A. CURRICULUM VITAE

1. Personal

Name:	George Vourlias
Current Status:	Associate Professor, "Advanced Materials and Devices" Laboratory, Section of Applied and Environmental Physics, Physics Department, Aristotle University of Thessaloniki.
Date and place of birth:	Drama, Greece, 03/04/1970.

2. Education

Bachelor Degree: (1988-1992)

B.Sc. in Physics, Physics Department, Aristotle University of Thessaloniki.

Post-Graduate Degrees: (1996-2003)

MSc. in Materials Physics, Physics Department, Aristotle University of Thessaloniki (1996-1998).

Title of dissertation: "Improving the materials examination methods for cement developing *(XRF)*".

Ph. D in Physics, Physics Department, Aristotle University of Thessaloniki *(1999-2003)*.

Thesis title: "Hot-dip galvanizing process: study of diffusion mechanisms, examination of intermediate phases and of the atmospheric corrosion behaviour of the final products".

Post Doctoral work (2003-2012)

Post Doctoral researcher in research programs conducted at the Applied Physics Laboratory (currently known as the Laboratory of Advanced Materials and Devices) of the Applied and Environmental Physics Section of Physics Department of the Aristotle University of Thessaloniki, at the Microscopy Laboratory of the Solid State Physics Section of the Physics Department of the Aristotle University of Thessaloniki, and at the Physical Metallurgy Laboratory of the Design and Structures Department of the School of Mechanical Engineering at the Aristotle University of Thessaloniki.

During my research works in these laboratories I have co-supervised several bachelor and master theses.

3. Professional Career

- From September 2000 to November 2001 I participated, as a research fellow by contract, in two research programs of the National Center for Scientific Research "Democritus".
- From January 2003 to June 2004 I participated in several research programs of the research committee of the Aristotle University of Thessaloniki as a research fellow by contract.
- From July 2004 to May 2006 I worked as a Contract Post-doc research fellow and as a Seminar Instructor Assistant teaching at the research program "Pythagoras I", funded by the Greek Ministry of Education at the Aristotle University of Thessaloniki.
- From May 2005 to December 2006 I worked as a Contract Post-doc research fellow in the research program "Pythagoras II", funded by the Ministry of Education at the Aristotle University of Thessaloniki.
- From 01-02-2005 to 30-06-2006 I worked as a Lecturer at the School of Mechanical Engineering of the Polytechnic School of the Aristotle University of Thessaloniki.
- From January 2006 to March 2006 and during November 2006 I worked as a Seminar Instructor for the program: "Reformation of the Undergraduate Program of study of the School of Mechanical Engineering of the A.U.Th" funded by the Greek Ministry of Education.
- From 2004 to 2009 I worked as an Adjutant Lecturer at the Department of Automation Engineering of the Alexander Technological Educational Institute of Thessaloniki.
- From December 2006 to January 2012 I worked as a state employee responsible for the technical and scientific support of the X-Ray diffraction instruments of the Applied Physics Laboratory, Applied and Environmental Physics Section, Physics Department of the Aristotle University of Thessaloniki.
- From 2012 to 2016 I have been an Assistant Professor working at the Applied Physics Laboratory, Applied and Environmental Physics Section, Physics Department of the Aristotle University of Thessaloniki
- Since 2016 I have been working as Associate Professor at the "Advanced Materials and Devices" Laboratory, Applied and Environmental Physics Section, Physics Department of the Aristotle University of Thessaloniki

B. TEACHING CAREER

1. Supervisory Experience

Assistant in the supervision of pre-graduate and graduate projects as well as the supervision of PhD projects. I have been supervising **several** PhD programs focusing on the development and characterization of advanced materials. In particularly, one of the PhD programs was recently successfully completed while three more are still in progress. I have also supervise a plurality of postgraduate theses (a total number of eleven) with research topic the characterization of advanced and multifunction materials resulting in several experimental results of great importance I have also been a member in several three-member examination committees of postgraduate/undergraduate theses and seven-member examination committees of PhD theses.

