Curriculum vitae of

VINCENZO ROMANELLO

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PERSONAL INFORMATION

- Marital status: married
- Nationality: italian, croatian
- Date of birth: 20/07/1974
- Place of birth: Gallipoli (Le) - Italy
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INSTRUCTION

- **HIGH SCHOOL**

  Achieved in "*Galileo Galilei*" High School of Nardò (Le) - Italy, in 1993.

  Final voting: 48/60

- **GRADUATE IN NUCLEAR ENGINEERING**

  Achieved in University of Pisa in 2003, final voting **110/110.**

Thesis : "*Analysis of some particular HTR's features: hydrogen production and actinides burning"*.

Topics considered: the environmental impact of the various energy sources, a critical comparison of the conventional and nuclear systems of hydrogen production, and finally the formulation of a strategy for the reduction of nuclear wastes by using thorium in high temperature reactors (available online – in italian - http://etd.adm.unipi.it/t/etd-10152003-181233/).

- **PhD IN MATERIALS ENGINEERING**

  Achieved in University of Salento in 2008 (XX Cycle).

  PhD Thesis Title: *"Electrochemical Investigations on Gold Electrodeposition and Corrosion and Some Their Possible Applications in Gold Recovery Technologies"*

Topics considered: The thesis focused on general aspects of gold, silver and copper electrodeposition. First electrochemical measures and methods (infrared spectroscopy, Raman spectroscopy, UV-Visible spectroscopy, SGF/DGF spectroscopy) were described, then the main outcome of some electrodeposition, absorption and corrosion studies was presented. A dedicated chapter was dedicated to electrochemical reactors for metals recovery (fluidized-bed and Reticulated Vitreous Carbon based- RVC). Finally an innovative process for gold recovery from electronic waste was discussed.

OTHER LANGUAGES

- English: Good level
- Croatian: Working level
- German: Intermediate level (B1)

COMPUTER KNOWLEDGE

- Operative Systems: Windows , Linux
- Software: Office and OpenOffice packages
- Programming languages: Matlab, Octave, Scilab, Fortran, Pascal
- Professional software: AutoCAD, DesignCad, Ansys, Mathcad, Origin, SMath
- Nuclear codes: SERPENT, MCNP(X), MONTEBURNS, COSI, APOGENE, ORIGEN, ERANOS, NUCLEONICA, FEMAXI
- CARL2.3 Code (original code developed on NEA contract[1])

OTHER INFORMATION

Knowledge of ASME III codes.

WORK EXPERIENCE

Nuclear fuel cycle analysis: more than 5 years.
Raman spectroscopy (application in spectroelectrochemistry): 3 years.

After achieving my PhD title I was employed in KIT (Karlsruhe Institute of Technology), at IKET (Institute for Nuclear and Energy Technologies), from January 2008. I acquired experience in nuclear scenario simulations, in particular COSI code, by attending CEA dedicated courses and by working in international projects (e.g. EUROTRANS, ARCAS) and NEA experts groups. Neutronic codes skills were acquired too, in particular with MCNP(X), SERPENT and ERANOS, by attending specific courses. I was member of the following NEA Expert Groups: *Expert Group on Integral Experiments for Minor Actinide Management, Expert Group on Fuel Cycle Transition Scenario Studies, Task Force on Study on Homogeneous vs. Heterogeneous Recycle of TRU in Fast Reactors, Expert Group on Advanced Scenarios*.

PROFESSIONAL ATTITUDES AND ASPIRATIONS

[1] http://www.nea.fr/abs/html/nea-1735.html

My degree has been characterized mainly from studies in thermo-fluid dynamics and structural mechanics with a remarkable number of physics and mathematics studies that in classical courses of industrial engineering are not normally supported (reactor physics, core engineering, nuclear design, theory of elasticity, radiations detection measurements and radioprotection, nuclear plants dynamics and control, mechanics, machines technology, finite element analysis, CAD design, etc.). In adding to that, I have also acquired a remarkable skill in the use of the most modern software supports, both in terms of programming and of operative systems management. During my PhD in Materials Engineering I was responsible for a Raman spectroscopy line in which in-situ metals electrodeposition was investigated. I worked often in team. My greater aspiration is to work in design and/or R&D fields, therefore my attention is turned towards dynamic industries/institutes.

