

# EUROPEAN CURRICULUM VITAE



## PERSONAL DETAILS

**Name** VERNARDOU, DIMITRA

**E-mail** [dvernardou@hmu.gr](mailto:dvernardou@hmu.gr)

**Nationality** Greek

**Date of birth** 01.03.1979

**Marital status** Married

## EDUCATION

### 11/2001 – 03/2005

University of Salford, Institute for Materials Research, Manchester, United Kingdom in collaboration with University College of London (UCL, United Kingdom) and Pilkington Glass (United Kingdom)

Deposition of thermochromic vanadium dioxide thin films using a home-made APCVD (Atmospheric Pressure Chemical Vapour Deposition), Liquid-Injection MOCVD (Metalorganic CVD) and combustion CVD (CCVD) on SiO<sub>2</sub> - precoated glass (Pilkington, UK), soda lime glass (J. B. Treasures, UK) and SiO<sub>2</sub> - precoated glass by CCVD reactor studying two different chemical systems, VCl<sub>4</sub> / H<sub>2</sub>O and VO(acac)<sub>2</sub> in the presence of O<sub>2</sub>. Characterization of the samples was performed using X-ray diffraction, Raman spectroscopy, UV-vis transmittance and reflectance spectroscopy, Scanning electron microscopy, Atomic force microscopy, Rutherford backscattering spectroscopy, X-ray photoelectron spectroscopy and in-situ monitoring experiments during the reaction of the precursor systems in the APCVD reactor using Fourier Transform Infrared Spectroscopy.

### **PhD in Physical Chemistry**

### 10/2000 – 10/2001

UMIST, Manchester Materials Science Centre, Manchester, United Kingdom

Main modules: Polymer Chemistry, Polymer Physics and Polymer Processing

Dissertation on Crosslinking of polyolefin foams, study of crosslinking systems based on dicumyl peroxide (DCP) and DCP with triallylcyanurate (TAC)

### **MSc in Polymer Science and Technology**

### 09/1997 – 06/2000

University of Salford, Institute for Materials Research, Manchester, United Kingdom

Main modules: Analytical, organic, inorganic and physical chemistry, geochemistry, principles of photochemistry, atmospheric chemistry and laboratories in organic, inorganic and physical chemistry

Final year project on separation of metal ions

### **BSc in Chemistry**

## ACADEMIC APPOINTMENTS

**01/03/2006 – 17/02/2012**

*Visiting Assistant Professor*

University of Crete, Department of Materials Science and Technology, 710 03 Heraklion, Crete, Greece

**26/09/2005–Today**

*Adjunct Professor*

Technological Educational Institute of Crete, Science Department, School of Applied Technology, 710 04 Heraklion, Crete, Greece

**10/2001 – 5/2004**

*Adjunct Lecturer*

University of Salford, Institute for Materials Research, Manchester, United Kingdom

## RESEARCH APPOINTMENTS

**01/10/2006 – Today**

*Research Fellow*

Technological Educational Institute of Crete, Center of Materials Technology and Photonics, School of Engineering, 710 04 Heraklion, Crete, Greece

**01/04/2005 – 31/12/2005**

*Research Scientist*

Foundation for Research and Technology–Hellas, Institute of Electronic Structure and Laser, P.O. Box 1527, 711 10 Heraklion, Crete, Greece

## TEACHING

### I. University of Crete

<i>Academic year</i>	<i>Fall semester</i>	<i>Spring semester</i>
<b>2006-2009</b>	-	Laboratory of Hard Materials
<b>2009-2012</b>	Structural and Chemical Analysis of Materials	Laboratory of Hard Materials

### II. TEI of Crete

<i>Academic year</i>	<i>Fall semester</i>	<i>Spring semester</i>
<b>2005-2006</b>	Laboratory of Mechanical Materials Technology	Laboratory of Mechanical Materials Technology
<b>2006-2007</b>	a. Laboratory of Mechanical Materials Technology b. Laboratory of Chemical Technology	Laboratory of Mechanical Materials Technology
<b>2008-2009</b>	Laboratory of Mechanical Materials Technology	Laboratory of Mechanical Materials Technology
<b>2009-2010</b>	a. Laboratory of Mechanical Materials Technology b. Laboratory of Structural Materials Technology c. Laboratory of Electrochemistry	a. Laboratory of Mechanical Materials Technology b. Laboratory of Structural Materials Technology c. Laboratory of Electrochemistry
<b>2010-2011</b>	a. Laboratory of Mechanical Materials Technology b. Laboratory of Structural Materials Technology	a. Laboratory of Mechanical Materials Technology b. Laboratory of Structural Materials Technology
<b>2011-2012</b>	Laboratory of Mechanical Materials Technology	-
<b>2012-2019</b>	a. Laboratory of Mechanical Materials Technology b. Laboratory of Electrochemistry	Chemical & Environmental Technology

