

## Curriculum Vitae

([updated CV here](#))

### Giorgos Markou, PhD

Date of birth: 09-11-1977

Married with two children

email: [markoug@aua.gr](mailto:markoug@aua.gr)

**Agricultural University of Athens**, Department of Natural Resources Management and Agricultural Engineering, Iera Odos 75, 11855, Athens

### Member

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1. Editorial board of Algal Research (Impact Factor. 4.694, Elsevier).
2. Member of the COST Action (European Cooperation in Science and Technology), research group European Network for Algal by-products (ES1408).
3. Member of Hellenic Phycological Society

### EDUCATION

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March 2010 – March 2013: PhD. Agricultural University of Athens, Department of Natural Resources Management and Agricultural Engineering.

November 2007- November 2009- MSc in Energy Systems and Renewable Energy Sources (Agricultural University of Athens).

September 1995 – July 2003: Diploma in Agricultural Engineering, Agricultural University of Athens, Department of Crop Science.

1994 – 1995 General Greek Lyceum of Dortmund, Germany 1992 –

1994 General Lyceum of Elassona, Greece

## SCHOLARSHIPS

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**2015 –2016 (12 months):** FWO, Pegasus Marie Curie fellowship

**February 2010 – November 2012:** PhD scholarship of the Greek Scholarship Foundation.

**November 2007 – November 2008:** MSc scholarship of the Greek Scholarship Foundation.

## WORKING EXPERIENCE

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**2016 – till now:** Post-doctoral researcher at Agricultural University of Athens

**2015 – 2016 (12 months):** post doc fellow (Pegasus Marie Curie) in Biology, KU LEUVEN (KULAK)

**2014 –2015 (13 months):** Post-doctoral research fellow in National Agricultural Research Foundation (NAGREF, Greece)

**2014 –2014 (8 months):** Researcher at Agricultural University of Athens

**2013 –2014 (8 months):** independent researcher

**2010 –2013** PhD candidate and teaching assistant of the Laboratory of Agricultural Constructions of Agricultural University of Athens in the field of Management of Agricultural Wastes and Agricultural Constructions. Participation in several research projects.

**2007** Selected in the Agricultural registry office as Agricultural engineer assistant.

**2003 – 2008:** Self-employed in the field of agricultural engineering (research and constructions).

**June 1998 – August 1998:** practice in the Agricultural Co-operative of Rethymno, Crete.

**June 1997 – August 1997:** practice in the Agricultural Co-operative of Rethymno, Crete.

## TEACHING EXPERIENCE

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**2015 –2016** Participation on selected presentation and lectures on ecology and environment at KU Leuven, Belgium

**2010-2013** Teaching assistant and selected (invited) presentations and lectures in classes of the 3<sup>d</sup> semester Environmental Management and 7<sup>th</sup> semester Waste Management at Department of Natural Resources Management and Agricultural Engineering, Agricultural University of Athens

## LANGUAGES

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1. Greek (mother tongue)
2. English (Advanced, TOEFL score 900/990, C1)
3. German (Good, Goethe Institut, B2)

## THESES

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**MSc Thesis:** Anaerobic co-digestion of low solid swine wastewater and corn silage

**PhD Thesis:** Cultivation of the cyanobacterium *Arthrospira* (Spirulina) *platensis* under phosphorus limitation conditions for the accumulation of intracellular carbohydrates used for the production of biofuels (bio-methane and bio-ethanol).

## PUBLICATIONS

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### Book Chapters

- Muylaert, K., Beuckels, A., Depraetere, O., Foubert, I., **Markou, G.**, Vandamme, D. 2015. Wastewater as a Source of Nutrients for Microalgae Biomass Production. in: Biomass and Biofuels from Microalgae, (Eds.) N.R. Moheimani, M.P. McHenry, K. de Boer, P.A. Bahri, Vol. 2, Springer International Publishing, pp. 75-94.
- Martín-Juárez, J., **Markou, G.**, Muylaert, K., Lorenzo Hernando, A., Bolado-Rodriguez, S., Breakthroughs in bio-alcohol production from microalgae: Solving the hurdles (Forthcoming Elsevier book).
- Posadas, E., Alcántara, C., García-Encina, PA., Gouveia, L., Guieysse, B., Norvill, Z., Gabriel Acién, F., **Giorgos Markou**, Congestri, R., Koreivienė, J.,

and Muñoz, R., *Microalgae cultivation in wastewater* (Forthcoming Elsevier book).

