



General Summary

VASSILIS ZASPALIS

Professor, Materials Science and Technology

Director of the Laboratory of Materials Technology

Head of School of Chemical Engineering

Faculty of Engineering – Aristotelian University of Thessaloniki

Vassilis T. Zaspalis was born in 1963 in Thessaloniki. He received his University Diploma in Chemical Engineering from the University of Patras (1981-1986) together with a full scholarship for Ph.D. study at the University of Twente in the Netherlands. After completing the Ph.D. study (1990) and spending an one year post-doc at the same University, he moved on into industrial research at the Philips Research Laboratories in Eindhoven-the Netherlands (1991-1995) and Aachen-Germany (1995-2001) where in 1999 he received the title of “Senior Scientist” heading the research group dedicated to the business unit Magnetic, Dielectric and Piezoelectric Ceramics. A main task during this period was the generation of research projects and the supervision of their successful execution as well as of their successful transfer into production sites worldwide. In the frame of this last task he spent several 3-4 month periods in materials production units in Europe, the US and Far East.

In 2001 he returned back to Thessaloniki, at the Center for Research and Technology-Hellas where he founded, organized and managed the Laboratory of Inorganic Materials. In May 2009 he has been elected full professor at the Department of Chemical Engineering of the School of Engineering of the Aristotle University of Thessaloniki. Since then he continues to be collaborative faculty member at the Center for Research and Technology-Hellas. In September 2015 he has been elected Head of School of Chemical Engineering.

The published works of Prof. V. Zaspalis, among others, include 33 world and international patents, 99 publications in peer refereed journals and 66 refereed publications in the proceedings of international conferences. The total number of citations to the published works approximates ~1500 and he has a “so-called” h-index of 24. Since 2001, V. Zaspalis has been responsible for the generation of a research budget of approximately 6.6 million Euro through bilateral Industrial cooperations and European Community or National research projects.

During his scientific career Prof. Zaspalis has received numerous awards among which the best European Award for his Ph.D. dissertation (1991), the Philips Innovation Awards (1996 and 1998), the European DeScartes Award (2008), and best scientific presentation awards in International Conference (2013). Currently he is elected member of the Board of Directors of the European Institute of Excellence on Nanoporous Materials

Correspondence Data:

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Personal Data:

Place/Date of Birth: Thessaloniki 15 July 1963
Marital Status: Married (three children)
Languages: Greek (mother tongue), English, Dutch, German (all perfect)

Studies:

1981-1986 : Degree on Chemical Engineering
Department of Chem. Eng.- University of Patras-Greece

1986-1987: M.Sc. Degree on Chemical Engineering
Department of Chemical Technology
University of Delft – the Netherlands

1986-1990: Ph.D. Degree
Department of Chemical Technology
University of Twente – the Netherlands
Thesis Subject: The synthesis, characterization and application of porous ceramic membranes in membrane reactors for enhancing the efficiency of chemical processes

Professional Experience**Research:**

1990-1991: Post-doctoral University research
Department of Chemical Technology
University of Twente – the Netherlands
Research Subject : The impact of drying stresses on the microstructure formation and crack appearance of porous ceramic membranes.

1991-1995: Industrial Research, Development and Production
Philips Research Laboratories, Eindhoven – the Netherlands
Function: Research Scientist
Research Subject: Advanced ceramic electronic materials and manufacturing process for electronic and telecommunication applications

1995-2001: Industrial Research, Development and Production
Philips Research Laboratories, Aachen – Germany
Function: Group Leader “Magnetic Ceramics”
Research Subject: Coordinating research progress, roadmap construction and transfer of results to production in relation to advanced magnetic ceramic materials.

2001-2010: Institutional Research
Center for Research & Technology-Hellas, Thessaloniki Greece
Function: Laboratory director (Researcher B-2005-Researcher A)
Research Subject: Founding the Laboratory of Inorganic Materials, create research funding and organize research in the fields of functional and structural ceramic materials.

2010-Today: Full Professor at the Department of Chemical Engineering of the Aristotle University of Thessaloniki and Collaborative Faculty Member at the Center for Research and Technology Hellas

**Professional Experience
Industrial Production**

- 03/1992-06/1992 **Philips Components, Hamburg-Germany**
Upscale development and production process of materials for advanced power magnetic components.

- 03/1994-06/1994 **Philips Components, Guadalajara-Spain**
Upscale development and production process of materials for advanced telecommunications magnetic components.

- 06/1996-09/1996 **Philips Components, Eindhoven-the Netherlands**
Upscale development and production process of multilayer dielectric components for electronics.