### III. Hellenic Mediterranean University

<b>Academic year</b>	<b>Fall semester</b>	<b>Spring semester</b>
<b>2019-2020</b>	a. Electrotechnical Materials I b. Materials Technology – Electrochemistry	a. Environmental Chemistry b. Chemical & Environmental Technology

### IV. University of Salford

<b>Academic year</b>	<b>Fall semester</b>	<b>Spring semester</b>
<b>2001-2004</b>	Laboratory of Organic Chemistry Laboratory of Inorganic Chemistry	Laboratory of Physical Chemistry

## TEACHING NOTES

1. *Laboratorial exercise on Mechanical Properties of Materials (Laboratory of Mechanical Materials Technology)*, Department of Mechanical Engineering, TEI of Crete, 2009.
2. *Structural and Chemical Analysis of Materials*, Department of Materials Science and Technology, University of Crete, 2009.
3. *Chemical and Environmental Technology*, Department of Mechanical Engineering, TEI of Crete, 2018.

## STUDENT SUPERVISION

### Final year projects

- 1) "Electrochemical study nanocomposite materials as electrodes for Li-ion batteries", V. **Logotheti**.
- 2) "Electrochemical study of all-inorganic perovskite based on aqueous electrolyte as an anode for Li-ion batteries", D. **Makri**.
- 3) "Electrochemical study of APCVD V<sub>2</sub>O<sub>5</sub> as a cathode for Mg-ion batteries", G. **Astrinakis**.
- 4) "Electrochemical study of Fe<sub>3</sub>O<sub>4</sub> and Nb<sub>2</sub>O<sub>5</sub> coatings for capacitors", I. **Marathianou**.
- 5) "Electrochemical study of vanadium oxide layers for capacitors", M. **Rasoulis**.
- 6) "Electrochemical study of APCVD vanadium oxides as electroactive layers towards their application in capacitors", A. **Bei**.
- 7) "A comparative study among inorganic, organic and hybrid solar cells and their accession in Greece's energy system" D. **Barbaris**.
- 8) "Electrochemical study of vanadium oxide coatings for capacitors", S. **Nikolaidis**.
- 9) "Electrochemical study of vanadium oxide coatings for capacitors", A. **Samiotis**.
- 10) "Al and Cr depositions by spray plasma technology", C. **Mixalostamou**.
- 11) "Chemical deposition of nanostructured layers", M. **Sifakis**.
- 12) "Growth of vanadium oxide by chemical processes with controlled structural and morphological characteristics for energy applications", A. **Sarris**.
- 13) Co-supervision with Dr. E. Spanakis "Effect of pH solution on the vanadium oxide properties for energy applications", M. **Apostolopoulou**
- 14) "Characterization of hydrothermally grown electroactive WO<sub>3</sub>", K. **Christou**.
- 15) "Electrochemical characterization of vanadium oxide grown on various conductive substrates by electrodeposition", M. **Veziri**.
- 16) "Electrical energy storage", A. **Kontzos**.
- 17) "Nanotechnology and applications on energy", M. **Tranta**.
- 18) "Electrodeposition of vanadium oxide and study of its properties for electrochromic application", A. **Sapountzis**.
- 19) "Electrochemical and photocatalytic properties of WO<sub>3</sub>, TiO<sub>2</sub>, VO<sub>x</sub> layers grown by solution process at 95 °C", S. **Anastasaki**.
- 20) "Deposition and characterization of TiO<sub>2</sub>, V<sub>2</sub>O<sub>5</sub> and WO<sub>3</sub> for electrochromic applications", C. **Drosos**.
- 21) "Electrochemical characterization of WO<sub>3</sub> and V<sub>2</sub>O<sub>5</sub> prepared by chemical route", G. **Antoniou** and K. **Doumouziaris**.
- 22) "Renewable technology and its applications in Greece", F. **Fragopoulos**.
- 23) "Indoor air quality technologies", K. **Sfyropoulos**.
- 24) "Basic principles and advantages of a bioclimatic houses", N. **Niotis**.
- 25) Co-supervision with Dr. E. Spanaki "Deposition of WO<sub>3</sub> layers for smart window", G. **Filippou**.
- 26) "Electrochemical properties of TiO<sub>2</sub>, ZnO and TiO<sub>2</sub>/ZnO layers grown by solution process at 95 °C", T. **Kiriazidis**.
- 27) "Smart windows for saving energy-Environmental, financial and social benefit", G. **Manes**.
- 28) "Deposition of WO<sub>3</sub> layers and study of their photocatalytic response", E. **Nikiforaki**.
- 29) "Solution growth of TiO<sub>2</sub> layers with improved structural and optical characteristics", A. **Stefanakis**.
- 30) "Deposition and study of thermochromic properties of V<sub>n</sub>O<sub>2n-1</sub> layer", M. **Zaimaki**
- 31) "Solution growth and study of the hydrophilic and electrical properties of ZnO layer", K. **Rizos**.
- 32) "Solution growth and study of the hydrophilic properties of TiO<sub>2</sub> layers", K. **Vlachou**.