2. Teaching experience

Academic Instructor at the Non-Commissioned Officer Army Academy from June 1994 to May 1995.
Informatics Instructor at Institutes of Vocational Training from 1999 to 2004.
Adjutant Lecturer, teaching "Electronics" at the Department of Automation Engineering of the Alexander Technological Educational Institute of Thessaloniki, between 2004 and 2009.
Subsidiary teaching of the laboratory courses "Materials Structure I and II" (5^{th} and 8^{th} semester academic courses of the Section of Applied and Environmental Physics) from 2004 to 2012.
Adjutant Lecturer of "Thermal treatments and Phase transformations" course at the Physical Metallurgy Laboratory, Design and Structures Department, School of Mechanical Engineering of the Aristotle University of Thessaloniki, during the periods 01-02-2005 to 31-8-2005 and 1-02-2006 to 31-8-2006.
Seminar Instructor between January 2006 and March 2006 and during November 2006 at the program: "Reformation of the Undergraduate Program of study of the Mechanical Engineering School of the A.U.Th.", funded by the Greek Ministry of Education.
Teaching by assignment of the laboratory course "X-Ray diffraction" at the postgraduate program of Materials Physics and Technology (1^{st} semester) of the Physics Department of the Aristotle University of Thessaloniki, since 2007.
Teaching by assignment of the laboratory course "Techniques in Materials characterization - X-Ray diffraction" at the postgraduate program of Materials Physics and Technology (1^{st} semester) of the Physics Department of the Aristotle University of Thessaloniki (AUTH), since 2012.
Teaching by assignment of the laboratory course "Education in Research methodology" at the postgraduate program of Materials Physics and Technology (2^{nd} semester) of the Physics Department of the Aristotle University of Thessaloniki, since 2007.
Teaching of the following courses at the Physics Department of AUTH from 2012 till today:
a) Introduction to materials structure (Main course, 3^{rd} semester)
b) Structure of materials I (Main laboratory course, 5^{th} semester).
c) General Physics V (Modern Physics) (Main course, 3^{rd} semester)
d) Methods in Crystallography and Applications (Selective course in Applied Physics, 7^{th} semester)
e) Practical training workshops (General Selective course, 7^{th}-8^{th} semester)
f) Structure of materials II (Selective laboratory course in Applied Physics, 8^{th} semester)
g) Lab techniques for studying the structural properties of materials (Selective course in Physics of technological materials, 8^{th} semester)
h) Lab techniques of Solid State Physics (Selective course in Solid State Physics, 8^{th} semester)
i) Entrepreneurship and Innovation (General Selective course, 7^{th}-8^{th} semester)
j) Applied Physics issues (Selective course in Applied Physics, 8^{th} semester).

Teaching the course "Crystal structures" at the Geology Department of AUTH, from 2012 till today.
Teaching the course "Crystal structure: X-rays Diffraction Characterization" at the following Interdepartmental Postgraduate Studies Program and Postgraduate Studies:

1. Physical and Chemical Methods for the Diagnosis of Corruptions in Materials of Cultural Heritage
2. Nanosciences & Nanotechnologies (Master Degree Program)
3. Materials Sciences (Master Degree Program)
4. Science and Technology of Polymers and Nanocomposite Materials (Master Degree Program)

C. RESEARCH CAREER

1. Research activity and interests

My research interests since 1996 evident by the published papers, is focused on the technology, growth and X-ray characterization of thick coatings.

Research interests:

I) Materials growth

II) Structural Characterization of materials with X-ray methods

The above topics can be analyzed in the following sub interests:

- Development of Thick coatings - Thin films and Nanostructured materials with chemical and physical deposition methods (Hot dip galvanizing, Thermal Spraying Process, CVD methods, Electrodeposition, Sputtering, Cathodic-arc PVD Process) and study of their structural properties. Prototyping of these methods – via the determination of the optimal deposition conditions and improvement of the as- deposited coatings/films.
- Study of the corrosion resistance of the as formed materials and coatings in atmospheric and high temperature environment. Investigation of the oxidation mechanisms and the resistance of the materials.
- Investigation of the physical properties of metallic and alloy surfaces. Thermal treatments of materials and study of the effect of the microstructure to the material properties. Study of the mechanical properties of materials and coatings.
- Materials and coatings characterization with X-ray diffraction (XRD) and X-ray Photoelectron Spectroscopy (XPS).

Experimental Experience and Installation of Experimental Set Up

I had an active and dominant role in the installation and management of the experimental set ups (systems for materials growth and synthesis), which are settled in the laboratories where I conducted research. I was also responsible of the reconstruction and remodeling of the Laboratory of Applied Physics, and the installation, use and maintenance of several of the material characterization experimental set ups (such us the XRD and XPS system). Furthermore, I am qualified to use a variety of structural characterization techniques.

