

Krestou Athina

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PROFESSIONAL PROFILE

Krestou Athina is an Assistant Professor in the Department of Mechanical Engineering, University of Western Macedonia, Greece. She holds a PhD degree in Nanomaterials Synthesis, Properties and Applications an MSc in Materials for Engineering Applications and a BSc in Chemical Engineering. Her Professional and Educational profile is oriented in the field of materials synthesis using industrial by-products / wastes with emphasis on the materials properties optimization for targeted applications.

She has been employed in European funded research projects in the fields of “Environment” and “Materials Synthesis” as researcher, while she has given courses on the corresponding fields at an undergraduate level. Her main laboratory / research skills include:

- Materials synthesis using industrial by-products.
- XRD analysis (with emphasis on nano-materials).
- BET & BJH analysis (specific surface area and porosity with emphasis on nano-materials).
- Non –destructive tests.
- TG-DTA.
- Laser particle size analysis.
- Rockwell / Brinel / Vickers Hardness method.

EDUCATION

National Technical University of Athens – School of Mining & Metallurgical Engineering

PhD degree 2013

«Precipitation of nano-crystalline boehmite from aluminate solutions » (DOI 10.12681/eadd/29180).

Research Field: Aquatic Chemistry, nano-materials synthesis.

University of Surrey, UK

MSc “Materials for Engineering Applications” 2001

Title: «On the precipitation of austenitic manganese steels».

National Technical University of Athens – School of Chemical Engineering

BEng in Chemical Engineering 2000

RESEARCH

1. "Strategic Plan for prevention of regional water resources contamination from mining and metallurgical industries in Western Balkan countries", EC, 6th Framework Programme, Specific Targeted Project, Contract No: INCO-CT-2005-517574, 2005-2007.
 - Best Available Technologies for mining and metallurgical industries.
2. "Integrated treatment of industrial wastes towards prevention of regional water resources contamination", EC, 6th Framework Programme, Specific Targeted Project, Contract No: INCO-CT-2003-509167, 2004-2007.
 - X- Ray Diffraction (XRD) of solid by- products.
3. "Synthesis of Nano-Crystalline boehmite from supersaturated sodium aluminate solutions, NTUA, Basic Research Program PROTAGORAS, 65/1406, 2004-2006.
 - Precipitation experiments.
 - Laboratory scale production of supersaturated sodium aluminate solutions.
 - Al₂O₃ concentration measurement (titration).
 - X-Ray Diffraction of nano-crystalline solid precipitates (boehmite).
 - TG-DTA analysis of nano-crystalline solid precipitates (boehmite).
 - Specific surface area and porosity measurement of nano-crystalline solid precipitates (BET – BJH).
 - Sintering of nano-crystalline boehmite for the production of transition and α -alumina.

Corresponding Research Papers: 6 (Peer Reviewed Journals) and 4-7 (Peer reviewed International Conferences).

4. "Long-term Performance of Permeable Reactive Barriers used for the Remediation of Contaminated Groundwater", RTD Project, 5th Framework Programme, EVK1-CT-1999-00035, 2001-2003.

UVA-VIS.

- Selection of proper absorbents for Uranium removal from aqueous solutions and optimization of absorption procedure.
- Study on the adsorption mechanism.

Corresponding Research Papers: 1-5 (Peer Reviewed Journals) and 1- 2 (Peer reviewed International Conferences).

5. Research project "THEOFRASTOS - PMX Emissions factors: dispersion from fugitive dust sources in lignite mines of western Macedonia, Greece" - TRC of WM, Aristotle University of Thessaloniki, Public Power Corporation SA.

- Application of ASTM methods for fugitive dust samples analysis in laboratory scale (cross- cone sampling, fugitive dust sampling procedure, measurement of silt and relative humidity content).
- Development of spread sheets for the open lignite mines' fugitive dust emission rate calculation based on EPA guide.
- Development of empirical equations for the calculation of open lignite mines' fugitive dust emission factor.

Corresponding Research papers: 13 και 17 (Peer reviewed International Conferences).

6. «Synthesis and characterization of electrodes and electrolytes for the oxidization of common hydrocarbons using solid oxide fuel cells», Funded by the Special Research Account Committee of Western Macedonia University of Applied Sciences (01/09/2016-28/02/2018).

Corresponding Research Papers: 20 & 21 (Peer reviewed International Conferences).

