

BARTZAS GEORGIOS

Personal Information

Profession: Dr. Mining and Metallurgical Engineer

Current Position: *A. Post-doc Researcher, Staff*
Laboratory of Metallurgy,
School of Mining and Metallurgical Engineering
National Technical University of Athens

B. Post-Doctoral Research Associate,
Research Unit of Mining and Metallurgical Waste
Management / Soil decontamination,
Department of Minerals Resources Engineering
Technical University of Crete

Date of Birth: 4 January 1977

Place of Birth: Athens, Greece

Nationality: Greek

Marital Status: Single

Military Service: Greek Navy, Engineer (August 2006 - August 2007)

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Education

- 2002 – 2007 **PhD, Environmental Metallurgy, National Technical University of Athens**
School of Mining and Metallurgical Engineering, Laboratory of Metallurgy,
PhD Thesis: "Clean up of leachates generated from mining solid wastes using fly ash, red mud and zero-valent iron Permeable Reactive Barriers". (**Best PhD thesis award "Saraf Foundation" – 2007/2008**)
- Febr. 2008 – **MBA, Techno-Economic Systems, National Technical University of Athens/University of Piraeus** (part time/ 2 years),
School of Electrical Engineering and Computer Science (NTUA) / Department of Industrial Management (UOP)
- 1996 – 2001 **Graduate Studies, National Technical University of Athens**
School of Mining and Metallurgical Engineering,
Diploma Thesis: "Leaching of heavy metals from contaminated soil using citrate solutions".

Professional - Academic / Teaching Experience

- September 2009 – present Assistant Teaching - Undergraduate Course of the 6th Semester - School of Mining and Metallurgical Engineering (Environmental Graduate Direction) "*Environment I (Introduction to Environmental Science and Engineering)*" Course Responsible: Ass. Prof. A. Xenidis.
- September 2002 – present Assistant Teaching (PHREEQC modeling) - Undergraduate Course of the 8th Semester - School of Mining and Metallurgical Engineering (Environmental Graduate Direction) "*Rehabilitation of Contaminated Soils*" Course Responsibles: Prof. I. Paspaliaris and Ass. Prof. N. Papassiopi.
- September 2007 – present Assistant Teaching - Undergraduate Courses of the 5th and 6th Semesters - School of Mining and Metallurgical Engineering "*Physical Metallurgy I and II*" Course Responsible: Ass. Prof. G. Fournalis.
- June 2006 Keynote lectures in the University of Tirana (Department of Environment and Chemical Technology) and the Technical Chamber of Albania with subjects "Groundwater Decontamination from mining and metallurgical activities" and "Environmental Characterisation of Mining Solid Wastes" in the framework of the INSWAB project "*Integrated industrial solid waste management in Albania and Bosnia- Herzegovina*".
- March 2006 – April 2006 Technical consultancy - Risk assessment study at the Somika plant, Katanga province, Congo (RDC). In-situ monitoring study in Lumumbasi (former Elisabethville), Congo. In collaboration with: Copirep (funded by World Bank).
- July 2001 – August 2001 Practical training in the R&D laboratory of the Corinth Pipeworks concerning "Metallographical examination of steel for pipe production with Electric Resistance Welding/High Frequency Induction (ERW/HFI) and Submerged Arc Welding (SAW)".

Participation in Research Projects

- January 2007 – Dec 2008 "Optimization of Permeable Reactive Barriers performance for the Clean up of contaminated by heavy metals leachates and groundwater (PRB-Cleanup)" funded under General Secretariat of Research and Technology of Greece. In collaboration with University Laval, Department de Mines et Metallurgie, Quebec, Canada and Epsilon. Scientific Responsible and Project coordinator: Prof. K. Komnitsas (TUC), *Participation as Senior Researcher*.
- Webpage: http://www.mred.tuc.gr/projects/PRB_Cleanup/
- January 2006 – Dec 2007 "Use of bauxite residues for carbon sequestration" funded by the Greek General Secretariat of Research and Technology (GSRT), supervised by Ass. Prof. A. Xenidis. *Participation as Senior Researcher*.
- January 2005 – Aug 2007 "Integrated treatment of industrial wastes towards prevention of regional water resources contamination (INTREAT)" funded under the European Commission. In collaboration with University of Belgrade (SER), Copper Institute Bor (SER), Bourgas "Prof. Asen Zlatarov" University (BUL) and Technische Hochschule Aachen (GER). Scientific Responsible: Prof. K. Komnitsas (TUC), Project coordinator: Lecturer D. Panias (NTUA). *Participation as Senior Researcher*.