33) "Hydrophilic and photocatalytic response of solution grown TiO<sub>2</sub> layer", **G. Kalogerakis**.

#### **Workplacements**

- 1) "Deposition of V<sub>2</sub>O<sub>5</sub> layers by atmospheric pressure chemical vapor deposition and their characterization (structural, optical, morphological and electrochemical)", **P. Paterakis**.
- 2) Co-supervision with Professor N. Katsaraki "Parametric study of chemically grown vanadium oxide and its electrochemical characterization", **C. Drosos**
- 3) "Parametric study of the electrodeposited vanadium oxide and its characterization (optical, morphological and electrochemical)", **A. Sapountzis**.
- 4) "Electrochemical characterization of metal oxides", **I. Pappa**.

#### **Master dissertations**

- 1) Co-supervision with Professor N. Katsaraki "Development of an atmospheric pressure chemical vapor deposition system and deposition of vanadium oxides for applications on smart windows", **G. Papadakis**.
- 2) "Preparation of titanium dioxide (TiO<sub>2</sub>) at low temperatures and study of its photocatalytic performance for the decomposition of methylene blue' in which I supervised the preparation and characterization of the titanium dioxide powders", **A. Psaroudakis**.

#### **PhD dissertation**

Co-supervision with Professor E. Koudouma "Development and study of advanced chromic coatings and devices for applications in "smart windows", **D. Louloudakis**.

## **PERSONAL SKILLS AND COMPETENCES**

#### **PRIZES – DISCRIMINATIONS**

**15/07/2013-19/07/2013**

CrystEngComm Poster Prize at International Conference on Advanced Complex Inorganic Nanomaterials.

**05/05/2004**

Second prize on Physical Chemistry in 21<sup>st</sup> Greater Manchester Prize Colloquium competition organized by RSC (Royal Society of Chemistry).

**11/2001-11/2004**

Engineering and Physical Sciences Research Council (EPSRC) scholarship for the completion of the PhD.

#### **TECHNICAL SKILLS AND COMPETENCES**

Windows XP and 2000. (Microsoft Word, Excel, PowerPoint and Microsoft Visio. Casa XPS and Quark simulation).

#### **MEMBERSHIP**

Association of Greek Chemists  
Institute of Physics, United Kingdom  
American Nano Society  
International Society of Electrochemistry  
Royal Society of Chemistry

#### **SPECIAL REPORT**

- 1) <https://reginnovations.org/key-scientific-articles/a-study-of-the-electrochemical-performance-of-vanadium-oxide-thin-films-grown-by-atmospheric-pressure-chemical-vapour-deposition/>
- 2) <https://reginnovations.org/key-scientific-articles/field-emission-properties-of-low-temperature-hydrothermally-grown-tungsten-oxide/>
- 3) Heraklion Chamber pressmagazine December 2010, "Smart windows for energy efficiency".
- 4) TEI of Crete pressmagazine March 2010, "Large area coatings for solar energy efficiency".
- 5) <https://www.chemistryworld.com/news/chemical-vapour-deposition-makes-glass-smarter/3000860.article>

## **RESEARCH INTERESTS / SKILLS**

#### **TOPICS**

Chemical synthesis and characterization of nanostructured metal oxides (thin films, powders)  
Controlled nanostructured metal oxide synthesis via atmospheric pressure chemical vapour deposition, hydrothermal growth and electrodeposition  
Synthesis of nanostructured metal oxide on flexible and rigid surfaces  
Surface modification