7. «Development and Evaluation of a High Resolution urban – scale (canopy) model for energy applications in structured areas», Co-funded by National and European Funds under the program «Life – long Education and Learning» (2015 – 2016)

- Evaluation of air pollution models results with real temperature and wind measurements in the atmospheric boundary layer.

Corresponding Research papers: 18 και 19 (Peer reviewed International Conferences).

8. Green tanning process, Funded by national funds.

- i. Best Available Technologies for the tanning industry.

Corresponding Research Papers: 7 (Peer Reviewed Journals) and 10 (Peer reviewed International Conferences).

TEACHING EXPERIENCE (UNDERGRADUATE LEVEL)

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| <p>1. Western Macedonia University of Applied Sciences</p> <p>A. Environmental Engineering Science</p> <p>B. Materials and Design</p> <p>C. Best Available Technologies for mining and metallurgical industries.</p> <p>D. Advanced materials</p> | <p>2016 – today</p> |
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2. National Technical University of Athens

2006 – 2008

Laboratory of Aquatic Chemistry.

3. Technological Educational Institute of Athens

2002-2003

Sampling and chemical analysis of surface water .

PERSONAL INFO

Date of Birth: 03/01/1976.

Place of Birth: Athens, Hellas

Place of current residence: Western Macedonia, Hellas

PUBLICATIONS (229 CITATIONS)

A. PEER REVIEWED JOURNALS

1. A. Krestou, A. Xenidis, D. Panias, “Mechanism of aqueous uranium (VI) uptake by natural zeolitic tuff”, *Minerals Engineering*, 16, 2003, pp.1363-1370.
2. A. Krestou, A. Xenidis, D. Panias, “Mechanism of aqueous uranium (VI) uptake by hydroxyapatite”, *Minerals Engineering*, 17, 2004, pp.373-381.
3. A. Krestou, D. Panias, “Uranium (VI) Speciation Diagrams in the $UO_2^{2+}/CO_3^{2-}/H_2O$ system at 25°C”, *European Journal of Mineral Processing and Environmental Protection*, Vol.4, No.2, 1303-0868, 2004, pp. 113-129.
4. D. Panias, A. Krestou, “Effect of synthesis parameters on precipitation of nanocrystalline boehmite from aluminate solutions”, *Powder Technology* 175, 2007, pp. 163-173.
5. A.I. Zouboulis, P. Samaras, A. Krestou and N.D. Tzoupanos, 2012, «Leather production modification methods towards minimization of tanning pollution: “Green Tanning”», *Frezenious Environmental Bulletin*, Vol.21, No. 8b, pp. 2406-2412.
6. Triantafyllou A.G., Krestou A., Matthaïos V., 2013, “ Lignite power plant’s contribution to the particulate pollution in the grater Western Macedonia area, GREECE”, *Advances in Meteorology, Climatology and Atmospheric Physics*, Vol. II, pg 1245 – 1250, Springel Atm. Sciences. ISBN978-3-642-29172-2.
7. Triantafyllou A.G., Krestou A., Matthaïos V. (2013), “Source – receptor relationships by using dispersion model in a lignite burning area in Western Macedonia”, Greece, *Global NEST Journal*, Vol 15, No 2, pp 195-203, 2013.
8. Vasileios N. Matthaïos, Athanasios G. Triantafyllou, Stylianos Garas, Athina Krestou, Elena Leivaditou, (2017), “Interactions between complicated flow-dispersion patterns and boundary layer evolution in a mountainous complex terrain during elevated SO₂ concentrations”, *Meteorology and Atmospheric Physics*, DOI 10.1007/s00703-016-0480-y.