Webpage: www.labmet.ntua.gr/intreat/

- March 2006 – Dec. 2006 "Risk assessment study at the Somika plant, Katanga province, Congo, Contrat No 48/Copirep/SE/03/2006" funded under the World Bank. In collaboration with: International Bureau of Environmental Studies (BE) and University of Brussels (BE). Scientific Responsible: Prof. K. Komnitsas. *Participation as Senior Researcher.*
- July 2005 – Dec. 2006 "Management and remediation of hazardous industrial wastes in the Western Balkan Countries (INDUWASTE)" funded under the European Commission / INCO1-Environment). In collaboration with: IBES (BE), MARIS (HOL), VETFACLAB (SER), ZVD (SLO), VINCA ECE LAB (SER), IMI (CRO) and AGS (ALB). Scientific Responsible: Prof. K. Komnitsas. *Participation as Researcher.*
- Sept. 2004 – Aug. 2006 "Integrated industrial solid waste management in Albania (INSWAM – AL)" funded under the European Commission / INCO1-Environment. In collaboration with: University of Tirana (ALB) and Institute of Urbanism (Republic of Srpska). Scientific Responsible: Prof. K. Komnitsas. *Participation as Researcher.*

Webpage: <http://www.mred.tuc.gr/projects/inwab/index.htm>

- March 2002 – Dec. 2004 "Environmental management of hazardous mining wastes and effluents (ENVIMAN)" funded under the European Commission / Copernicus. In collaboration with: Imperial College of Science, Technology & Medicine (UK), Moscow State Mining University (RUS), ECOTERM (UA), University of Mining and Geology Sofia (BUL). Project coordinator and Scientific Responsible: Prof. I. Paspaliaris. *Participation as Researcher.*

Webpage: www.labmet.ntua.gr/Enviman/

Participation in Congresses and Advanced Courses

- 22–24 November 2000 3rd Conference of Mineral Wealth, Scientific Committee of Mining and Metallurgical Engineers, Technical Chamber of Greece, Athens, Greece.
- 24 - 28 June 2002 Satisfactory Completion of the 1st Image-Train Advanced Study Course for Innovative Groundwater management Technologies, Katowice, Poland.
- 8 - 10 September 2003 8th International Conference on Environmental Science and Technology, Lemnos Island, Greece. (oral presentation)
- 7 - 9 June 2004 1st International Conference on Advances in Mineral Resources Management and Environmental Geotechnology, Chania, Crete, Greece.
- 6 - 9 April 2005 5th National conference for the Management of Water Resources, Xanthi, Greece (oral presentation)
- 13 - 15 June 2005 Processing and disposal of Minerals industry wastes (PDMIW '05), Falmouth, Cornwall, UK (oral presentation)
- 5 - 7 September 2005 9th International Mine Water Association Congress, (IMWA '05), Oviedo, Spain (oral presentation)
- 8 – 9 June 2006 NATO Advanced Research Workshop Environmental Security Threats in Urban Settings, Athens, Greece (oral presentation)
- 8 – 9 November 2007 3rd International Symposium on Permeable Reactive Barriers and Reactive Zones, Rimini, Italy (oral presentation).
- 4 – 8 October 2009 6th International Conference on Instrumental Methods of Analysis – Modern Trends and Applications, Athens, Greece (oral presentation).

Awards and Distinctions

- **Reviewer of scientific papers for the Journals:**
 - *Environmental Science & Technology (ACS)*,
 - *Environmental Science and Toxicology (ACS)*
 - *Applied Geochemistry (Elsevier)*
 - *Journal of Hazardous Materials (Elsevier)*
 - *Water Research (Elsevier)*
 - *Chemical Engineering Journal (Elsevier)*
 - *Int. J. of Environment and Waste Management (Inderscience) and*
 - *Waste and Biomass Valorization (Spinger)*
- **Winner of the Best PhD thesis "Sarafis Foundation"** obtained in the years 2007 and 2008 at the School of Mining and Metallurgical Engineering (NTUA), Candidate for the 8 schools of the NTUA (selection procedure still in progress)
- **Thomaidion Award** for Scientific Publications, 2004, 2005, 2006
- **NTUA Scholarship** (Acad. Year 2004-2005)
- **Most downloading article** of the year 2004 in *Minerals Engineering* (Earth and Planetary Sciences)

Participation in Professional Affiliations

- Member of the Technical Chamber of Greece,
- Member of the National Association of Mining and Metallurgical Engineers

Technical Skills (Laboratory Equipment/Techniques)

- Knowledge of Scanning Electron Microscopy (SEM)/Environmental Scanning Electron Microscopy (ESEM),
- X-Ray Diffractometry (XRD) and Differential Thermal Analysis and Thermal Gravimetric Analysis (DTA-TG) characterization techniques

Computer and Other Skills

- **Commercial Software Packages**
Microsoft Office, Corel Suite, Smart Draw 2007, AutoCAD 2008
- **Scientific Software Packages**
PHREEQC-2 (*Geochemical Software - Code*),
CXTFIT 2.0 - STANMOD (*Codes for Estimating Transport Parameters from Laboratory or Field Tracer Experiments*),
VS2DI (*Variably Saturated 2D flow and Transport Software*)
Crystallographica Search-Match (*XRD identification Software*)
- **Driver's license**
Category B, valid within EU
- **Hobbies**
Football, Fishing (Boat – Wet Fly), Spearfishing, Movies