### Publications in international peer-reviewed journals (Scientific Citation Index-SCI): Published

1. **Markou, G.**, Muylaert, K. (2016). Effect of light intensity on the degree of ammonia toxicity on PSII activity of *Arthrospira platensis* and *Chlorella vulgaris*. *Bioresource Technology*, 216, 453-461.
2. Cuellar-Bermudez, S. P., Aleman-Nava, G. S., Chandra, R., Garcia-Perez, J. S., Contreras-Angulo, J. R., **Markou, G.**, Muylaert, K., Rittmann, B. E. and Parra-Saldivar, R., (2016) Nutrients utilization and contaminants removal. A review of two approaches of algae and cyanobacteria in wastewater. *Algal Research* (In press).
3. **Markou, G.**, Depraetere, O., Muylaert, K. (2016). Effect of ammonia on the photosynthetic activity of *Arthrospira* and *Chlorella*: A study on chlorophyll fluorescence and electron transport. *Algal Research*, 16, 449-457.
4. Çelekli, A., Topyürek, A., **Markou, G.**, Bozkurt, H. (2016). A Multivariate Approach to Evaluate Biomass Production, Biochemical Composition and Stress Compounds of *Spirulina platensis* Cultivated in Wastewater. *Applied Biochemistry and Biotechnology*, 180 (4), 728–7391-12.
5. **Markou, G.**, Inglezakis, V.J., Mitrogiannis, D., Efthimiopoulos, I., Psychoyou, M., Koutsovitis, P., Muylaert, K., Baziotis, I. (2016). Sorption mechanism(s) of orthophosphate onto Ca(OH)<sub>2</sub> pretreated bentonite. *RSC Advances*, 6, 22295-22305.
6. **Markou G.**, Mitrogiannis D., Muylaert K., Çelekli, A., and Bozkurt, H. (2016). Biosorption and retention of orthophosphate onto Ca(OH)<sub>2</sub>-pretreated biomass of *Phragmites* sp., *Journal of Environmental Sciences*, 45, 49-59.
7. **Markou, G.**, Iconomou, D., Muylaert, K. (2016). Applying raw poultry litter leachate for the cultivation of *Arthrospira platensis* and *Chlorella vulgaris*. *Algal Research*, 13, 79-84
8. **Markou, G.**, Mitrogiannis M., Inglezakis V., Muylaert K., Koukouzas N., Tsoukalas N., Kamitsos E., Palles D., and Baziotis I., Ca(OH)<sub>2</sub> pre-treated bentonite for phosphorus removal and recovery from synthetic and real wastewater, *CLEAN – Soil, Air, Water* (Accepted for publication).
9. **Markou, G.**, Brule, M., Balafoutis, A., Kornaros, M., and Papadakis, G. (2016). Biogas production from energy crops in northern Greece: Economics of electricity generation associated with heat recovery in a greenhouse. *Clean Technologies and Environmentatl Policy* (Accepted for publication).
10. **Markou, G.**, Agriomallou, M., and Georgakakis D. (2016). Forced ammonia stripping from livestock wastewater: The influence of some physico-chemical

parameters of the wastewater, *Water Science and Technology* (Accepted for publication).