9. Krestou A., Giozis I., Maroulis G., Kyriakou V., Tsanaktsidis , Kiratzis N.E., (2017), “Fabrication of thin electrodic films by solution aerosol thermolysis (SAT)”, *ECS Transactions*, 78 (1), pp. 1839-1850, DOI: 10.1149/07801.1839cest.
10. A. Krestou, I. Giozis, G. Maroulis, V. Kyriakou, C. Tsanaktsidis, and N. E. Kiratzis, (2017)“Fabrication and Characterization of thin Ceramic Films by Spray Pyrolysis” *Materials Today: Proceedings* 5 (11th Panhellenic Chemical Engineering Scientific Conference, PSCCE_2017), 2018, 27636-2644.
11. Athanasios Triantafyllou, Nicolas Moussiopoulos, Athina Krestou, George Tsegas and Fotios Barbas, Stelios Garas and Melina Adreadou, (2017), “Application of Inverse Dispersion modeling for the determination of PM emission factors from fugitive dust sources in open-pit lignite mines”, *Int. J. Environment and Pollution*, Vol.62, Nos. 2/3/4, 2017, pp. 275-290.
12. A. G. Triantafyllou, J. Kalogiros, A. Krestou , E. Leivaditou, N. Zoumakis, D. Bouris, S. Garas, E. Konstantinidis, Q. Wang and K. Rados, (2018), “Evaluation of an atmospheric model with surface and ABL meteorological data for energy applications in structured areas”, *Journal of Theoretical and Applied Climatology*, DOI: 10.1007/s00704-018-2429-1.
13. A. Krestou, I. Giozis, G. Maroulis, A. Barbatsis, C. Tsanaktsidis, V. Kyriakou and N. E. Kiratzis (2018), “Fabrication of Thin Functional Films by Solution Aerosol Thermolysis (SAT)”, *ECS Journal of Solid State Science and Technology*, 7 (11) P660-P670.
14. A. Krestou, D. Pnias (2018), “Physicochemical properties of nano-crystalline boehmite precipitated from synthetic bayer liquor at 90°C: effect of neutralization rate”, *Journal of Scientific and Engineering Research*, Vol. 5, Issue 12, pp. 114-123.

B. CHAPTERS IN BOOKS

1. D. Pnias, A. Xenidis, A. Krestou, “Chapter 3: Materials and processes for uranium removal from contaminated water”, *Trace Metals and other Contaminants in the Environment*, Vol.7, 2005, pp. 53-75 ([https://doi.org/10.1016/S0927-5215\(05\)80007-4](https://doi.org/10.1016/S0927-5215(05)80007-4)).
2. A. Krestou, A. Xenidis, D. Pnias, “Uranium removal from aqueous solutions using synthetic hydroxyapatite”, *Τμητική έκδοση στη μνήμη του Αντώνη Κοντόπουλου*, Εθνικό Μετσόβιο Πολυτεχνείο, Αθήνα 2004, σελ. 135-145.

C. PEER REVIEWED INTERNATIONAL CONFERENCES

1. Krestou, D. Pnias, A. Xenidis, I. Paspaliaris, “Uranium (VI) removal from aqueous solutions using natural zeolite”, *Proceedings of the 7th International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production*, 7-10 October 2002, Calgiari, Sardinia, Italy, pp.795-802.
2. Krestou, A. Xenidis, D. Pnias, “Uranium (VI) Removal from aqueous solutions using elemental iron”, *Global Symposium on Recycling, Waste Treatment and Clean Technology, REWAS 2004*, 26-29 September 2004, Madrid, Spain, Volume II, pp. 1287-1296.
3. Krestou, D. Pnias, “Use of Microwave Energy in Metallurgy”, *1st International Conference on Advances in Mineral Resources Management and Environmental Geotechnology, AMIREG 2004*, 7-9 June 2004, Hania, Crete, Greece, pp.215-220.