Languages

- English (Proficiency in English, University of Cambridge)
- German (Zertifikat, Goethe Institute)
- Greek (mother tongue)

Main Fields of Research Activities

- Clean up of Mine Effluents and Leachates
- Soil and Waste Decontamination
- Prevention of Groundwater Contamination with the use of PRBs
- Environmental Fate and Transport Studies
- Risk Assessment
- Implementation of Geochemical Modeling
- Carbon Sequestration

Publications - Refereed Conference Proceedings (oral presentations)

1. Komnitsas, K., **Bartzas, G.** and Paspaliaris, I. (2004). Treatment of acidic leachates using fly ash barriers: Laboratory column studies. In: *Proceedings of the 8th Conference on Environmental Science and Technology*, 8-10 Sep. 2003, Lemnos, Greece, 469-476.
2. Komnitsas, K., **Bartzas, G.** and Paspaliaris, I. (2004). Evaluation of Low-cost materials for the decontamination of acidic leachates using permeable reactive barriers. In: *Proceedings of the International Conference on Sustainable Post Mining land Management*, (eds. C. Heberstreit, J. Kudelko and J. Kulczycka), 4-6 Nov. 2004, Krakow, Poland, 161-170.
3. Komnitsas, K., **Bartzas, G.** and Paspaliaris, I. (2005). Hydraulic performance of laboratory PRBs for the decontamination of acidic mine waters. In: *Proceedings of IMWA '05-9th International Mine Water Association Congress*, (eds. J. Loredó and F. Pendás), September 5-7, Oviedo, Spain, 347-354.
4. Komnitsas, K., **Bartzas, G.**, Zaharaki D. and Fytas, K. (2007). Treatment of highly acidic mine discharges in multi-component permeable reactive barriers: Column and modelling studies. In: *Proceedings of 3rd International symposium on PRBs and RZs*, (ed. M. Petraglini-Papini), November 8-9, Rimini, Italy, 63-67.
5. **Bartzas, G.** and Komnitsas, K (2009). Solid phase studies and geochemical modelling of low-cost permeable reactive barriers, 6th International Conference on Instrumental Methods of Analysis – Modern Trends and Applications, 4-8 Oct. 2009, Athens, Greece.
6. **Bartzas, G.**, Xenidis, A and Papassiopi, N (2010). Bauxite residue for Carbon Sequestration, 10th Conference on Protection and Restoration of the Environment, 5-9 July 2010, Corfu, Greece.

Publications in Honourable Editions

1. **Bartzas, G.**, Komnitsas, K. and Paspaliaris, I. (2004). The use of permeable reactive barriers for the decontamination of acidic leachates: State-of-the-art. Honourable edition for Prof. Kontopoulos, Athens, 231-240.

Publications in Peer-Reviewed Journals

1. Komnitsas, K., **Bartzas, G.** and Paspaliaris, I. (2004). Clean up of acidic leachates using fly ash barriers: Laboratory column studies. *Global NEST: The International Journal*, Vol.1, 81-89.
2. Komnitsas, K., **Bartzas, G.** and Paspaliaris, I. (2004). Efficiency of limestone and red mud barriers: laboratory column studies. *Minerals Engineering*, 17, 183-194.

3. **Bartzas, G.**, K. Komnitsas and I. Paspaliaris (2006). Laboratory evaluation of Fe⁰ barrier to treat water impacted by acid mine drainage. *Minerals Engineering*, 19(5): 505-514.
4. Komnitsas, K., **Bartzas, G.** and Paspaliaris, I. (2006). Inorganic contaminant fate assessment in zero-valent iron treatment walls. *Environmental Forensics*, 7: 207-217.
5. Komnitsas, K., **Bartzas, G.** and Paspaliaris, I. (2006). Modeling of reaction front progress in fly ash permeable reactive barriers. *Environmental Forensics*, 7: 219-231.
6. Komnitsas, K., **Bartzas, G.**, Fytas, K. and Paspaliaris, I. (2007). Long-term efficiency and kinetic evaluation of ZVI barriers used for clean up of copper containing solutions. *Minerals Engineering*, 20(13): 1200-1209.
7. **Bartzas, G.**, and Komnitsas, K (2010). Solid phase studies and geochemical modelling of low-cost permeable reactive barriers. *Journal of Hazardous Materials*, 183 (1-3): 301-308.
8. **Bartzas, G.**, and Komnitsas, K (2010). Remediation of acid mine drainage using alkaline reactive multi-barriers (under preparation)

Citations (without self-citations): 71
h-index: 5

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