Laboratory experience – Expertise in experimental methods and scientific instruments
Examples of leadership in industrial innovation or design;

Since October 1996, I had work in various laboratories such as the material science research laboratories of Physics and Mechanical Engineering Department of AUTH, and the world –class facilities of the research laboratories of the "TITAN" and "ERLIKON" industries. My work focused on the synthesis and growth of materials using techniques such as the Hot Dip Galvanizing, Pack Cementation, Thermal Spray, and Electrodeposition which were all settled in the "X-ray, Optical characterization and Thermal analysis" laboratory. Such techniques meet the industrial requirements and are applicable to cost-effective and large scale fabrication.

In details, my laboratory experience is focused on the following topics:

- **Use** of the X-Ray Fluorescence Spectroscopy technique –X Ray Fluorescence-XRF.
- **Construction** of Hot dip galvanizing setup in lab scale (conditions of industrial production line).
- **Installation and operation** of special simulation chamber (Salt Spray Chamber-Alternative Climate Test Chamber-SC 450). Attainment of experiments under simulated conditions of accelerated atmospheric corrosion. Examination of the anticorrosion properties of metallic materials.
- **Installation and operation** of Pack Cementation deposition setup.
- **Installation and operation** of Thermal spray deposition setup.
- **Installation** of electrodeposition setup.
- **Installation** of electric furnace for high temperature oxidation.
- **Expertise** in the characterization of materials with X-ray diffraction (XRD).
- **Expertise** in the characterization of materials with X-ray photoelectron spectroscopy (XPS).
- **Expertise** in the characterization of materials with Transmission electron microscopy (TEM) and sample preparation (cross section, plane view) with ion beam thinning and electropolishing.
- **Expertise** in the characterization of materials with Scanning Electron Microscopy (SEM).

Based on all the above, I have the experience of conducting an independent and autonomous research activity and the qualifications to supervise PhD candidates.

2. Publications

Doctoral Thesis	1
Publications in peer review International Journals	163
Publications - Abstracts in International Conference Proceedings	241
Publications - Abstracts in Local Conference Proceedings	102
Chapter Books	1
Journals outside of ISI Web of Science	3
Publications in peer review Greek Journals	5
Sum of Citations [Citations (without Self-Citations)]+ Self Citations (Scopus, ISI Web of Knowledge, Scholar Google)	2337
Citations (without Self-Citations) (Scopus, ISI Web of Knowledge, Scholar Google)	1775
h Index	26

3. Participation in Research Programs - Program Coordinator

As a research assistant, postdoctoral researcher and Assistant Professor I have participated in total in twenty (26) research and developing programs and partnerships. I was assigned the position of the program coordinator for six of those. All of the research or developing programs were conducted at the Aristotle University of Thessaloniki.

Prizes/Awards

Financial award for excellence and young researchers (2014), Research committee of Aristotle University of Thessaloniki for the "Synthesis of nanostructured metallic alloys with electrochemical and mechanical methods for environmental applications"

4. Participation in International and Local conferences

Participation in 135 international and local conferences with poster and oral presentations, with the majority of them featuring the growth and study of ***Advanced materials***. Author of more than 160 publications in high impact international Journals in the areas of Materials Science.

Organization of international conferences

1. Member of the Scientific Committee of 3th THE"A" Coatings-6th ICMEN. International Conferences, October 5-6, 2017, Thessaloniki, Greece
2. Member of the Organization Committee of 7th Panhellenic Conference of Greek Union of Physics, March 15-18, 2018, Thessaloniki, Greece
3. Member of the Organization Committee of Micro & Nano 2018 International Conference, November 5-7, 2018, Thessaloniki, Greece

5. Reviewer in International Scientific Journals

Reviewer in 15 international scientific journals. Among others, scientific journals with an important number of reviewed articles are:

a) Surface and Coatings Technology, b) Materials Science and Engineering B
c) Journal of Alloys and Compounds, d) Applied Surface Science.

6. Member of Scientific Societies

a) Association of Greek Physicists, b) Greek Computer Society (member of IFIP), c) Association of the Friends of the Science Center and Technology Museum "Noesis", d) Association of the Graduates of the Physics Department, A.U.Th. "ARCHIMEDES", e) Greek Metallurgy Society, f) Hellenic Society for the Science and Technology of Condensed Matter (HSSTCM).