Smart and functional metal oxides for environmental and energy applications (self-cleaning, photocatalysis, electrochromics, thermochromics, batteries and capacitors)

#### TECHNIQUES

X-ray diffraction

Raman spectroscopy

Fourier transform infrared spectroscopy

Scanning electron microscopy

X-ray photoelectron spectroscopy

Absorbance / Transmittance / Reflectance spectroscopy

Cyclic voltammetry

Contact angle measurements / Photocatalytic measurements

## CONFERENCES-PRESENTATIONS

- 1) Growth of  $V_2O_5$  films for electrochromic and battery applications by pulsed chemical vapour deposition, Kazadojev, I.I.; Brien, S.O.; Ryan, L.P.; Mondreanu, M.; Osiceanu, P.; Somacescu, S.; Vernardou, D.; Pemble, M.E.; Povey, I.P. 233<sup>rd</sup> ECS Meeting in Seattle (**USA**) 2018.
- 2) Evaluation of  $V_2O_5$  coatings grown by plasma enhanced and thermal atomic layer deposition, Kazadojev, I.I.; Brien, S.O.; Mondreanu, M.; Osiceanu, P.; Somacescu, S.; Apostolopoulou, M.; Katsarakis, N.; Koudoumas, E.; Vernardou, D.; Pemble, M.E.; Povey, I.M. 18<sup>th</sup> International Meeting on Lithium Batteries in Chicago (**USA**) 2016.
- 3) Effect of oxygen source on the properties of vanadium oxide coatings grown by atmospheric pressure CVD, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Panagopoulou, Raptis, Y.; Kiriakidis, G.; Katsarakis, N.; Koudoumas, E. E-MRS in Lille (**France**) 2015.
- 4) Effect of deposition temperature and amount of vanadium precursor on the thermochromic performance of  $VO_2$  coatings grown by atmospheric pressure CVD, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Panagopoulou, Raptis, Y.; Kiriakidis, G.; Katsarakis, N.; Koudoumas, E. E-MRS in Lille (**France**) 2015.
- 5) Study the effect of deposition period on the electrochemical properties of LPCVD  $WO_3$ , Louloudakis, D.; Psifis, K.; Vernardou, D.; Spanakis, E.; Papadimitropoulos, G.; Davazoglou, D.; Katsarakis, N.; Koudoumas, E. E-MRS in Lille (**France**) 2015.
- 6) A comparative study of two APCVD systems for the growth of thermochromic vanadium dioxide coatings, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Panagopoulou, Raptis, G.; Kiriakidis, G.; Katsarakis, N.; Koudoumas, E. MRS in San Francisco (**USA**) 2015.
- 7) Electrochromic response of  $WO_3$  grown using LPCVD, Louloudakis, D.; Vernardou, D.; Psifis, K.; Spanakis, E.; Katsarakis, N.; Papadimitropoulos, G.; Davazoglou, D.; Koudoumas, E. MRS in San Francisco (**USA**) 2015.
- 8) Noble metal doped and reduced graphene oxide coupled photocatalysts for enhanced visible-light activity, Vasilaki, E.; Kaliva, M.; Vernardou, D.; Georgaki, I.; Konios, D.; Kymakis, E.; Vamvakaki, M.; Katsarakis, N. SPEA8 in Thessaloniki (**Greece**) 2014.
- 9)  $TiO_2/WO_3$  photoactive bilayers in the visible-light region, Vasilaki, E.; Vernardou, D.; Georgaki, I.; Kenanakis, G.; Katsarakis, N. SPEA8 in Thessaloniki (**Greece**) 2014.
- 10) Intelligent thermochromic coatings grown by chemical vapour deposition at atmospheric pressure, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E.; Kiriakidis, G. 30<sup>th</sup> Panhellenic Conference on Solid-State Physics and Materials Science in Heraklion (**Greece**) 2014.
- 11) LPCVD electrochromic  $WO_3$  layers on FTO glass substrates using different substrate temperatures, Psifis, K.; Louloudakis, D.; Papadimitropoulos, G.; Davazoglou, D.; Katsarakis, N.; Savvakis, C.; Spanakis, E.; Vernardou, D.; Koudoumas, E. 30<sup>th</sup> Panhellenic Conference on Solid-State Physics and Materials Science in Heraklion (**Greece**) 2014.
- 12) Effect of solution chemistry on the characteristics of hydrothermally grown  $WO_3$  for electroactive applications, Christou, K.; Louloudakis, D.; Vernardou, D.; Savvakis, C.; Katsarakis, N.; Koudoumas, E.; Kiriakidis, G. 5<sup>th</sup> International Symposium on Transparent Conducting Materials in Platania (**Greece**) 2014.
- 13) Atmospheric pressure chemical vapor deposition of thermochromic amorphous tungsten doped vanadium dioxide, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E.; Kiriakidis, G. 5<sup>th</sup> International Symposium on Transparent Conducting Materials in Platania (**Greece**) 2014.
- 14) Effect of antireflection  $TiO_2$  layer on the thermochromic performance of vanadium dioxide, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E.; Gagaoudakis, E.; Aperathitis, E.; Kiriakidis, G. 5<sup>th</sup> International Symposium on Transparent Conducting Materials in Platania (**Greece**) 2014.
- 15) Study of the pH effect on the properties of the hydrothermally grown  $V_2O_5$ , Apostolopoulou, M.; Louloudakis, D.; Vernardou, D.; Katsarakis, N.; Koudoumas, E.; Kiriakidis, G. 5<sup>th</sup> International Symposium on Transparent Conducting Materials in Platania (**Greece**) 2014.
- 16) Effect of the growth parameters on the electrochromic properties of low pressure CVD  $WO_3$  films, Louloudakis, D.; Vernardou, D.; Psifis, K.; Spanakis, E.; Katsarakis, N.; Papadimitropoulos, G.; Davazoglou, D.; Koudoumas, E. 65<sup>th</sup> Annual Meeting of the International Society of Electrochemistry in Lausanne (**Switzerland**) 2014
- 17) Tungsten doped vanadium oxide coatings grown by APCVD using isopropoxide precursors, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E.; Kiriakidis, G. NanoEnergy in London (**United Kingdom**) 2014.
- 18) One-pot synthesis of -  $WO_3$  nanostructures at 95 °C using NaOH and HCl, Christou, K.; Louloudakis, D.;