Publications

1. *"An additional Performance of HTRs: the capability to burn actinides"* – N. Cerullo, D. Bufalino, G. Forasassi, G. Lomonaco, P. Rocchi, V. Romanello – *Radiation Protection Dosimetry*, Oxford Press

2. *"The capabilities of HTRs to burn actinides and to optimize plutonium exploitation"* – N. Cerullo, D. Bufalino, G. Forasassi, G. Lomonaco, P. Rocchi, V. Romanello – Proceedings of ICONE 12, 12th International Conference on Nuclear Engineering, Arlington - 2004, April 24-29

3. "*An additional Performance of HTRs: the capability to burn actinides*" – N. Cerullo, D. Bufalino, G. Forasassi, G. Lomonaco, P. Rocchi, V. Romanello, *ICRS10, Madeira (Portogallo), 2004 May 9-14*
4. *"Preparation of the documentation of the computer code CARL for the calculation of evolution vs. time of waste radiotoxicity (ingestion), activity,*

dose, decay power" – Contract No.: JA00028449 – NEA (*Nuclear Energy Agency*) – 2004

5. *"Waste radiotoxicity minimization using innovative LWR-HTR-GCFR symbiotic fuel cycles"* – N. Cerullo, G. Lomonaco, V. Romanello – *ARWIF 2005 – Oak Ridge (USA) –2005, February 16-18*

6. *"In situ Sum Frequency Generation Spectroscopy of the CN^- Resonance at Au Single- and Polycrystalline Electrodes in the presence of Organic Additives for Electrodeposition baths"* – B. Bozzini, B. Busson, G. P. De Gaudenzi, L. D'Urzo, G. Giovannelli, C. Mele, V. Romanello, C. Six, F. Vidal and A. Tadjeddine – *207th ECS Meeting – Quebec City, Canada – May 14-20, 2005*

7. *"In situ Surface Enhanced Raman and Electroreflectance Spectroelectrochemical Investigations of Organic Additives during the Electrodeposition of Cu from Acidic Sulphate Solutions"* – B. Bozzini, L. D'Urzo, G. Giovannelli, C. Mele, V. Romanello - *Quebec City, Canada – May 14-20, 2005*

8. *"An Electrochemical and in situ SERS Study of Cu Electrodeposition from Acidic Sulphate Solutions in the Presence of 3-Diethylamino-7-(4-dimethylaminophenylazo)-5-phenylphenazinium chloride (Janus Green B)"*, B. Bozzini, C. Mele, L. D'Urzo, V. Romanello - *Journal of Electroanalytical Chemistry, 36 (2006) 973–981*

9. *" Study of Levellers for Cu Electrodeposition from Acidic Sulphate Solution: an in situ Spectroelectrochemical Approach "*, B. Bozzini, C. Mele, L. D'Urzo, V. Romanello, G. Giovannelli - *Transactions of the Institute of Metal Finishing, 84 N°4 (2006) 177-188*

10. *"Electrodeposition of Cu from Acidic Sulphate Solutions in the Presence of Polyethylene glycol and chloride ions"*, B. Bozzini, L. D'Urzo, C. Mele, V.