11. **Markou, G.** (2015). Improved anaerobic digestion performance and biogas production from poultry litter after lowering its nitrogen content, *Bioresource Technology.*, 193, 35-41.
12. **Markou, G.**, Iconomou, D., Sotiroudis, T., Israelides, C. and Muylaert K., (2015) Exploration of using stripped ammonia and ash from poultry litter for the cultivation of the cyanobacterium *Arthrospira platensis* and the green microalga *Chlorella vulgaris*, *Bioresource Technology* 196, 459-468
13. **Markou, G.** (2015). Fed-batch cultivation of *Arthrospira* and *Chlorella* in ammonia-rich wastewater: Optimization of nutrient removal and biomass production. *Bioresource Technology* 193, 35-41.
14. Khajepour, F., Hosseini, S., Ghorbani Nasrabadi, R., **Markou, G.** 2015. Effect of Light Intensity and Photoperiod on Growth and Biochemical Composition of a Local Isolate of *Nostoc calcicola*. *Applied Biochemistry and Biotechnology* 176 (8), 2279-2289
15. **Markou, G.**, Depraetere, O., Vandamme D. and Muylaert, K. (2015) Cultivation of *Chlorella vulgaris* and *Arthrospira platensis* with recovered phosphorus from wastewater by means of zeolite sorption, *International Journal of Molecular Science*, 16(2), 4250-4264.
16. Mitrogiannis, D., **Markou, G.**, Çelekli, A., Bozkurt, H. 2015. Biosorption of methylene blue onto *Arthrospira platensis* biomass: Kinetic, equilibrium and thermodynamic studies. *Journal of Environmental Chemical Engineering*, 3, 670-680.
17. Depraetere, O., Pierre, G., Deschoenmaeker, F., Badri, H., Foubert, I., Leys, M., Wattiez, M., Michaud, P., **Markou G.** and Muylaert, K. Harvesting carbohydrate-rich *Arthrospira platensis* by spontaneous settling, *Bioresource Technology* 180, 16-21.
18. Vandamme, D; Beuckels, A, **Markou, G.**; Foubert, I, Muylaert , K. Reversible flocculation of microalgae using magnesium hydroxide *Bioenergy Research* (In press)
19. **Markou, G.**, Mitrogiannis, D., Çelekli, A., Bozkurt, H., Georgakakis, D. and Chrysikopoulos, C. (2015) Biosorption of  $\text{Cu}^{2+}$  and  $\text{Ni}^{2+}$  by *Arthrospira platensis* with different biochemical compositions. *Chemical Engineering Journal* 259, 806-813.
20. **Markou, G.**, Vandamme, D. and Muylaert K. (2014) Microalgal and cyanobacterial cultivation: The supply of nutrients. *Water Research* 65, 186-202.
21. **Markou, G.**, Vandamme, D. and Muylaert K., (2014) Ammonia inhibition on *Arthrospira platensis* in relation to the initial biomass density and pH. *Bioresource Technology* 166, 259–265

22. **Markou, G.**, (2014) Effect of various colors of light-emitting diodes (LEDs) on the biomass composition of *Arthrospira platensis*. *Applied Biochemistry and Biotechnology* 172(5), 2758-2768
23. **Markou, G.**, Vandamme, D. and Muylaert K., (2014) Using natural zeolite for ammonia sorption from wastewater and as nitrogen releaser for the cultivation of *Arthrospira platensis*. *Bioresource Technology* 155(0), 373-378
24. **Markou, G.** and Georgakakis, D., (2013) Anaerobic mono- and co-digestion of maize silage and low solid swine wastewater in a novel two-state (liquid/solid) anaerobic digester. *Journal of Renewable and Sustainable Energy* 5, 05310
25. **Markou, G.** and Nerantzis, E., (2013) Microalgae for high-value compounds and biofuels production: A review with focus on cultivation under stress conditions. *Biotechnology Advances* 31(8), 1532–1542
26. **Markou, G.**, Angelidaki, I., Nerantzis, E. and Georgakakis, D., (2013) Bioethanol production by carbohydrate-enriched *Arthrospira (Spirulina) platensis*. *Energies* 6, 3937-3950
27. **Markou, G.**, Angelidaki, I. and Georgakakis, D., (2013). Carbohydrate-enriched cyanobacterial biomass as feedstock for bio-methane production through anaerobic digestion. *Fuel*, 111, 872–879
28. **Markou, G.**, Chatzipavlidis, I. and Georgakakis, D., (2012) Carbohydrates production and bio-flocculation characteristics in cultures of *Arthrospira (Spirulina) platensis*: Improvements through phosphorus limitation process. *Bioenergy Research*, 5(4), 915-925
29. **Markou, G.**, (2012) Alteration of the biomass composition of *Arthrospira (Spirulina) platensis* under various amounts of limited phosphorus. *Bioresource Technology* 116, 533–535
30. **Markou, G.**, Chatzipavlidis, I. and Georgakakis, D., (2012) Effects of phosphorus concentration and light intensity on the biomass composition of *Arthrospira (Spirulina) platensis*. *World Journal of Microbiology and Biotechnology*, 28(8), 2661-2670
31. **Markou, G.**, Angelidaki, I., and Georgakakis, D., (2012) Microalgal carbohydrates: an overview of the factors influencing carbohydrates production, and of main bioconversion technologies for production of biofuels, *Applied Microbiology and Biotechnology* 96(3), 631-645
32. **Markou, G.**, Chatzipavlidis, I. and Georgakakis, D., (2012) Cultivation of *Arthrospira (Spirulina) platensis* in olive-oil mill wastewater treated with sodium hypochlorite. *Bioresource Technology* 112:234–241
33. **Markou, G.** and Georgakakis, D., (2011) Cultivation of filamentous cyanobacteria (blue-green algae) in agro-industrial wastes and wastewaters: A review. *Applied Energy* 88 (10):3389-3401

