

THEODOROS P. THEODOULIDIS

Professor

Department of Mechanical Engineering

University of Western Macedonia

**Curriculum Vitae**

**and**

**List of Publications**

## PERSONAL DATA

Date of birth: 1 February 1969  
Place of birth: Ptolemaida, Greece  
Home address: Margariti Dimitsa 17A, Kozani, 50132 Greece  
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## SHORT PRESENTATION

From February 2014 I am elected Professor in the Department of Mechanical Engineering of the University of Western Macedonia, Kozani, Greece. Before that (from September 2007) I was elected Associate Professor in the same Department. The official description of my position is «Electromagnetic Fields in Energy Systems». I teach electrical engineering oriented courses, I am in charge of the lab of Electrotechnics-Electric Machines and NonDestructive Testing and I have served as Deputy Head of the Department for 3 years and Head of the Department of Informatics and Telecommunications Engineers for 1 year. From February 2016 to August 2019 I served as Dean of Engineering and from September 2019 I am the Rector of the University of Western Macedonia.

Before my election in this position of Professor in the University of Western Macedonia, I was also elected Associate Professor in the Department of Electrical Engineering of the Technological Educational Institute of Western Macedonia, Kozani, Greece. The official description of my position was «Electromagnetic Application – Study of Electromagnetic Fields of Low Frequency», I was teaching the courses «Electric Machines I and II» and I was in charge of the lab of Electric Machines. Before that I was teaching electrical engineering course (electric machines, electrotechnics, electric networks, computers) as a Professor under contract in Greek universities. Apart from my academic occupation, I have also worked as a freelance engineer (i) in electrical engineering installations and (ii) in the NDT field as an industrial inspector and educator (I have essentially introduced the eddy current testing in the Greek petrochemical and power industry).

My research interests are summarized as follows:

- (i) theoretical analysis of electromagnetic fields of low frequencies and computations of eddy currents in various geometries for power applications and for applications in nondestructive evaluation. My most important contribution is the extension of analytical methods for low frequency electromagnetic fields analysis, for example the introduction of a novel semi-analytical method for eddy current calculations called TREE (Truncated Region Eigenfunction Expansion).
- (ii) precision measurements, data acquisition and signal processing of eddy current signals in order to quantify defects.

I am leading the MEANDER group (Magnetic Electric Analysis for Non-Destructive Evaluation Research, [meander.uowm.gr](http://meander.uowm.gr)) and I am developing the lab of Electrotechnics-Electric Machines-Nondestructive Testing by conducting basic and applied research and by offering testing services to the industry. I am closely collaborating with research centers worldwide like (i) Center for Nondestructive Evaluation, Iowa State University, USA (ii) Defence Science and Technology Organisation, Australia και (iii) LIST, Commissariat a l'Energie Atomique, France. With the latter I am collaborating in the development of the commercial software CIVA.

I have published 60 papers in international peer-reviewed journals, 1 book with Techscience Press, 1 book chapter, 46 papers in proceedings of international conferences and I participated with presentations in 24+ international and 6 national conferences (until 2013). In addition, I participated in 18 research projects. In Scopus, the number of documents is 92, citations (excluding self-ones of all authors) are 1175 and h-index is 21. In Google Scholar citations are 2301 and h-index is 30. I am the recipient of the 2017 AEM Award.

## DETAILED PRESENTATION

### ACADEMIC QUALIFICATIONS

- **Diploma in Electrical Engineering** from the Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece, 09/1986 – 03/1992 (grade: very good 8 out of 10).
- **PhD in Electrical Engineering** from the Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece, 05/1992 – 01/1997 (grade: excellent 10 out of 10).

### AWARDS

2017 AEM Award from the International Steering Committee of the Symposium on Electromagnetics and Mechanics in recognition of outstanding contribution to extension of analytical methods for low frequency electromagnetic field analysis.

### MANDATORY MILITARY SERVICE

05/1997 – 04/1999. Reserved Officer (second lieutenant) in the Mechanics corps.