Romanello - *Journal of Materials Science: Materials in Electronics, 17 (2006) 915-923*

11. *"Time-dependent in situ SERS study of CN^- adsorbed on gold"*, B. Bozzini, C. Mele, V. Romanello - *Journal of Electroanalytical Chemistry, 592 (2006) 25-30*

12. *"Controlled Corrosion of Micrometric and Submicrometric Metal Powders in a Fluidised-Bed Reactor",* B. Bozzini, V. Romanello, G.P. De Gaudenzi, C. Mele - *Transactions of the Institute of Metal Finishing, 153 (2006) C254*

13. *"Electrodeposition of Cu from Acidic Sulphate Solutions in the Presence of Bis-(3-sulfopropyl)-disulfide (SPS) and chloride ions",* B. Bozzini, L. D'Urzo, V. Romanello, C. Mele - *Journal of Electrochemical Society, 153 (2006) C254-C257*

14. "*A SERS Investigation of Carbon Steel in Contact with Aqueous Solutions containing BenzylDiMethylPhenylAmmonium Chloride"* , B. Bozzini, V. Romanello, C. Mele, F. Bogani –*Werkstoffe und Korrosion – Materials and Corrosion,58 (2007) 20-24*

15. *"A SERS Investigation of the Electrodeposition of Au in a Phosphate Solution"* – B. Bozzini, V. Romanello, C. Mele – *Surface & Coatings Technology, 201 (2007) 362-368*

16. *"An in situ FT-IR study evaluation of candidate organic corrosion inhibitors for carbon steel in contact with alkaline aqueous solutions"* - B. Bozzini, C. Mele, V. Romanello, *Werkstoffe und Korrosion / Materials and Corrosion, 58 (2007) 362-368*

17. *"Nuclear Waste Impact Reduction Using Multiple Fuel Recycling Strategies"* – E. Bomboni, N. Cerullo, G. Lomonaco, V. Romanello – *PHYTRA Conference, Marrakech (Morocco) March 14-16, 2007*

18. *"Nuclear Fuel Cycle Synergies and Regional Scenarios for Europe",* M. Salvatores, M. Meyer, V. Romanello, L. Boucher, A. Schwenk-Ferrero – OECD 2009 – NEA No. 6857 – ISBN 978-92-64-99086-9

19. *"Actinide transmutation with innovative critical and subcritical reactor systems in regional PT Scenario"*, V. Romanello, A. Schwenk-Ferrero, W. Maschek – Jahrestagung Kerntechnik 2009, 12-14 May – Dresden - Germany

20. *"Advanced Fuel Cycles and fast Reactor Flexibility"*, F. Gabrielli, V. Romanello, M. Salvatores, A. Schwenk-Ferrero, W. Maschek - International Conference on Fast Reactors and Related Fuel Cycles: Challenges and Opportunities FR09, 7-11 December 2009 - Kyoto (Japan)

21. *"Comparative Study of Fast Critical Burner Reactors and Subcritical Accelerator Driven Systems and the Impact on Transuranics Inventory in a Regional Fuel Cycle"*, V. Romanello, M. Salvatores, A. Schwenk-Ferrero, F. Gabrielli, W. Maschek, B. Vezzoni – Nucl. Eng. Des. 241 (2011) 433-443

22. *"Investigating incorporation and distribution of radionuclides in trinitite",* F. Belloni, J. Himbert, O. Marzocchi, V. Romanello – Journ. Env. Rad. 102 (2011) 852-862

23. *"Advanced fuel cycle scenario study in the European context by using different burner reactor concepts"*, V. Romanello, C. Sommer, M. Salvatores, W. Stacey, W. Maschek, B. Petrovic, F. Gabrielli, A. Schwenk-Ferrero, A. Rineiski, B. Vezzoni – Information Exchange Meeting on actinide and fission product Partitioning and Transmutation (IEMPT11) – 1-5 November, 2010 – San Francisco (USA)

24. "*Analysis of a Hypothetical Italian Fuel Cycle: Transition to fast reactors*" B. Vezzoni, M. Salvatores, F. Gabrielli, A. Schwenk-Ferrero, V. Romanello, W. Maschek, G. Forasassi; Proceedings of the Fifteenth International Conference on Emerging Nuclear Systems ICENES, May 15-19, 2011, San Francisco USA published in Fusion Science and Technology, Vol. 61, No 1T, January 2012, pp.167-173