### Publications in international peer-reviewed journals (non-Scientific Citation Index-SCI):

1. **Markou G.**, Georgakakis, D., Plagou, K., Salakou, G. and Christopoulou, N., (2010) Balanced waste management of 2- and 3-phase olive oil mills in relation to the seed extraction plant, *Terrestrial and Aquatic Environmental Toxicology* 4 (Special Issue 1):109-112

### Publications in national peer-reviewed journals:

1. **Markou, G.**, Tzovenis, I. and Nerantzis, E., (2013) Microalgae: Cultivation and applications (in Greek), *E-JST*, 1 (8): 2-29.
2. **Markou, G.** (2016) Treatment and valorization of poultry litter: A review, *E-JST*, 3(11):1-21

### Publication in conferences:

1. **Markou, G.**, 2015, Using ash and stripped ammonia from poultry litter for the cultivation of *Arthrospira (Spirulina) platensis* and *Chlorella vulgaris*, In: Proceedings of 9th Greek conference of EGME. Athens , Greece
2. Mitrogiannis, D and **Markou, G.**, 2015, Biosorption of phosphate from aqueous solutions on to  $\text{Ca(OH)}_2$  – pretreated dry biomass, In: Proceedings of 9th Greek conference of EGME. Athens , Greece
3. Drouga, M., **Markou, G.**, Gessouli, E., Vastaroucha, and Georgakakis D., 2015, Biogas production from dense liquid fractions of diluted solid agro-industrial wastes with provision for effluent handling, In: Proceedings of 9th Greek conference of EGME. Athens , Greece
4. **Markou, G.**, Brulle, M., Balafoutis, A., Georgakakis, D. and Papadakis, G., Energy-Crops based biogas plants in Greece: Economical comparison of maize and sweet sorghum silages used as feedstock, EUBCE 2015 - 23rd European Biomass Conference and Exhibition – Vienna, Austria; 06/2015
5. **Markou, G.**, Drouga, M., Georgakakis, D. 2011. Anaerobic process control during biogas production with the aid of b-value diagrams. In: Proceedings of 7th Greek conference of EGME. Athens , Greece
6. Drouga, M., **Markou, G.**, Georgakakis, D. 2011. Methane production models for mechanically separated effluents of livestock wastes and their mixtures with whey. In: *Proceedings of 7th Greek conference of EGME*. Athens , Greece.

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### BIBLIOMETRICS

#### [Taken from Google scholar](#)

Total citations: **741**

h-index **12**

i10-index 15

## RESEARCH PROGRAMS AND FUNDING SOURCES

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### Researcher in the following projects:

1. 2016-2017 (November 2016-February 2017): Work contract as an expert in the project: Technical Assistance for energy efficiency and sustainable transport in Cyprus, GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit ) + WIP GmbH, Germany and Ministry of Agriculture, Natural Resources and Environment, Republic of Cyprus.
2. 2015-2016. KU Leuven, Pegasus Marie Curie grant for the project “Production of carbohydrates for biofuel production by the cyanobacterium *Arthrospira platensis*: understanding the fundamental mechanisms that link nutrient stress with accumulation of carbohydrates”
3. 2014-2015. Post-doctoral fellow: Integrated treatment of poultry litter for the production of biogas and microalgal biomass (*Arthrospira* and *Chlorella*) used as poultry feed. NAGREF, AgroEtak.
4. 2014-2015. Site selection for the installation of a biogas plant in private properties of the public sector (ETAD) and description of the technical specifications of the biogas plant (contract nr. 73.00.00.34.0305).
5. 2011-2012. Research project: Utilization of the by-product from biodiesel production glycerol as substrate for microalgae cultivation (contract nr. 73.00.00.34.0239).
6. 2009-2010. Research project: Techno-economic evaluation of the production of combined heat and power (CHP) from the anaerobic co-digestion of animal manures and sweet sorghum.

## DISTINCTIONS AND AWARDS

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1. Markou, G., Georgakakis, D., (2011) Cultivation of filamentous cyanobacteria (blue-green algae) in agro-industrial wastes and wastewaters: A review. *Applied Energy* 88 (10):3389-3401 Top 25 hottest articles in Applied Energy (Elsevier) for the years 2011-2013
2. Markou, G. and Nerantzis, E., (2013) Microalgae for high-value compounds and biofuels production: A review with focus on cultivation under stress conditions. *Biotechnology Advances* 31(8), 1532–1542” 25 most downloaded articles in Biotechnology Advances (December 2013)
3. Markou, G., Vandamme, D. and Muylaert K. (2014) Microalgal and cyanobacterial cultivation: The supply of nutrients. *Water Research* 65, 186-202 Top 25 hottest articles in Water Research (July to December 2014)



4. Mitrogiannis, D., Markou, G., Çelekli, A., Bozkurt, H. 2015. Biosorption of methylene blue onto *Arthrospira platensis* biomass: Kinetic, equilibrium and thermodynamic studies. *Journal of Environmental Chemical Engineering*, 3, 670-680. [25 most downloaded articles in Journal of Environmental Chemical Engineering](#)

## REVIEWER

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### External reviewer for evaluation of research proposals:

1. Fondecyt, Fondo Nacional de Desarrollo Científico y Tecnológico, Chile, 2011
2. Fundação para a Ciência e a Tecnologia, Portugal, 2012
3. Fondazione Cariplo, Italy, 2015
4. Fondecyt, Fondo Nacional de Desarrollo Científico y Tecnológico, Chile, 2015
5. USDA (United States Department of Agriculture), National Institute of Food and Agriculture, USA, 2016

### Reviewer in journals:

1. *Algal Research* (Elsevier): 37 reviews
2. *Bioresource Technology* (Elsevier): 37 reviews
3. *Applied Phycology* (Springer): 11 reviews
4. *Applied Biochemistry and Biotechnology* (Springer): 6 reviews
5. *Biotechnology for Biofuels* (Springer): 6 reviews
6. *Journal of Environmental Management* (Elsevier): 6 reviews
7. *Fuel* (Elsevier): 5 reviews
8. *Energy Conversion and Management* (Elsevier): 5 reviews
9. *Ecological Engineering* (Elsevier): 4 reviews
10. *African Journal of Biotechnology* (Academic Journals): 3 reviews
11. *Environmental Technology* (Taylor and Francis): 4 reviews
12. *Water Research* (Elsevier): 4 reviews
13. *International Journal of Phytoremediation* (Taylor and Francis): 4 reviews
14. *Applied Microbiology and Biotechnology* (Springer): 3 reviews
15. *Agricultural Engineering International* (CIGR Journal): 3 reviews
16. *Bioresources* (North Carolina State University): 3 reviews
17. *Water Science and Technology* (IWA): 3 reviews
18. *Journal of Chemical Technology & Biotechnology* (Wiley): 3 reviews
19. *Chemical Engineering Journal* (Elsevier): 2 reviews
20. *Separation and Purification Technology* (Elsevier): 2 reviews
21. *Journal of the Taiwan Institute of Chemical Engineers* (Elsevier): 2 reviews
22. *Biotechnology Progress* (Wiley): 2 reviews