4. D. Panias, A. Krestou, "Alumina hydrate precipitates in the system NaAl(OH)₄ (supersaturated)/HNO₃, Proceedings of the European Metallurgical Conference 2005, Dresden, Germany, September 18-21, 2005, Vol. 4, pp. 1403-1417.
5. D. Panias, A. Krestou, "Effect of different anions on the precipitation of fine particles of alumina hydrates from supersaturated sodium aluminate solutions", 2nd International Conference on Advances in Mineral Resources Management and Environmental Geotechnology, AMIREG 2006, Hania, Greece, pp.269- 274.
6. Α. Κρέστου, Δ. Πάνιας, "Μελέτη της επίδρασης ανιόντων στις ιδιότητες νανο-κρυσταλλικού βαιμίτη κατά την καταβύθισή του από υπέρκορα αργλικά διαλύματα στους 600C", 3^ο Πανελλήνιο Συνέδριο μεταλλικών Υλικών, Πάτρα, 06-07/12/2007.
7. D. Panias, A. Krestou, "Synthesis of nano-boehmite from aluminate solutions in catalytic applications", invited lecture in 3rd International Symposium Of Light Metals and Composite Materials, 12-14 September, 2008, Belgrade, Serbia.
8. Triantafyllou A.G. , Krestou A, Garas S, Diamantopoulos Ch., Skordas J., 2009. " PM_{2.5} and PM₁₀ concentrations and health impact in West Macedonia GREECE", International Workshop on "RISK ASSESSMENT AND HUMAN EXPOSURE TO HAZARDOUS MATERIALS", organized by School of Medicine, Aristotle University of Thessaloniki, GREECE, Thessaloniki, 21 - 24 October 2009.
9. Garas S., Krestou A., Diamantopoulos C., Skordas J., Triantafyllou A., 2010. "A study of the geogenic and anthropogenic emission sources contribution to the PM₁₀ and PM_{2.5} elemental composition in Kozani", PRE10 International Conference: Protection and Restoration of the Environment, 05 - 09 July, 2010, University of Ioannina, Stevens Insitute of Technology.
10. A.I. Zouboulis, P. Samaras, A. Krestou and N.D. Tzoupanos, "Leather production modification methods towards minimization of tanning pollution: "Green Tanning"", SECOND INTERNATIONAL SYMPOSIUM ON GREEN CHEMISTRY FOR ENVIRONMENT AND HEALTH, Mykonos, September 27-29, 2010.
11. Triantafyllou A.G., Krestou A., Hurley P. and Thatcher M., "An operational high resolution local-scale meteorological and air quality forecasting system for Western Macedonia, Greece: Some first results", Proceedings of the 12th International Conference on Environmental Science & Technology (CEST2011), 8 - 10 September 2011, pp.A-1904:1911.
12. G. Triantafyllou, S. Garas, Ch. Diamantopoulos, A. Iordanidis, A. Asvesta, A. Krestou , D. Proiou, 2011, "PM₁₀ CONCENTRATIONS, MORPHOLOGY, MINERALOGY AND CHEMICAL CHARACTERISTICS IN AN URBAN AND NEARBY INDUSTRIAL LOCATION IN GREECE", 16th International Symposium On Environmental pollution and its Impact on Life in the Mediterranean Region, Ioannina, Greece, organized by MESAEP.
13. Α. Γ. Τριανταφύλλου, Σ. Γκάρας, Χ. Διαμαντόπουλος, Α. Ιορδανίδης, Α. Ασβεστά, Α. Κρέστου , «ΑΣ₁₀ ΣΤΗΝ ΠΟΛΗ ΤΗΣ ΚΟΖΑΝΗΣ: ΔΙΑΧΡΟΝΙΚΗ ΜΕΤΑΒΟΛΗ ΣΥΓΚΕΝΤΡΩΣΕΩΝ, ΜΟΡΦΟΛΟΓΙΚΑ, ΟΡΥΚΤΟΛΟΓΙΚΑ ΚΑΙ ΧΗΜΙΚΑ ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ», 4ο Περιβαλλοντικό Συνέδριο Μακεδονίας, Θεσσαλονίκη, Μάρτιος 2011.
14. Triantafyllou, A.Krestou, S.Garas, V. Matthaios, Ch. Diamantopoulos, J. Skordas, "PM₁₀ concentrations and some first results of source attribution in urban and industrial areas

in Greece", presented in Protection & Restoration of the Environment XI Conference, 3-6 July 2012, Thessaloniki.