## CURRENT AND PREVIOUS AFFILIATIONS

- Professor in the Department of Mechanical Engineering, University of Western Macedonia, Kozani, Greece, 02/2014 – today
- Associate Professor (with tenure) in the Department of Mechanical Engineering, University of Western Macedonia, Kozani, Greece, 09/2007 – 01/2014
- Associate Professor (with tenure) in the Department of Electrical Engineering, Technological Educational Institute of Western Macedonia, Kozani, Greece, 12/2004 – 08/2007
- Associate Professor (under contract) in the Department of Engineering and Management of Energy Resources, University of Western Macedonia, Kozani, Greece, 10/2000 – 08/2007
- Freelance Electrical Engineer, 07/1992 – 11/2004

## ADMINISTRATIVE WORK

2016	Dean of Engineering
2015	Head of Department of Informatics and Telecommunications Engineers
2010-2013	Deputy Head of the Department of Mechanical Engineering.
2007-today	Participation in Committees of the University of Western Macedonia
2004-2007	Deputy Head of Department of Electrical Engineering of the Technological Educational Institute of Western Macedonia, Head of the Power Division, Participation in Committees.

## MEMBERSHIPS IN PROFESSIONAL SOCIETIES

1. IEEE (Institute for Electrical and Electronic Engineers), **Senior Member**
2. ASNT (American Society for Nondestructive Testing)
3. Technical Chamber of Greece
4. Member of the Steering Committee of ISEM conference
5. Member of the Steering Committee of ENDE conference

## TEACHING EXPERIENCE

- A. Associate Professor in the Department of Mechanical Engineering, University of Western Macedonia, 2007-today, in the courses:  
Electrotechnics, Electric Machines, Electric Networks, Electromechanical Applications, Introduction to Computers, Control Systems, Electromagnetic Fields.
- B. Professor under contract in the Department of Engineering and Management of Energy Resources, University of Western Macedonia, 2000-2005 in the courses:  
Introduction to Computers, Electric Machines, Electrotechnics, Methodologies for Saving and Energy Management, Industrial Electronics, Automation, Electric Networks.

C. Professor under contract in the Department of Mechanical Engineering, University of Thessaly, 2001-2003 in the course:

Electric Machines

D. Associate Professor and Professor under contract in the Electrical Engineering Department of the Technological Educational Institute of Western Macedonia, 2000-2006 in the courses:

Electric Machines I, II (Theory and Lab Practice), Electrotechnic Applications II.

E. Teaching assistant in the Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, 1994-1997 in the courses:

Electromagnetic Fields I, II, III, IV, Methods of Nondestructive Testing (fall semester 1995-96, 1996-97)

#### INVITATIONS IN RESEARCH CENTERS

Commisariat Energie Atomique, France, October 2003

Iowa State University, November 2003, July 2004, July 2005, July 2006, July 2008, May 2014

Supelec, France, October 2005

General Electric Inspection Technologies, Albany, USA, July 2006

Huddersfield University, February 2006

Defence Science and Technology Organization, Melbourne, Australia, April 2006

Universite Paris-Sud, November 2006

University of Aeronautics and Astronautics, Nanjing, China, August 2010

Michigan State University, USA, October 2013

Commisariat Energie Atomique, France, November 2013 - March 2014

National Research Council, Canada, April 2014

Jiangsu Industrial Technology Research Center, May 2017

#### REVIEWER IN JOURNALS (80+ reviews)

IEEE Transactions on Magnetics, Compumag, CEFC

Radio Science

Applied Mathematical Modelling

ENDE Workshops

Sensors and Actuators: A Physical

Measurement Science and Technology

Journal of Applied Physics

Journal of Applied Electromagnetics and Mechanics

Nondestructive Testing and Evaluation

NDT&E International

Research in Nondestructive Evaluation

## Sensors

ANVUR (Italy), Assessment of Quality in Scientific Research 2004-2010

## SUPERVISION OF PHD THESES

### **Main supervisor**

- 1) Rallis K., University of Western Macedonia, Greece, 2008-2012, Electromagnetic study of underground conductors.
- 2) Voulgaraki Ch., University of Western Macedonia, Greece, 2011-today, Study of excitations in for SQUID magnetometers with applications on nondestructive testing.

### **In supervising committees**

- 1) Miorelli R., Universite Paris-Sud, 2009-2012, Modelisation du controle par methodes electromagnetiques de defauts realistes de type fissuration.
- 2) Pipis K., Universite Paris-Sud, 2012-today, Eddy-current inspection modeling of fasteners in multilayered planar media via a dedicated integral equation formulation.
- 3) Gyftakis K., University of Patras, Greece, 2011-today, Design of asynchronous machines for improving their characteristics and reliability.

### **As examiner**

- 1) Paillard S., Universite Paris-Sud, 2007, Developpement d'un modele pour le controle non destructif par courants de Foucault de structures rivetees en aeronautique.
- 2) Papadopoulos T., Aristotle University of Thessaloniki, Greece, 2008, Effect of earth on the wave characteristics of power lines.
- 3) Tsopelas N., University of Patras, Greece, 2009, Development of electromagneto-thermal method for nondestructive testing in conductive media.
- 4) Dallas S., University of Patras, Greece, 2012, Calculation of electromagnetic quantities and prediction of the behavior of a synchronous machine with salient poles in fault cases by using the finite element method.