- Vernardou, D.; Katsarakis, N.; Koudoumas, E. E-MRS in Lille **(France) 2014**.
- 19) pH effect on the electrochemical properties of the hydrothermally grown  $V_2O_5$ , Apostolopoulou, M.; Louloudakis, D.; Vernardou, D.; Katsarakis, N.; Koudoumas, E. E-MRS in Lille **(France) 2014**.
- 20) Hydrothermal growth and characterization of vanadium oxide coatings using  $VOSO_4$  as precursor, Apostolopoulou, M.; Louloudakis, D.; Vernardou, D.; Katsarakis, N.; Koudoumas, E. E-MRS in Lille **(France) 2014**.
- 21) Electrochemical evaluation of vanadium pentoxide coatings grown by AACVD, Vernardou, D.; Louloudakis, D.; Katsarakis, N.; Koudoumas, E.; Kazadojev, I.I.; Brien, S.O.; Povey, I.M.; Pemble, M.E. E-MRS in Lille **(France) 2014**.
- 22) Electrocatalytic activity of carbon nanofoam in alkaline media, Dalamagkas, A.; Vernardou, D.; Katsarakis, N.; Pervolaraki, M.; Giapintzakis, J. E-MRS in Lille **(France) 2014**.
- 23) Photocatalytic properties of  $WO_3$  and  $WO_3/TiO_2$  composites under UV and solar light illumination, Katsarakis, N.; Vernardou, D.; Kenanakis, G.; Vasilaki, E. 3<sup>rd</sup> European Conference on Photocatalysis in Portoroz **(Slovenia) 2013**.
- 24) Photocatalytic response of chemically grown ZnO and  $TiO_2$  nanostructures on polymer substrates, Katsarakis, N.; Kenanakis, G.; Vernardou, D. 3<sup>rd</sup> European Conference on Environmental Applications of Advanced Oxidation Processes in Almeria **(Spain) 2013**.
- 25) Photocatalytic and electrochemical properties of  $TiO_2$  thin films deposited by sol-gel, Katsarakis, N.; Kenanakis, G.; Vernardou, D.; Dalamagkas, A. 3<sup>rd</sup> European Conference on Environmental Applications of Advanced Oxidation Processes in Almeria **(Spain) 2013**.
- 26) Thermochromic properties of  $VO_2$  films grown by RF sputtering and APCVD, Vernardou, D.; Louloudakis, D.; Iliadis, G.; Kiriakidis, G. E-MRS in Warsaw **(Poland) 2013**.
- 27) Thermochromic vanadium oxide coatings grown by APCVD at low temperatures, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E. EuroCVD 19 in Varna **(Bulgaria) 2013**.
- 28) Electrochemical properties of vanadium oxide coatings grown by APCVD on FTO substrates, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E. EuroCVD 19 in Varna **(Bulgaria) 2013**.
- 29) Study of the pH effect on the electrochemical properties of the hydrothermally grown vanadium oxide coatings, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E. International Conference on Advanced Complex Inorganic Nanomaterials in Namur **(Belgium) 2013**.
- 30) Electrochemical properties of vanadium oxide coatings grown by hydrothermal synthesis on FTO substrates, Louloudakis, D.; Vernardou, D.; Spanakis, E.; Katsarakis, N.; Koudoumas, E. International Conference on Advanced Complex Inorganic Nanomaterials in Namur **(Belgium) 2013**.
- 31) Effect of buffer layer and deposition parameters on thermochromic properties of  $VO_2$ , Vernardou, D.; Louloudakis, D.; Gagaoudakis, M.; Kampylafka, V.; Spanakis, E.; Katsarakis, N.; Koudoumas, M.; Aperathitis, E.; Iliadis, G.; Kiriakidis, G. 2<sup>nd</sup> International Conference on Advanced Electromaterials in Jeju **(Korea) 2013**.
