

CURRICULUM VITAE

FULL NAME

ELENI KASTANAKI

PERSONAL INFORMATION

- Place and date of birth: Chania, Crete, 26-11-1975
- Marital status: Married, 2 children
Address 1: Technical University of Crete, Department of Environmental Engineering, Chania 73100, Crete, Greece
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EDUCATION

- 1999-2002: Master of Science in Environmental Management and Quality Control, Interdepartmental Graduate Studies Program, Technical University of Crete, grade 9.31/10.
- 1993- 1999: Diploma in Chemical Engineering, Department of Chemical Engineering, National Technical University of Athens, Athens, Greece. Diploma grade 7.42/10.

RESEARCH AREAS OF INTEREST

- Energy, energy recovery from waste, process optimization for waste conversion, pyrolysis, combustion, lignite, biomass, thermogravimetry, thermogravimetry - mass spectrometry (TG-MS), modeling, bio-fuels, analytical methods, microextraction, calorific value measurements and Elemental Analysis of solid samples, Eco-toxicity and phytotoxicity tests.

THESIS-Research results

- 1998-1999, Diploma Thesis (grade 10/10): «Paper pulp leaching by biological means», NTUA. The diploma thesis was carried out at the Laboratory of Biosystems Technology, under the supervision of Associate Professor Mr. D. Kekos. The activity and properties of alkaline enzyme xylanase produced from bacterium *Bacillus pumilus* were determined. Moreover, at the Laboratory of Organic Chemical Technology, under the supervision of Professor Mr. E. G. Koukios, paper pulp was prepared from straw using the ORGANOSOLV method and the activity of xylanase on the paper bleaching was estimated.
- 2000-2002, Master Diploma Thesis (grade 10/10): «Kinetic studies of biomass and biomass mixtures with lignite pyrolysis», Technical University of Crete. The thesis was carried out at the Laboratory of Solid Fuel Beneficiation and Technology, under the supervision of Assistant Professor Mrs. D. Vamvuka

- 2001-2003, Development of model of kinetic analysis for solid fuel combustion reactions in the framework of the European Research Programme "Evaluation of the Combustion and Emissions Performance of Biomass Residual Fuels" (Program ENERGY, Financed by E.C., 2000-2003). Fuel burning was considered as a two-step process: pyrolysis of the fuel and char burning. The model considers the conversion of a fuel as the summation of partial reactions, which are parallel and independent. Pyrolysis is sufficiently modeled by first-order reactions, while combustion is modeled by n^{th} order reactions ($n \neq 1$). In case of combustion process additional assumptions are: (1) chars may be composed of parts with different properties and (2) the reactivity of a unit surface may vary as the sample is burning out.
- 2005 Work on the system interface of thermogravimetric analyzer to mass spectrometer in order to study gases escaping from sample thermal stress (Detection of escaping gases).
- 2006 Development of liquid phase microextraction method using tubular membrane for the detection and measurement of organochlorinated compounds by GC-ECD analysis. Optimization of parameters affecting the extraction using half fractional factorial design for six parameters in 2 levels (2^{6-1}) supported by table ANOVA.
- 2007 Real river water samples analysis with SPME fiber and GC-MS analysis.
- 2011-2012 Calorific value measurements and Elemental Analysis of solid samples. Eco-toxicity and phytotoxicity tests.
- 2013 Development of GC-MS method for PAH analysis in various matrices.

AWARDS

- 1996, (1/7-1/8): Financial award for practical training at the Institute of Colors and Plastics INSTYTUT PREMYSLU I FARB in Poland on the « Quality testing methods of colors and plastics» .
- 1997 (1/10-30/11): Financial award for practical training at the laboratory of UNIVERSITAT HALLE-WITTENBERG in Germany on «Testing properties of thermally unstable substances».
- 1999-2000: Financial award within the framework Graduate Studies Program in Environmental Management and Quality Control, Technical University of Crete.
- 2004(1/9-1/12): Marie Curie Fellow Scholarship at ENEL Training Site, Pisa, Italy, ("Marie Curie" Actions of the European Sixth Framework Program, EU contract ENK6-CT-2000-57117
- 2007 (23-27/4) Marie Curie Training Course, «STaR City of the Future», "Hydrogen Society" at Lago Maggiore Italy.

PROFESSIONAL EXPERIENCE

- 2011-present: Research Associate in the Laboratory of Toxic and Hazardous Waste Management, Department of Environmental Engineering, Technical University of Crete. Activities: Laboratory and educational work in the following courses Undergraduate Program:
 - "Municipal Solid Waste Management and Design"
 - "Treatment and Management of Toxic and Hazardous Waste"
- 2006-2007: Research Fellow at the European program: Envifriendly, LIFE, Environment 2005, "Non-point source pollution, monitoring & development of reduction strategies". Activities: Analysis of river water samples with SPME fiber and GC-MS analysis. Laboratory of Aquatic Chemistry, Department of Environmental Engineering
- 2006: Research associate in the program EPEAEK II-Pythagoras II, Ministry of Education 2005-2006, "Use of Novel Techniques for Measuring Alkyl Phenols that Cause Endocrine Disruptions". Activities: Development liquid phase microextraction method using tubular membrane for the detection and measurement of organochlorinated compounds with GC-ECD analysis. Laboratory of Aquatic Chemistry, Department of Environmental Engineering
- 2000-2006: Scientific research assistant in the Laboratory of Solid Fuel Beneficiation and Technology, Technical University of Crete, in the context of the following lectures: Applied Fluid Mechanics (1 semester), New Technologies on Coal Exploitation for Energy Production, Coal Beneficiation Technology.
- 2000-2002: Teaching assistant στο Technical Institute of Crete, Department of Natural Resources and Environment. Teaching of Technical Thermodynamics.
- 2001-2003: Researcher within the Framework of the European Project "Evaluation of the Combustion and Emissions Performance of Biomass Residual Fuels". ENERGY, Financial support: EC, 2000-2003). I worked on modeling pyrolysis and combustion processes of biomass materials, lignite, coal and their mixtures in a Thermogravimetric Analysis System TGA.
- Scientific assistant within the Framework of the Program EPEAEK II- Reforming of teaching program of the Department Mineral Resources and Engineering (ΕΠΕΑΕΚ, ΥΠΕΠΘ, 2003-2005.