23. Energies (MDPI): 2 reviews
24. Desalination and Water Treatment (Taylor and Francis): 2 reviews
25. Sustainable Energy Technologies and Assessments (Elsevier): 2 reviews
26. Biofuels, Bioproducts & Biorefining (Wiley): 1 review
27. Biotechnology Journal (Wiley): 1 review
28. Chemical Engineering and Technology (Wiley): 1 review
29. Biomass and Bioenergy (Elsevier): 1 review
30. Critical Reviews in Biotechnology (Informa Healthcare): 1 review
31. ASABE Transactions (American Society of Agricultural and Biological Engineers): 1 review
32. African Journal of Microbiology Research (Academic Journals): 1 review
33. African Journal of Biotechnology (Academic Journals): 1 review
34. Journal of Renewable and Sustainable Energy (American Institute of Physics): 1 review
35. Brazilian Journal of Chemical Engineering (SciELO): 1 review
36. Energy and Fuels (ACS Publications): 1 review
37. Poultry, Fisheries & Wildlife Sciences (Omics Publishing Group): 1 review
38. International Research Journal of Pure and Applied Chemistry (ScienceDomain International): 1 review
39. Bulgarian Chemical Communications (Institute of Chemical Engineering-BAS): 1 review
40. Journal of Scientific Research (BanglaJOL): 1 review
41. Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources (CAB Reviews): 1 review
42. Engineering in Life Sciences (Wiley): 1 review
43. Brazilian Journal of Botany (Springer): 1 review
44. Journal of Microbiology, Biotechnology and Food Sciences (Nitra, Slovakia): 1 review
45. Journal of Agricultural Engineering and Biotechnology (Bowen Publishing): 1 review
46. Materials (MDPI): 1 review
47. Asia-Pacific Journal of Chemical Engineering (Wiley): 1 review
48. Waste Management (Elsevier): 1 review
49. Applied Bioenergy (De Gruyter): 1 review
50. Annals of Marine Biology and Research (JSciMed Central): 1 review
51. Canadian Journal of Chemical Engineering (Wiley): 1 review
52. Journal of Cleaner Production (Elsevier): 1 review
53. International Journal of Molecular Science: 1 review
54. Journal of Photochemistry and Photobiology B: Biology (Elsevier): 1 review
55. Bioengineering (AIMS): 1 review
56. Industrial & Engineering Chemistry Research (ACS Publications) : 1 review
57. Environmental Engineering Science (Mary Ann Limbert Inc.): 1 review
58. International Journal of Energy Research (Wiley): 1 review
59. Preparative Biochemistry & Biotechnology(Taylor and Francis): 1 review

60. Electronic Journal of Biotechnology (Elsevier): 1 review
61. Waste and Biomass Valorization (Springer): 1 review
62. Canadian Journal of Microbiology (NRC): 1 review
63. Green Processing and Synthesis (De Gruyter): 1 review
64. Waste and Biomass Valorization (Springer): 1 review
65. Journal of Structural Biology (Elsevier): 1 review
66. Resource-Efficient Technologies (Elsevier): 1 review
67. Journal of Food Science and Technology (Springer): 1 review
68. Journal of Food Quality (Hindawi-Wiley): 1 review
69. Journal of the Total Environment (Elsevier): 1 review
70. Annals of Agricultural Science (Elsevier): 1 review
- 71.

### Reviewer in Books

1. Recent Advances in Microalgal Biotechnology, Editors Dr. Jin Liu, Dr. Zheng Sun and Dr. Henri Gerken, OMICS Group International - Open Access eBooks. Reviewed 2 chapters
2. Studies in Natural Products Chemistry (Bioactive Natural Products), Editor, ATTA-UR-RAHMAN, ELSEVIER SCIENCE PUBLISHERS – AMSTERDAM

### Conference Reviewer

1. 18th World Congress of CIGR, 16-19, September 2014
2. International Conference on Material Technology and Environmental Engineering (MTEE 2015)
3. 9<sup>th</sup> conference of the Greek Association of Agricultural Engineers 8-9 October 2015
4. 3d International Conference on Residuals and Environment (ICRSE 2016), China