- 32) Synthetic photocatalytic nano-powders of titanium and zinc oxides degrading persistent organic compounds in industrial effluents, Georgaki, I.; Mihailidis, M.; Iliadis, J.; Kenanakis, G.; Vernardou, D.; Katsarakis, N. Wastewater purification and reuse 2012 in Crete **(Greece) 2012**.
- 33) Electrodeposition of vanadium oxides on various substrates, Drosos, H.; Vezirh, M.; Koudoumas, E.; Katsarakis, N. Vernardou, D. 9th International Conference on Nanosciences & Nanotechnologies in Thessaloniki **(Greece) 2012**.
- 34) Effect of current density on electrodeposited vanadium oxide coatings, Drosos, H.; Sapountzis, A.; Koudoumas, E.; Katsarakis, N.; Vernardou, D. 9th International Conference on Nanosciences & Nanotechnologies in Thessaloniki **(Greece) 2012**.
- 35) Electrochemical properties of hydrothermally grown vanadium oxides on fluorine doped tin oxide and photonic crystal substrates, Drosos, H.; Vernardou, D.; Koudoumas, E.; Katsarakis, N.; McGrath, J.; Pemble, M.E. 4<sup>th</sup> International Symposium on Transparent Conductive Materials in Crete **(Greece) 2012**.
- 36) Electrochemical characterization of metal oxides grown by atmospheric pressure chemical vapor deposition for smart window applications, Antoniou, G.; Doumousiaris, K.; Vernardou, D.; Koudoumas, E.; Katsarakis, N. XXVII Panhellenic Conference on Solid State Physics and Materials Science in Limassol **(Cyprus) 2011**.
- 37) Electrochemical properties of tungsten oxide films prepared on polycarbonate at low temperatures by chemical vapour deposition, Drosos, D.; Vernardou, D.; Koudoumas, E.; Katsarakis, N.; Savvakis, C.; Povey, I.M.; Pemble, M.E. 8<sup>th</sup> International Conference on Nanosciences and Nanotechnologies in Thessaloniki **(Greece) 2011**.
- 38) Study of the electrochemical properties of  $WO_3$  coatings grown by APCVD on various substrates, Vernardou, D.; Spanakis, E.; Drosos, H.; Koudoumas, E.; Savvakis, C.; Katsarakis, N. EuroCVD 18 in Kinsale **(Ireland) 2011**.
- 39) Photoluminescence study of ZnO structures grown by Aqueous Chemical Growth, Kenanakis, G.; Androulidaki, M.; Vernardou, D.; Katsarakis, N.; Koudoumas, E. 3<sup>rd</sup> International Symposium on Transparent Conductive Materials in Crete **(Greece) 2010**.
- 40) Electrochemical and photocatalytic properties of  $WO_3$  coatings grown at low temperatures, Vernardou, D.; Drosos, H.; Spanakis, E.; Koudoumas, E.; Savvakis, C.; Katsarakis, N.; 3<sup>rd</sup> International Symposium on Transparent Conductive Materials in Crete **(Greece) 2010**.
- 41) Using an atmospheric pressure chemical vapor deposition process for the development of "Smart Windows", Vernardou, D.; Papadakis, G.; Spanakis, E.; Koudoumas, E.; Savvakis, C.; Katsarakis, N.; 3<sup>rd</sup> International Scientific Conference on "Energy and Climate Change" in Athens **(Greece) 2010**.
- 42) Electrochromic properties of  $WO_3$ ,  $V_2O_5$  and  $TiO_2$  prepared by hydrothermal growth at 95 °C, Vernardou, D.; Drosos, H.; Spanakis, E.; Koudoumas, E.; Savvakis, C.; Katsarakis, N.; International Conference on Coatings on Glass and Plastics in

