activated carbons prepared from coconut shell. *DESALINATION AND WATER TREATMENT*. Volume 57, Issue 10, Pages 4557-4575. ISSN: 19443994. DOI: 10.1080/19443994.2014.992974.
6. Liosi G.M., Giacobbo F., Pignoli E., Carrara M., Gambarini G., Mariani M. (2015) Effects of the pre-irradiation storage procedure on the dose response of a Fricke xylenol orange gel dosimeter. *NUKLEONIKA*. vol 60. Issue: 3. p: 603-607 doi: 10.1515/nuka-2015-0099.
7. Panseri S., Chiesa L.M., Biondi P.A., Rusconi M., Giacobbo F., Padovani E., Mariani M. (2015). Irradiated ground beef patties: Dose and dose-age estimation by volatile compounds measurement . *FOOD CONTROL*, vol. 50, p. 521-529, ISSN: 0956-7135, doi: 10.1016/j.foodcont.2014.09.044
8. M. Caccin, F. Giacobbo, M. Da Ros, L. Besozzi, M. Mariani (2013). Adsorption of uranium, cesium and strontium onto coconut shell activated carbon. *JOURNAL OF*

RADIOANALYTICAL AND NUCLEAR CHEMISTRY, vol. 297, p. 9-18, ISSN: 0236-5731, doi: 10.1007/s10967-012-2305-x

9. G. De Angelis, C. Fedeli, A. Manniello, M. Da Ros, F. Giacobbo, E. Macerata, M. Mariani (2012). Conditioning of chloride salt wastes from pyroprocesses through the pressureless consolidation process. *PROCEDIA CHEMISTRY*, vol. 7, p. 746-753, ISSN: 1876-6196, doi: 10.1016/j.proche.2012.10.113
10. S. Morandi, F. Giacobbo, M. Mariani, M. Da Ros (2009). Competitive Sorption of Metal Ions from Aqueous Solution onto Sand. *MATERIALS RESEARCH SOCIETY SYMPOSIA PROCEEDINGS*, vol. 1193, p. 577-584, ISSN: 0272-9172
11. F. GIACOBBO, E. PATELLI (2008). MONTE CARLO SIMULATION OF RADIONUCLIDES TRANSPORT THROUGH FRACTURED MEDIA. *ANNALS OF NUCLEAR ENERGY*, vol. 35, p. 1732-1740, ISSN: 0306-4549, doi: 10.1016/j.anucene.2008.01.021
12. M. ODDONE, L. GIORDANI, F. GIACOBBO, M. MARIANI, S. MORANDI (2008). Practical considerations regarding high resolution gamma spectroscopy measurements of naturally occurring radioactive samples. *JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY*, vol. 277, p. 579-585, ISSN: 0236-5731, doi: 10.1007/s10967-007-7113-3
13. F. GIACOBBO, E. PATELLI (2007). Monte Carlo simulation of nonlinear reactive contaminant transport in unsaturated porous media. *ANNALS OF NUCLEAR ENERGY*, vol. 34, p. 51-63, ISSN: 0306-4549, doi: 10.1016/j.anucene.2006.11.011
14. M. MARSEGUERRA, E. PADOVANI, E. ZIO, F. GIACOBBO, E. PATELLI (2004). A Nuclear Measurement Technique of Water Penetration in Concrete Barriers. *MONTE CARLO METHODS AND APPLICATIONS*, vol. 10, p. 415-422, ISSN: 0929-9629
15. M. MARSEGUERRA, E. ZIO, E. PATELLI, F. GIACOBBO, P. RISOLUTI, G. VENTURA, G. MINGRONE (2003). Modeling the effects of the engineered barriers of a radioactive waste repository by Monte Carlo simulation. *ANNALS OF NUCLEAR ENERGY*, vol. 30, p. 473-496, ISSN: 0306-4549, doi: 10.1016/S0306-4549(02)00072-5
16. M. MARSEGUERRA, E. ZIO, E. PATELLI, F. GIACOBBO, G. VENTURA, G. MINGRONE (2003). Monte Carlo simulation of contaminant release from a radioactive waste deposit. *MATHEMATICS AND COMPUTERS IN SIMULATION*, vol. 62, p. 421-430, ISSN: 0378-4754, doi: 10.1016/S0378-4754(02)00237-9
17. F. Giacobbo, M. Marseguerra, E. Zio (2002). Solving the inverse problem of parameter estimation by genetic algorithms: the case of a groundwater contaminant transport model. *ANNALS OF NUCLEAR ENERGY*, vol. 29, p. 967-981, ISSN: 0306-4549, doi: 10.1016/S0306-4549(01)00084-6
18. F. Giacobbo, M. Da Ros, M. Mariani, L. M. Castelletti, M. Anghileri, D. Molinelli, S. Amato, S. Gerli (2012). Study of an Aircraft Impact on a Nuclear Waste Interim Storage Facility: Identification of the Most Dangerous Scenario of Impact.. In: 21st International Conference Nuclear Energy for New Europe, proceedings. p. 1213.1-1213.10, ISBN: 9789616207355, Ljubljana, September 5-7
19. S. MORANDI, F. GIACOBBO, M. MARIANI, M. DA ROS, M. ODDONE (2008). COMPETITIVE SORPTION OF METAL IONS FROM AQUEOUS SOLUTION ONTO SILICA SAND. In: -. 8th International Hydrogeological Congress of Greece. ATHENS, 8/10/2008-10/10/2008, vol. 1, p. 327-336, ATHENS:G. MIGIROS, G. STAMATIS, G. STOURNARAS - The Geological Society of Greece, ISBN: 9789608881631
20. S. MORANDI, F. DALBERTI, M. MARIANI, R. COVINI, F. GIACOBBO, L. CASTELLETTI (2008). Release of Radioactive Contaminants Following an Accident in a Nuclear Waste Interim Storage Facility: Evaluation of the Radiological Impact on Population. In: Proceedings of The International Conference Nuclear Energy for New Europe 2008. p. 612.1-612.9, -, ISBN: 9789616207294, Portorose, Slovenia, 8/9/2008-11/9/2008