### **Informal**

- 1) Bayani H., Kyushu University, Japan
- 2) Sun H., Iowa State University, USA
- 3) Fu F., Iowa State University, USA
- 4) Li Y., University of Huddersfield, UK

## PARTICIPATION IN RESEARCH PROJECTS

- 1992 «Study and measurements of radio networks in the Thessaloniki area».
- 1992-94 «Design and development of system for automatic radio measurements».
- 1993 «Automatic acquisition and processing of biological signals in the Papanicolaou hospital».
- 1994-95 «Development of image reconstruction techniques from NMR».
- 1994 «Study of the deflection of antenna radiation field from the presence of inhomogeneities in the near to antenna area».
- 1996-97 «Design and development of specialized vehicle for measurements ».
- 1996-97 «Development of CAD analysis software for the design of optical equipment».
- 1996-97 «On site electromagnetic field measurements for telecommunication and industrial applications».
- 1996 «Study of the medium voltage network of the university campus».
- 2003 «Electromagnetic fields from high voltage transmission lines and electromagnetic radiation in the area of Kozani. Study of the current situation».
- 2005-06 Archimedes II «Use of hyper-sensitive high-TC SQUID magnetometer in application of eddy current nondestructive testing», Ministry of Education.
- 2007-10 «Bridge the gap of theoretical and experimental eddy current NDT», EPSRC, Newcastle University.
- 2006-07 «Joint development agreement for electromagnetic modelling», Commissariat a l'Energie Atomique, France.
- 2008-11 «Joint development agreement for electromagnetic modelling: Lego coils and thin crack responses», Commissariat a l'Energie Atomique, France.
- 2011-14 Hraclitus II «Study of excitations in for SQUID magnetometers with applications on nondestructive testing», Ministry of Education.
- 2013-2017 «Joint development agreement for electromagnetic modelling: Field computations with the lego coils approach and construction of integral operators for the simulation of eddy current inspection of tubes with support plates and plates with edge effects», Commissariat a l'Energie Atomique, France.
- 2015-2018 «Nondestructive testing» with Public Power Corporation.
- 2020- «Joint development agreement for electromagnetic modelling », Commissariat a l'Energie Atomique, France.

## NDT RELATED WORKING EXPERIENCE from 04/1999 until 03/2006

- ASNT NDT Level III in Electromagnetic Testing (ET)
- NDT trainer according to SNT-TC-1A in ET, UT, MT, PT, VT.

- Calibration of eddy-current equipment for production lines in Greek copper and steel industries. Eddy current inspections of heat exchangers and welds in petrochemical plants and refineries.
- 03/1999      Measurements for thermal processing in PYRKAL company.
- 02/2000      Greek Petroleum company. Measurement of magnetic state of tubes in Reformer L4701.
- 04/2000      VFL company, Kavala. Corrosion testing for heat exchanger E-108 in the nitric acid unit.
- 06/08/09/2000 VFL company. Kavala. Corrosion testing for heat exchanger E-225 in the sulfuric acid Petersen unit.
- 03/2001      VFL company, Kavala. Corrosion testing of Sandvik heat exchanger in the sulfuric acid Petersen unit.
- 11/2002      VPI company, Volos. 1st corrosion testing of Carrier Absorber 64A01.
- 06/2003      Halkor company. Calibration of eddy current equipment in the copper tubes production line.
- 03/2004      VPI company, Volos. 2nd corrosion testing of Carrier Absorber 64A01..
- 03/2004      VET company, Chalkida. Eddy current tube testing with EN10246-1.
- 10/2004      SOVEL company, Volos. Eddy current tube testing with EN10246-1.
- 11/2005      Public Power Corporation, Unit II, Kardias Powerplant, corrosion testing of main condenser.
- 03/2006      Public Power Corporation, Unit II, Ag. Dimitrios Powerplant, corrosion testing of main condenser.



## PUBLICATIONS

A. Books and book chapters

[A1] PhD thesis.

«Evaluation of the eddy current distribution in a conducting sphere by using the second order vector potential. Application to nondestructive testing».

Dept. of Electrical and Computer Engineering, Aristotle University of Thessaloniki, 1997.

Supervising Professor: E.E. Kriezis.