Braunschweig (Germany) 2010.

43) Study of metal oxides for the design and development of smart materials, Vernardou, D.; Kenanakis, G.; Kalousis, K.; Vlachou, K.; Rizos, K.; Koudoumas, E.; Katsarakis, N.; Chemical Consciousness on the 21<sup>st</sup> century in Crete (Greece) 2009.

44) One-pot direct hydrothermal approach to the design and fabrication of photoactive materials, Vernardou, D.; Spanakis, E.; Kenanakis, G.; Koudoumas E.; Katsarakis, N. Fall Materials Research Society Conference in Boston (USA) 2009.

45) A comparative study of the photoinduced properties of TiO<sub>2</sub>/SiO<sub>2</sub> and TiO<sub>2</sub>/ZnO/SiO<sub>2</sub> layers prepared by chemical routes, Vernardou, D.; Spanakis, E.; Vlachou, K.; Kalogerakis, G.; Costello, J.; Koudoumas, E.; Katsarakis, N.; Pemble, M.E. EuroCVD-17 in Vienna (Austria) 2009.

46) Light-induced photocatalytic degradation of methylene blue by ZnO and TiO<sub>2</sub> nanostructures deposited onto polymer substrates, Kenanakis, G.; Lyroni, N.; Vernardou, D.; Katsarakis, N. 1<sup>st</sup> International Workshop on Application of Redox Technologies in the Environment in Instabul (Turkey) 2009.

47) Metal oxide nanostructures for use in organic photovoltaic cells, Spanou, E.; Kyprianou, A.; Georgiou, G.E.; Vernardou, D.; Kenanakis, G.; Kymakis, E.; Katsarakis, N.; Koudoumas, E. International Conference on Deregulated Electricity Market Issues in South-Eastern Europe in Nicosia (Cyprus) 2008.

48) Photoinduced hydrophilic and photocatalytic response of hydrothermally grown anatase TiO<sub>2</sub> nanostructured thin films, Vernardou, D.; Kalogerakis, G.; Stratakis, E.; Kenanakis, G.; Koudoumas, E.; Katsarakis, N. 6<sup>th</sup> International Conference on Inorganic Materials in Dresden (Germany) 2008.

49) Structural, optical and photocatalytic properties of ZnO thin films and nanostructures deposited by different chemical routes, Kenanakis, G.; Giannakoudakis, Z.; Vernardou, D.; Koudoumas E.; N. Katsarakis, N. 7th International Conference on Coatings on Glass and Plastics in Eindhoven (Holland) 2008.

50) Structural, optical and photocatalytic properties of ZnO thin films and nanostructures deposited by different chemical routes, Kenanakis, G.; Vernardou, D.; Koudoumas, E.; Savvakis, C.; N. Katsarakis, N. XXIV Panhellenic Conference on Solid State Physics and Materials Science, in Crete (Greece) 2008

51) Characterization of hydrothermally grown vanadium oxides for potential application on smart glazings, Vernardou, D.; Zaimaki, M.; Spanakis, E.; Katsarakis, N.; Koudoumas, E. XXIV Pan-Hellenic Conference on Solid State Physics and Materials Science in Crete (Greece) 2008.

52) Hydrothermal synthesis of photocatalytically active tungsten oxides, Vernardou, D.; Nikiforaki, V.; Filipou, G.; Spanakis, E.; Koudoumas, E.; Katsarakis, N. XXIV Pan-Hellenic Conference on Solid State Physics and Materials Science in Crete (Greece) 2008.

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### CONFERENCE COMMITTEE

- 1) Member of the local organizing committee on 1<sup>st</sup> and 2<sup>nd</sup> International Symposium on Transparent Conducting Oxides in Crete (**Greece**) 2006 and 2008.
- 2) Member of the local organizing committee on 3<sup>rd</sup> and 4<sup>th</sup> International Symposium on Transparent Conductive Materials in Crete (**Greece**) 2010, 2012, 2014 and 2016.
- 3) Member of the international scientific committee on Advances on Photocatalysis in Crete (**Greece**) 2017.
- 4) Member of the local organizing committee on 12<sup>th</sup> International Conference on Physics of Advanced Materials in Crete (**Greece**) 2018.