21. S. MORANDI, M. MARIANI, R. COVINI, F. GIACOBBO (2006). Release Of Radionuclides Following Severe Accident In Interim Storage Facility: Source Term Determination. In: -. International Conference Nuclear Energy fo New Europe 2006 Proceedings. Portoroz, Slovenia, September 18-21, p. 1010.1-1010.9, LJUBLJANA:Nuclear Society of Slovenia, ISBN: 9789616207263
22. F. GIACOBBO, E. PATELLI, E. ZIO (2005). Monte Carlo Simulation of Radioactive Contaminant Transport in Unsaturated Porous Media. In: -. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications CD ROM Proceedings. p. 1-14, American Nuclear Society, LaGrange Park, IL., Avignon, France, September 12-15
23. I. BUTERA, F. GIACOBBO, M. DA ROS (2005). The geostatistical approach for the restoring of pollutant release applied to experimental column data and Monte Carlo numerical tests. In: Proceedings of the International Workshop Aquifer Vulnerability and Risk. p. 1-9, GEAM, ISBN: 8890134224, Parma, Italy, September 21-23, 2005
24. M. MARSEGUERRA, E. ZIO, F. GIACOBBO, M. MARIANI (2002). Contaminant Transport in Experimental columns: Monte Carlo and Genetic Algorithm Approach to the Parameters Estimation.. In: New Trends inj Water and Environmental Engineering for Safety and Life. p. 1-18, Milano:csdu-Centro Studi Deflussi Urbani, ISBN: 889002822X, Capri, Italy,, June 24-28, 2002
25. M. MARSEGUERRA, E. ZIO, E.PATELLI, F. GIACOBBO, P. RISOLUTI, G. VENTURA, G. MINGRONE (2002). Simulazione Monte Carlo della dispersione di contaminante da un deposito di rifiuti radioattivi. In: Valutazione e Gestione del Rischio negli Insediamenti Civili ed Industriali. vol. Atti del Dipartimento di Ingegneria Meccanica Nucleare e della Produzione DIMNP 015 (2002), p. 1-12, Pisa, Italia,, 15-17 Ottobre 2002
26. GIACOBBO F., M. MARSEGUERRA, E. PATELLI, P. RISOLUTI, E. ZIO (2002). Simulazione Monte Carlo della dispersione di contaminante da un deposito di rifiuti radioattivi. In: Atti del Convegno Nazionale Valutazione e Gestione del Rischio negli Insediamenti Civili e Industria. Pisa, Italy, p. 1
27. F. Giacobbo, M. Marseguerra, E. Zio (2000). Determination of parameters in groundwater contaminant transport models by means of genetic algorithms. In: International Meeting on Reactor Noise Proceedings. p. 137-145, ATHENS:NCSR 'Democritos', Athens, Greece, 11-13 October
28. F. GIACOBBO, M. MARSEGUERRA, E. ZIO (2000). Metodologie avanzate per la valutazione della diffusione dei radionuclidi nei materiali cementizi. In: La sistemazione definitiva dei rifiuti radioattivi. vol. Atti del convegno: La sistemazione definitiva dei rifiuti radioattivi, p. 65- 84, ENEA :-, Milano, Italia, 11 Ottobre 2000