JOURNAL PUBLICATIONS

1. E. Kastanaki, D. Vamvuka, P. Grammelis, E. Kakaras, "Thermogravimetric Studies of the Behavior of Lignite- Biomass blends during devolatilization", Fuel Processing Technology 77-78 (2002) 159-166. [IMPACT FACTOR: 1.149]
2. D. Vamvuka, N. Pasadakis, E. Kastanaki, P. Grammelis and E. Kakaras, "Kinetic modeling of coal/agricultural by-product blends", Energy and Fuels, 17 (2003) 549-558. [IMPACT FACTOR: 1.1344]
3. D. Vamvuka, E. Kakaras, E. Kastanaki and P. Grammelis, "Pyrolysis characteristics and kinetics of biomass residuals mixtures with poor coal", Fuel, 82 (2003) 1949-1960. [IMPACT FACTOR: 1.1368]
4. D. Vamvuka, E. Kastanaki and M. Lasithiotakis, "Devolatilization and combustion kinetics of

- low-rank coal blends from dynamic measurements", Industrial and Engineering Chemistry Research, 42 (2003) 4732-4740. [IMPACT FACTOR: 1.424]
5. D. Vamvuka, E. Kastanaki M. Lasithiotakis and C. Papanicolaou, "Combustion behavior of xylite/ lignite mixtures", Carbon, 42 (2004) 351-359. [IMPACT FACTOR: 3.331]
 6. E. Kastanaki, D. Vamvuka, "A comparative reactivity and kinetic study on the combustion of coal-biomass char blends", Fuel 85 (2006) 1186-1193.
 7. D. Vamvuka, S.Troulinos, E. Kastanaki, "The effect of mineral matter on the physical and chemical activation of low rank coal and biomass materials", Fuel 85 (2006) 1763-1771.
 8. D. Vamvuka, N. Salpigidou, E. Kastanaki and S. Sfakiotakis "Possibility of using paper sludge in co-firing applications" , Fuel 88 (April 2009) 637-643.

PUBLICATIONS IN INTERNATIONAL SCIENTIFIC CONFERENCES

1. E. Kastanaki, D. Vamvuka, P. Grammelis and E. Kakaras, "Thermogravimetric studies of the behaviour of lignite/biomass blends during devolatilization", Proceedings of the 4th International Symposium on Coal Structure 2002, Structure and Reactivity of Carbonaceous Materials, Gliwice, Poland, 7-10 July Proceedings of the 4th International Symposium on Coal Structure 2002, Structure and Reactivity of Carbonaceous Materials, Gliwice, Poland, 7-10 July, Fuel Processing Technology, Vol.77-78, p.159-166.
2. D. Vamvuka, E. Kastanaki, P. Grammelis and E. Kakaras, "Pyrolysis characteristics and kinetics of biomass residuals by thermogravimetry", Proceedings of the 4th U.K. Conference on Coal Research and its Applications, Imperial College, London, 16-18 September 2002.
3. E. Kastanaki, P. Grammelis, D. Vamvuka and E. Kakaras, "A comparison of the combustion reactivity of biomass, hard coal and lignite chars", Proceedings of the European Combustion Meeting under the auspices of the Federation of the European Sections, Orléans, France, 25-28 October 2003.
4. D. Vamvuka, E. Kastanaki, E. Kakaras and P. Grammelis, "Combustion reactivity and ash related properties of coal-wood mixtures", 3rd Meeting of the Greek Section of the Combustion Institute, University of Patras, 7-8 Nov., 2003.
5. E. Kastanaki, P. Salatino, O. Senneca, D. Vamvuka, "Thermogravimetric Study of Thermal and Oxidative Processes of a Low Rank Greek Coal", Joint meeting of the Greek and Italian Sections of The Combustion Institute, June 17-19 2004, Corfu Greece.
6. E. Kastanaki, N.P. Nikolaidis and E. Psillakis, "Hollow Fibre Liquid Phase Microextraction of Selected Organochlorine Pesticides" 10th International Conference on Environmental Science and Technology, 5-7 September 2007, Kos Island, Greece.

LANGUAGES

- Excellent knowledge of Greek (mother language).
- Excellent knowledge of English (CERTIFICATE OF PROFICIENCY IN ENGLISH OF CAMBRIDGE, GRADE B)
- Little knowledge of German and Italian