

# C U R R I C U L U M V I T A E



## PERSONAL INFORMATION

<b>Name</b>	<b>Mavridou Sofia</b>
<b>Address</b>	<b>Likoudi 49, 55132, Thessaloniki, Greece</b>
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<b>E-mail address</b>	<b>mavridou_s@yahoo.gr, smavridou@uowm.gr</b>
<b>Nationality</b>	Greek
<b>Date of birth</b>	December 20, 1982
<b>Marital status</b>	Married

## EDUCATION AND TRAINING

- Dates (from – to) **2006 - 2013**
- Organization University of Western Macedonia, Department of Mechanical Engineers
- Purpose PhD Thesis
- PhD title “Numerical and Experimental Study of Fluid Flow, Heat Transfer and Particle Deposition Phenomena in Model Heat Exchangers”

The dissertation considers the technological problem of gas side particulate fouling that seriously affects the operation of heat exchanger tube bundles in cross-flow. Aiming to optimize the heat exchanger process, including fouling rate reduction with potential heat transfer enhancement and low pressure drop, a passive technique for flow control during the design stage of the heat exchanger is developed. The implementation of a novel tube bundle configuration is suggested consisting of cylinders of different diameter ( $d/D=0.5$ ) in cross-flow,

placed alternately in tandem arrangement, at longitudinal and transverse pitches 1.5D and 3.6D respectively.

Numerical studies with Large Eddy Simulation (LES) and experimental measurements using a water circuit/wind tunnel rig showed that, compared to a common tube bundle arrangement with cylinders of an identical diameter, the suggested tube bundle configuration leads to specific (per unit volume) heat transfer enhancement by 30-40% and reduces the particle deposition rates by 30% with a negligible penalty in pressure drop.

- Dates (from – to) **2000 - 2005**
  - Organization University of Western Macedonia, Department of Mechanical Engineers
  - Purpose Diploma of Engineering and Management of Energy Resources  
Degree: 7.26 (Very Well)  
Course Direction: “Energy Design of Buildings and Structured Areas”
  - Title of the “Numerical studies on Greenhouses Heating”  
Diploma Project
- The commercial Computational Fluid Dynamics program CFX has been used in order to study heat flow phenomena caused by the heating system operation in a greenhouse.
- Degree: 10

## **WORK EXPERIENCE**

- Dates (from – to) **01/10/09 - 12/02/10 and 01/05/09 - 03/07/09**
  - Organization Technological Educational Institute of Western Macedonia
  - Employment Laboratory Collaborator in courses “Environmental Ethics and Training” and “Pollution Installations’ Machinery”
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- Dates (from – to) **19/07/04 - 27/08/04**
  - Organization SIDENOR S.A.
  - Employment “Ladle furnace and continuous casting machine: record of the procedures and analysis of the factors affecting the quality of the semi-final products”.  
Intern.

## **RESEARCH EXPERIENCE**

- Dates (from – to) **2007 - 2008**
- Organization University of Western Macedonia, Department of Mechanical Engineers
- Project “Numerical and experimental study of the flow in heat exchangers”.

A part of the project “Development of modern methods for the analysis and optimization of energy production processes in thermoelectric plants in order to save energy and reduce pollutants”.

(3<sup>rd</sup> Peripheral Operational Plan of Western Macedonia)

Heat exchanger tube bundle arrangements for fouling minimization were proposed.

- Dates (from – to) **2006**
- Organization University of Western Macedonia, Department of Mechanical Engineers
- Project “Preliminary sizing of a heat exchanger used to recover exhaust gas heat from diesel truck applications”.

Collaboration with National Technical University of Athens,  
Department of Mechanical Engineers.

TIP4-CT-2005-516195, EU-Project “Green Heavy Duty Engine”.

Conventional heat exchangers were sized and alternative compact arrangements were proposed.

## **PERSONAL SKILLS**

- MOTHER LANGUAGE Greek
- OTHER LANGUAGES English (National Certificate in English, Level C1 (Advanced), 2008)
- TECHNICAL SKILLS E.C.D.L. (2004),  
P/C designing program AutoCAD,  
CFD program CFX
- OTHER SKILLS Playing the piano, (Class Middle 1)

## **DRIVING LICENSE**

Category B (passenger vehicles)

## **ATTENDANCE IN TRAINING**

### **CONFERENCES-COURSES**

- Dates (from – to) **09/02/2011 – 14/02/2011**
- Title “Writing an energy study for a building according to the Energy Efficiency Regulation”  
(Technical Chamber of Greece)
- Location Kozani, Greece
  
- Dates (from – to) **05/12/09 – 06/12/09**
- Title “1<sup>st</sup> Meeting of Bioxorio, Sustainable Design”
- Location Kozani, Greece
  
- Dates (from – to) **19/10/09 – 27-10-09**
- Title “Energy Saving – Energy Efficiency of Buildings. From theory to practise with the implementation of European methods and software for the optimization of the energy efficiency of buildings”.  
(Technical Chamber of Greece)
- Location Kozani, Greece
  
- Dates (from – to) **06/11/02 – 08/11/02**
- Title “Renewable Energy”, 7<sup>th</sup> National Conference of the Institute of Solar Technology
- Location Patra, Greece
  
- Dates (from – to) **18/04/02 – 20/04/02**
- Title “Energy 2002”, Pre-Conference in Euboea Halkida, Greece
- Location Halkida, Greece

**PRESENTATIONS-  
PUBLICATIONS  
IN CONFERENCE  
PROCEEDINGS**

1. S. Mavridou, D. Bouris (2010). “Numerical Study of a Novel Heat Exchanger for Fly Ash Fouling Reduction”, Proceedings ROH 2010, 7<sup>th</sup> National Conference for Research Activities in Fluid Flow in Greece, Thessaloniki, 12-13 November.
2. A. Kopanidis, S. Mavridou, K. Ordoumpozanis, M. Petridou, Th. Theodosiou, D. Bouris (2008). “Development of Facilities and Activity in Research and Design of Thermal Environment”, Proceedings ROH 2008, 6<sup>th</sup> Meeting for Research Activities in Fluid Flow Phenomena in Greece, University of Western Macedonia, Kozani, Greece, 28<sup>th</sup> November.
3. S. Mavridou, D. Bouris (2008). “Large Eddy Simulation of the Flow and Heat Transfer Past Two Cylinders of Different Diameter”, 3<sup>rd</sup> IC-SCCE Conference, Athens, Greece, 9-12 July.

**PUBLICATIONS  
IN SCIENTIFIC JOURNALS**

1. S. Mavridou, D. Bouris (2012). “Numerical Evaluation of a Heat Exchanger with Inline Tubes of Different Size for Reduced Fouling Rates”, Int. Journal of Heat and Mass Transfer, 55, 19-20, pp.5185-5195
2. S. Mavridou, G.C. Mavropoulos, D. Bouris, D.T. Hountalas, G. Bergeles (2010). “Comparative Design Study of a Diesel Exhaust Gas Heat Exchanger for Truck Applications with Conventional and State of the Art Heat Transfer Enhancements”, Applied Thermal Engineering, 30, 8-9, 935-947.