15. A. Krestou, A.G. Triantafyllou, S. Garas, V. Tsekouras and C. Diamantopoulos, "Design, Construction and Testing of a Laboratory Chamber for Dust Generation and Sampling", 13th International Conference on Environmental Science and Technology, 5-7 September 2013, Athens.
16. S. Garas, A.G. Triantafyllou, C. Diamantopoulos, A. Krestou, V. Matthaïos and V. Tsekouras, 2013, "Ambient concentrations and chemical features of PM_x due to the emissions of the consume by the central heating biomass", 17th International Symposium on Environmental pollution and its Impact on Life on the Mediterranean Region (MESAEP), September 28- October 1 2013, Istanbul Turkey.
17. Χ. Διαμαντόπουλος, Σ. Κ. Γκάρας, Α. Κρέστου, Β. Ματθαίος, Α. Γ. Τριανταφύλλου, 2014, "Συγκεντρώσεις ΑΣχ και ΠΑΥ από καύση βιομάζας σε κωμόπολη της ΒΔ Ελλάδας", 5ο Περιβαλλοντικό Συνέδριο Μακεδονίας, 14-16 Μαρτίου 2014 Θεσσαλονίκη, πρακτικά ISBN: 978-618-81196-0-4, ISSN:1791-4280.
18. Σ. Κ. Γκάρας, Α. Γ. Τριανταφύλλου, Α. Κρέστου, Χ. Διαμαντόπουλος και Β. Τσεκούρας, 2014, «Επίπεδα ολικού αεριώδους υδραργύρου στον ατμοσφαιρικό αέρα της Κοζάνης και σε επιλεγμένους εσωτερικούς χώρους της πόλης», 5ο Περιβαλλοντικό Συνέδριο Μακεδονίας, 14-16 Μαρτίου 2014, Θεσσαλονίκη, πρακτικά ISBN: 978-618-81196-0-4, ISSN:1791-4280.
19. Τριανταφύλλου Α., Μουσιόπουλος Ν., Γκάρας Σ., Κρέστου Α., Ντούρος Ι., Διαμαντόπουλος Χ., Τσεκούρας Β., Ματθαίος Β, Σκόρδας Γ, Λειβαδίτου Ε., Τσέγας Γ., Φράγκου Ε., Παυλουδάκης Φ., Ανδρεάδου Μ., Κουρίδου Ο, 2014, « ΘΕΟΦΡΑΣΤΟΣ: Συντελεστές εκπομπής ΑΣχ – Διασπορά από διάχυτες πηγές των λιγνιτωρυχείων στη Δυτική Μακεδονία, 5ο Περιβαλλοντικό Συνέδριο Μακεδονίας, 14-16 Μαρτίου 2014, Θεσσαλονίκη, πρακτικά ISBN: 978-618-81196-0-4, ISSN:1791-4280
20. Triantafyllou A., Moussiopoulos N., Garas S., Krestou A., Douros I., Diamantopoulos Ch., Skordas J., Matthaïos V., Leivaditou H., Tsegas G., Fragkou E., Pavloudakis F., Andreadou M., and Kouridou O., 2015, "THEOPHRASTOS: PM_x Emissions factors - dispersion from fugitive dust sources in lignite mines of western Macedonia, Greece", Proceedings of the 14th International Conference on Environmental Science and Technology, Rhodes, Greece, 3-5 September 2015, CEST2015_00264.
21. Triantafyllou A.G, Krestou A., Leivaditou E., Bouris D., Zoumakis N., and Rados K., 2015 "Evaluation of a high resolution atmospheric urban - scale (canopy) model for energy applications in structured areas", Proceedings of the 14th International Conference on Environmental Science and Technology, Rhodes, Greece, 3-5 September 2015.
22. Triantafyllou A.G, Krestou A., Kalogiros J, Zoumakis N., Leivaditou E., Garas S., Konstantinidis E. and Rados K., 2015 "Comparison of mesoscale model with SODAR wind and radiometer temperature profiler measurements over an urban area", Proceedings of the 14th International Conference on Environmental Science and Technology, Rhodes, Greece, 3-5 September 2015.
23. Α. Κρέστου, Ι. Γκιόζης, Γ. Μαρούλης, Β. Κυριάκου, Κ. Τσανακτσίδης, Ν. Κυρατζής, «Παρασκευή και χαρακτηρισμός λεπτών κεραμικών υμενίων με τη μέθοδο της πυρόλυσης ψευκασμού», 11ο Πανελλήνιο Επιστημονικό Συνέδριο Χημικής Μηχανικής, 25-27 Μαΐου 2017, Θεσσαλονίκη.

24. Krestou A., Giozis I., Maroulis G., Kyriakou V., Tsanaktsidis ., Kiratzis N.E., (2017), “Fabrication of thin electrodic films by solution aerosol thermolysis (SAT)”, Proceedings of the 15th International Symposium on Solid Oxide Fuel Cells (SOFC-XV), July 23-28, 2017, Hollywood- Florida.
25. A. Krestou, I. Giozis, G. Maroulis, A. Barbatsis, C. Tsanaktsidis, V. Kyriakou and N. E. Kiratzis, (2018), “Morphological Investigation of Thin Ceramic Films by Solution Aerosol Thermolysis (SAT)”, 15^ο Πανελλήνιο Συμπόσιο Κατάλυσης, Ιωάννινα 18-20 Οκτωβρίου 2018.