[A2] Udpa L., Ida N., Bowler J.R, Theodoulidis T., “Modeling of Electromagnetic Testing”, Nondestructive Testing Handbook, third edition: Vol.5, Ch.4, pp.61-126, Electromagnetic Testing. Columbus, OH: American Society for Nondestructive Testing (2004).

[A3] Theodoulidis T., Kriezis E. “Eddy Current Canonical Problems (with applications to nondestructive evaluation)”.

B. Publications in Journals

[B1] Theodoulidis T.P., Panas S.M., Kriezis E.E., “Eddy current detection of crack orientation using elliptical excitation”, IEE Proceedings, Part A, Vol.141, No.1, pp.41-47, January 1994.

[B2] Theodoulidis T.P., Tsiboukis T.D., Kriezis E.E., “Analytical solutions in eddy current testing of layered metals with continuous conductivity profiles”, IEEE Transactions on Magnetics, Vol.31, No.3, pp.2254-2260, May 1995.

[B3] Theodoulidis T.P., Antonopoulos C.S., Kriezis E.E., “Analytical solution for the eddy current problem inside a conducting cylinder using the second order magnetic vector potential”, COMPEL, Vol.14, No.4, pp.45-48, December 1995.

[B4] Rekanos I.T., Theodoulidis T.P., Panas S.M., Tsiboukis T.D., “Impedance inversion in eddy current testing of layered structures via neural networks”, NDT&E International, Vol.30, No.2, pp.69-74, April 1997.

[B5] Theodoulidis T.P., Kantartzis N.V., Tsiboukis T.D., Kriezis E.E., “FDM-based second order vector potential formulation for 3D eddy current curvilinear problems”, IEEE Transactions on Magnetics, Vol.33, No.2, pp.1287-1290, March 1997.

[B6] Theodoulidis T.P., Kantartzis N.V., Tsiboukis T.D., Kriezis E.E., “Analytical and numerical solution of the eddy current problem in spherical coordinates based on the second order vector potential”, IEEE Transactions on Magnetics, Vol.33, No.4, pp.2461-2472, July 1997.

- [B7] Theodoulidis T.P., Kriezis E.E., “Impedance evaluation of rectangular coils for eddy current testing of planar media”, *NDT&E International*, Vol.35, pp.407-414, 2002.
- [B8] Theodoulidis T.P., Kriezis E.E., “Coil impedance due to a sphere of arbitrary radial conductivity and permeability profiles”, *IEEE Transactions on Magnetics*, Vol.38, No.3, pp.1452-1460, May 2002.
- [B9] Theodoulidis T.P., “Analytical modeling of wobble in eddy current tube testing with bobbin coils”, *Research in Nondestructive Evaluation*, Vol.14, pp.111-126, 2002.
- [B10] Theodoulidis T.P., “Model of ferrite-cored probes for eddy current nondestructive evaluation”, *Journal of Applied Physics*, Vol.93, No.5, pp.3071-3078, 2003.
- [B11] Burke S.K., Theodoulidis T.P., “Impedance of a horizontal coil in a borehole: a model for eddy-current borehole probes”, *Journal of Physics D: Applied Physics*, Vol.37, No.3, pp.485-494, 2004.
- [B12] Theodoulidis T.P., “End Effect Modelling in Eddy Current Tube Testing with Bobbin Coils”, *International Journal of Applied Electromagnetics and Mechanics*, Vol.19, pp.207-212, 2004.
- [B13] Mademlis C., Kioskeridis I., Theodoulidis T., “Optimization of single-phase induction motors – Part I: Maximum energy efficiency control”, *IEEE Transactions on Energy Conversion*, Vol.20, No.1, pp.187-195, 2005.
- [B14] Mademlis C., Theodoulidis T., Kioskeridis I., “Optimization of single-phase induction motors – Part II: Magnetic and torque performance under optimal control”, *IEEE Transactions on Energy Conversion*, Vol.20, No.1, pp.196-203, 2005.
- [B15] Theodoulidis T., Bowler J.R., “Eddy current interaction of a long coil with a slot in a conductive plate”, *IEEE Transactions on Magnetics*, Vol.41, No.4, pp.1238-1247, 2005.
- [B16] Theodoulidis T.P., Kriezis E.E., “Series expansions in eddy current nondestructive evaluation models”, *Journal of Materials Processing Technology*, Vol.161, pp.343-347, 2005.
- [B17] Bowler J.R., Theodoulidis T.P., “Eddy currents induced in a conducting rod of finite length by a coaxial encircling coil”, *Journal of Physics D: Applied Physics*, Vol.38, pp.2861-2868, 2005.
- [B18] Theodoulidis T., “Analytical model for tilted coils in eddy current nondestructive inspection”, *IEEE Transactions on Magnetics*, Vol.41, No.9, pp.2447-2454, 2005.
- [B19] Sun H., Bowler J.R., Theodoulidis T.P., “Eddy currents induced in a finite length layered rod by a coaxial coil”, *IEEE Transactions on Magnetics*, Vol.41, No.9, pp.2455-2461, 2005.
- [B20] Theodoulidis T., Bowler J.R., “Eddy current interaction with a right-angled conductive wedge”, *Proceedings of the Royal Society of London A*, Vol.461, No.2062, pp.3123-3139, 2005.