25. "*Impact of MA Content on Breeding Gain Definition for Innovative Fast Reactor Fuel*", B.Vezzoni, F.Gabrielli, A.Schwenk-Ferrero, V.Romanello, W.Maschek, M.Salvatores, , 11 IEMPT, 1-4 Nov. 2010, San Francisco USA

26. "*Analyses of a perspective Italian fuel cycle: LWRs introduction and advanced fuel cycles*", B.Vezzoni, M.Salvatores, F.Gabrielli, V.Romanello, A.Schwenk-Ferrero, W.Maschek, G.Forasassi, 11 IEMPT, 1-4 Nov. 2010, San Francisco USA

27. "*Comparison of the waste transmutation potential of different innovative dedicated systems and impact on the fuel cycle* ", V. Romanello, M. Salvatores, F. Gabrielli, B. Vezzoni, W. Maschek, A. Schwenk-Ferrero, A. Rineiski, C. Sommer, W. Stacey, B. Petrovic - 15th International Conference on Emerging Nuclear Energy Systems (ICENES 2011) – May 15-19, 2011 – San Francisco (USA)

28. "*Sustainable Nuclear Fuel Cycles and World Regional Issues*", Romanello, V., Salvatores, M., Schwenk-Ferrero, A., Gabrielli, F., Vezzoni, B., Rineiski, A., Fazio, C. *Sustainability* **2012**, *4*, 1214-1238.

29. "*Investigation of best calculation strategy for closed fuel cycle simulation with scenario codes*", V. Romanello, M. Salvatores, A. Schwenk-Ferrero, B. Vezzoni, F. Gabrielli, W. Maschek; Wilhelm und Else Heraus-Seminar on Innovative Nuclear Power in a Closed Fuel Cycle Scenario, December 5-8, 2011, Bad Honnef, Germany

30. "*Analysis of transition nuclear fuel cycles from LWRs to Gen-IV reactors*", B. Vezzoni, G. Forasassi, N. Cerullo, F. Fineschi, G. Lomonaco, M. Salvatores, F. Gabrielli, A. Schwenk-Ferrero, V. Romanello, W. Maschek, A. Rineiski; Wilhelm und

Else Heraus-Seminar on Innovative Nuclear Power in a Closed Fuel Cycle Scenario, December 5-8, 2011, Bad Honnef, Germany

31. "*World scenario analyses of a transition towards a sustainable nuclear fuel cycle*", V. Romanello, A. Schwenk-Ferrero, M. Salvatores, F. Gabrielli, B. Vezzoni, OECD Report, 2012 in print.

32. "*Impact of nuclear data uncertainties on closed fuel cycle scenarios: preliminary assessment*", V. Romanello, M. Salvatores, A. Rineiski, F. Gabrielli, B. Vezzoni, A. Schwenk-Ferrero; 12th Information Exchange Meeting on Partitioning and Transmutation (IEMPT-12), Prague (Czech Republic), September 24th-27th 2012

33. "*Summary of OECD/NEA/NSC expert group on integral experiments for minor actinide management*", S. Okajima, P. Fougeras, C. Gil, G. Glinatsis, J. Gulliford, O. Iwamoto, R. Jacqmin, Y. Komyakov, A. Kochetkov, M.V. Kormilitsyn, R. McKnight, Y. Nemoto, G. Palmiotti, G. Perret, V. Romanello, D. Sweet, K. Tsujimoto, G. Vittiglio, A. Yamaji; 12th Information Exchange Meeting on Partitioning and Transmutation (IEMPT-12), Prague (Czech Republic), September 24th-27th 2012

34. "*Status of the EC-FP7 project ARCAS: comparing the economics of accelerator driven systems and fast reactors as minor actinide burners*", G. Van den Eynde, V. Romanello, F. Martin-Fuertes, C. Zimmermann, B. G. Lewin, A. van Heek; 12th Information Exchange Meeting on Partitioning and Transmutation (IEMPT-12), Prague (Czech Republic), September 24th-27th 2012