### SEMINARS

- 1) Chemical Approaches to the Design and Fabrication of Smart and Functional Materials, University of Crete (**Greece**) 2007.
- 2) The Growth of Thermochromic Vanadium Oxides on Glass by Liquid Injection CVD, CVD Network Meeting London (**United Kingdom**) 2004.
- 3) Doped vanadium oxides prepared by Liquid Injection MOCVD, University of Salford (**United Kingdom**) 2004.

### PARTICIPATION IN FUNDED PROJECTS

- ARCHIMEDES III 2012-2015 «Nanostructured metal oxide photocatalysts». (Duration: 3 months, 01.09.2012-30.11.2012)
- ARCHIMEDES III 2012-2015 «Design and fabrication of nanostructured hybrid solar cells with improved performance». (Duration: 4 months, 01.09.2012-31.12.2012)
- ARCHIMEDES III 2012-2015 «Growth and characterization of novel nanostructured layers for the confinement of GHz electromagnetic radiation». (Duration: 6 months, 01.09.2012-31.12.2012 and 01.07.2015-31.08.2015)
- ARCHIMEDES III 2012-2015 «Electrochromic low cost advanced window». (Duration: 6 months, 18.07.2013-17.09.2013 and 28.02.2014-30.06.2014)
- SYNERGASIA 09ΣYN-32-1185 2012-2015 «Smart & Economic thermochromic windows for energy saving in buildings». (Duration: 7 months, 01.09.2012-31.12.2012 and 31.12.2014-28.03.2015)
- INTERREG IIIA/GREECE-CYPRUS 2000-2006, «Novel photovoltaic cells and photovoltaic systems with improved efficiency». (Duration: 13 months, 01.05.2007-28.02.2008 and 29.02.2008-31.05.2008)
- EPEAEK, ARCHIMEDES II, «ZnO thin films for gas sensing applications». (Duration: 2 months, 01.01.2007-28.02.2007)
- 3<sup>rd</sup> GENLAC 2003-2005, «3<sup>rd</sup> generation optical coatings for large area architectural glazing». (Duration: 9 months, 01.04.2005-31.12.2005)



- EPSRC 2000-2004, «Intelligent Thermochromic Coatings; APCVD prepared metal doped vanadium oxides». (Duration: 3 years)

## PUBLICATIONS

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- 2) Tungsten doping effect on V<sub>2</sub>O<sub>5</sub> thin film electrochromic performance, Panagopoulou, M.; [Vernardou, D.](#); Koudoumas, E.; Tsoukalas, D.; Raptis, Y.S. *Electrochimica Acta*, 2019, 321, 134743.
- 3) Tuning electrical properties of polythiophene/nickel nanocomposites via fabrication, Pascariu, P.; [Vernardou, D.](#); Sucheaa, M.; Airinei, A.; Ursu, L.; Bucur, S.; Tudose, I.V.; Ionescu, O.; Koudoumas, E. *Materials and Design*, 2019, 182, 108027.
- 4) All-inorganic lead halide perovskite nanohexagons for high performance air-stable lithium batteries. Kostopoulou, A.; [Vernardou, D.](#); Savva, K.; Stratakis, E. *Nanoscale*, 2019, 11, 882.
- 5) Advancements, challenges and prospects of chemical vapor pressure at atmospheric pressure on vanadium dioxide structures, Drosos, C.; [Vernardou, D.](#) *Materials*, 2018, 11, 384.
- 6) Aerosol-assisted chemical vapor deposition of V<sub>2</sub>O<sub>5</sub> cathodes with high rate capabilities for magnesium-ion batteries, Drosos, C.; Jia, C.; Mathew, S.; Palgrave, R. G.; Moss, B.; Kafizas, A.; [Vernardou, D.](#) *Journal of Power Sources*, 2018, 384, 355.
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## CONFERENCE PROCEEDINGS

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## INVITED CHAPTERS IN BOOKS

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### **REVIEWER ON SCIENTIFIC JOURNALS**

Applied Physics A, Thin Solid Films, Materials Science and Engineering B, Materials Chemistry and Physics, Physica Status Solidi, Materials Letters, Applied Surface Science, Applied Materials & Interfaces, Journal of Nanoscience and Nanotechnology, Materials Research Bulletin, Advanced Energy Materials.