- 06/2002-08/2002 **FerPol, Skiernewicze-Poland**
Upscale development and production process of a new high temperature magnetic material for specific high temperature applications

- 06/2004-08/2004 **Hispanoferritas S.A., Madrid-Spain**
Adaption of the process and enable it to accept raw materials of various purity degree without influencing the quality of the products

- 03/2008-06/2008 **Ferrocube Dong Guang-China**
Design and introduction into production of powders for accelerated firing processes in tunnel kilns.

Table 1: Overview of published scientific work (in numbers)

Type of Activity	Number
Article publications in refereed international scientific journals	99
Issued International & World Patents	33
Full article publications in refereed proceedings of international conferences	66
Books	1
Chapters in multiauthor books	5
Full article publications in refereed proceedings of national conferences	60
Presentations in International conferences (without full article submission)	69
Presentations in National conferences (without full article submission)	17
From International/National Conference Participations, invited lectures	26
Bibliometrics	
Number of citations to the published or patented work	~1500
H-Index	24

Table 2A: Education – Teaching (Overview in Numbers)

Course Title	Category	Department	Institution	Acad. Years	Participation percentage	Equivalent Number of Semesters
Undergraduate Courses						
Materials Science and Technology I	Obligatory (5 th Sem.)	Chemical-Engineering	AUTh	2009-10 to 2015-16	100%	7
Materials Science and Technology II	Obligatory (6 th Sem.)	Chemical-Engineering	AUTh	2009-10 to 2015-16	100%	7
Methods for Materials Characterization	Choice (>7 th Sem.)	Chemical-Engineering	AUTh	2010-11 to 2015-16	100%	6
Electronic Materials	Choice (>8 th Sem.)	Chemical-Engineering	AUTh	2010-11 to 2013-14	100%	4
Transfer of Research Results from Laboratory to Industrial Production	Choice (>8 th Εξάμ.)	Chemical-Engineering	AUTh	2014-15 to 2015-16	100%	2
Introduction to Defect Chemistry	Choice (>8 th Εξάμ.)	Chemical-Engineering	AUTh	2015-2016	100%	1
Total						27
Postgraduate Courses						
Design of Advanced Materials and Devices	A cycle	Postgraduate Program “Chemical Engineering”	AUTh	2015-16	100%	1
Thin Film and Surface Treatment Technology	Choice (B Sem..)	Postgraduate Program «Nanosciences and Nanotechnologies»	AUTh	2004-05 to 2015-16	$\frac{100}{4}\%$	3
The Structure of Materials	Obligatory (A Sem.)	Postgraduate Program «Processes and Technology of Advanced Materials»	AUTh	2014-15	$\frac{100}{3}\%$	0.33
Advanced Ceramic Materials	Επιλογής (B Εξάμ.)	Postgraduate Program «Processes and Technology of Advanced Materials»	AUTh	2014-15	$\frac{100}{3}\%$	0.33
Total						4.66
GENERAL TOTAL						31.66

Educational Book Editions:

1. V. Zaspalis, «Materials Science and Technology: Structure and Morphology of Inorganic Solids, Volume A», Tziolas Editions, ISBN 978-960-418-443-9 (Code in «Εύδοξος»-system 41954976)
2. V. Zaspalis, «Materials Science and Technology: Properties and Behavior of Inorganic Solids, Volume B», Tziolas Editions, ISBN 978-960-418-484-2 (Code in «Εύδοξος»-system 41962798)

Table 2B: Education-Supervision of Student Theses

Type of Activity	Completed	In Progress May 2016
Undergraduate level		
Supervision of (summer) practical stages of Greek or International Students	22	1
Supervision of Diploma Theses	62	3
Postgraduate level		
Supervision of Diploma Theses	7	2
Ph.D. Theses		
Supervision of Ph.D. Theses	9	3

Table 3: Fund Generation for Scientific Research

Funding Agency	Number of Projects	Coordinator in:	Partner in:	Assigned Budget:
Bilateral Cooperation Projects with European Industry	13	13		3.500 k€
European Union Competitive Projects	8	1	7	1.300 k€
Competitive Research or Infrastructure Projects of the Ministry of Development (GSRT)	11	6	5	1.800 k€
TOTAL	32	20	12	6.600 k€

Table 4: Important Awards

Year	Award
1991	First European Membrane Society Award for Ph.D. dissertation, as the best European Ph.D. Thesis in the field of membrane science.
1992	Shell Award for distinguished Ph.D. dissertations in European Universities
1996	First Philips Innovation Award for research results that have been successfully transferred into production and led to business success.
1998	First Philips Innovation Award for research results that have been successfully transferred into production and led to business success.
2008	European DeScartes Award for research within the European project Hydrosol (ENK6-CT-2002-00629)
2013	Best Lecture Award for the best University-origin lecture during the 11 th International Conference on Ferrites in Japan

OTHER PROFESSIONAL ACTIVITIES

- ✓ **Reviewer in more than 20 Scientific Journals** among which J.Appl. Phys., J. Mater. Sci., J. Amer. Ceram. Soc., J. Eur. Cer. Soc., J. Magn. Magn. Mater., J. Membr. Sci., Microp. Mesop. Mater., A.I.Ch.E. J., Industr.&Eng. Chem. Res, Desalination etc.
- ✓ **Permanent evaluator of project proposals** of International Organizations such as SNSF (Swiss National Science Foundation), BNSF (Belgian National Science Foundation), NWO (Dutch Scientific Research Organization), QNRF (Qatar National Research Fund).
- ✓ **Member** of Numerous European Scientific Organizations among of which elected secretary of the European Institute of Excellence on Nanoporous Materials
- ✓ **Member of the scientific or organizing committee** of more than 20 National or International Conferences.
- ✓ **Materials and Technology Consultant** of major international industrial organizations specialized in the production of electronic materials.

RESEARCH INTERESTS

The relations between material, synthesis processes, microstructure development and properties or application performance of functional and structural ceramic materials.

More concrete, current research activities include:

- **CERAMIC MAGNETIC MATERIALS:** Synthesis properties and applications of ceramic magnetic materials such as ferrites of the cubic spinel or the hexagonal structure.
- **CERAMIC MEMBRANE TECHNOLOGY:** Synthesis, characterization and properties of porous ceramic membrane for gas or liquid mixture treatment processes and high temperature membrane reactor processes.
- **OXIDIC OR METALLIC NANOPARTICLES:** Synthesis and characterization of nanoparticles for protection coatings, catalytic or biomedical applications.
- **REDOX CATALYTIC MATERIALS:** Synthesis, characterization and applications of mixed oxide materials as RedOx catalysts for chemical process of energetic or environmental interest (thermal decomposition or chemical looping processes).

SELECTED RELATIVELY RECENT REPRESENTATIVE PUBLICATIONS

Removal of organic micropollutants from drinking water by a novel electro-Fenton filter: Pilot-scale studies. **Water Research** **91**, 183-194, 2016

Synthesis of a low loss Mn-Zn ferrite for power applications. **Journal of Magnetism and Magnetic Materials**, **400**, 307-310, 2016

Ferrites as redox catalysts for chemical looping processes. **Fuel**, **165**, 367-378, 2016

Magnetic Nanoparticles in Medical Diagnostic Applications: Synthesis, Characterization and Proteins Conjugation, **Current Nanoscience** **12**, 2016

Temperature Stable MnZn-ferrites for applications in the frequency region of 500 kHz. **Ceramics International**, **42(6)**, 7637-7646, 2016

Development of bubble-less ozonation and membrane filtration process for the treatment of contaminated water. **Journal of Membrane Science**, **492**, 40-47, 2015

Ceramic membrane materials and process for the removal of as(iii)/as(v) ions from water. **Journal of Water Process Engineering**, **5**, 42-47, 2015

FIVE MOSTLY CITED PUBLICATIONS

1. Solar water splitting for hydrogen production with monolithic reactors, SOLAR ENERGY 79(4), 409-421, 2005 (citations:163)
2. Solar hydrogen production by a two-step cycle based on mixed iron oxides, JOURNAL OF SOLAR ENERGY ENGINEERING-TRANSACTIONS OF THE ASME 128(2), 125-133, 2006 (citations: 106)
3. Green synthesis and characterization of silver nanoparticles using Arbutus Unedo leaf extract, MATERIALS LETTERS 76(1), 18-20, 2012 (citations: 75)
4. Synthesis and Characterization of primary alumina, titania and binary membranes, JOURNAL OF MATERIALS SCIENCE 27(4), 1023-1035,1992 (citations: 74)
5. Reactions of Methanol over catalytically active alumina membranes, APPLIED CATALYSIS 74(2), 205-222, 1991 (citations: 66)

SELECTED PATENTS

1. Process for the preparation of a binary membrane top layer, European Patent EP 0 401 928
 2. Process for the preparation of titania membrane layers, Japanese Patent JP 3 021 330
 3. Hybrid Electronic Device Comprising a Low Temperature Cofired LTCC Tape, World Patent WO 03/100799
 4. Multilayer Microelectronic Substrate, United States Patent US 20060263641
 5. Verfahren zum Hersellen eines aus mehreren Schichten bestehenden Mikroelektronischen Substrats, German Patent DE 101 55 594
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