- [B21] Bowler J.R., Theodoulidis T., “Coil impedance variation due to induced current at the edge of a conductive plate”, *Journal of Physics D: Applied Physics*, Vol.39, pp.2862-2868, 2006.
- [B22] Theodoulidis T., Ditchburn R.J., “Mutual impedance of cylindrical coils at an arbitrary position and orientation above a planar conductor”, *IEEE Transactions on Magnetics*, Vol.43, No.8, pp.3368-3370, 2007.
- [B23] Yong Li., Theodoulidis T., Gui Yun Tian, “Magnetic field based eddy current modeling for multilayered specimens”, *IEEE Transactions on Magnetics*, Vol.43, No.10, pp.4010-4015, 2007.
- [B24] Theodoulidis T.P., Bowler J.R., “Impedance of an induction coil at the opening of a borehole in a conductor”, *Journal of Applied Physics*, Vol.103, 024905, 2008.
- [B25] Theodoulidis T., “Developments in calculating the transient eddy-current response from a conductive plate”, *IEEE Transactions on Magnetics*, Vol.44, No.7, pp.1894-1896, 2008.
- [B26] S.K. Burke, R.J. Ditchburn, Theodoulidis T.P., “Impedance of curved rectangular spiral coils around a conductive cylinder”, *Journal of Applied Physics*, Vol.104, 014912, 2008.
- [B27] Bowler J.R., Theodoulidis T., “Boundary element calculation of eddy currents in cylindrical structures containing cracks”, *IEEE Transactions on Magnetics*, Vol.45, No.3, pp.1012-1015, 2009.
- [B28] Theodoulidis T., Poulakis N., Dragogias A., “Rapid computation of eddy current signals from narrow cracks”, *NDT&E International*, Vol.43, pp.13-19, 2010.
- [B29] Theodoulidis T., Bowler J., “Interaction of an eddy-current coil with a right-angled conductive wedge”, *IEEE Transactions on Magnetics*, Vol.46, No.4, pp.1034-1042, 2010.
- [B30] Theodoulidis T., “Developments in efficiently modelling eddy current testing of narrow cracks”, *NDT&E International*, Vol.43, No.7, pp.591-598, 2010.
- [B31] Skarlatos A., Theodoulidis T., “Impedance calculation of a bobbin coil in a conductive tube with eccentric walls”, *IEEE Transaction on Magnetics*, Vol.46, No.11, pp.3885-3892, 2010.
- [B32] Rallis K., Theodoulidis T., “Mutual impedance calculation between buried conductors”, *COMPEL*, Vol.30, No.4, pp.1248-1259, 2011.
- [B33] Skarlatos A., Theodoulidis T., “Analytical treatment of eddy-current induction in a conducting half-space with a cylindrical hole parallel to the surface”, *IEEE Transactions on Magnetics*, Vol.47, No.11, pp.4592-4599, 2011.
- [B34] Simm A., Theodoulidis T., Poulakis N., Tian G., “Investigation of the magnetic field response from eddy current inspection of defects”, *The International Journal of Advanced Manufacturing Technology*, Vol.54, pp.223-230, 2011.

- [B35] Bowler J., Theodoulidis T.P., Xie H., Ji Y., “Evaluation of eddy-current probe signals due to cracks in fastener holes”, IEEE Transactions on Magnetics, Vol.48, No.3, pp.1159-1170, 2012.
- [B36] Theodoulidis T., Wang H., Tian G.Y., “Extension of a model for eddy current inspection of cracks to pulsed excitations”, NDT & E International, Vol.47, pp.144-149, 2012.
- [B37] Skarlatos A., Theodoulidis T.P., “Solution to the eddy-current induction problem in a conducting half-space with a vertical cylindrical borehole”, Proceedings of the Royal Society A, Vol.468, No.2142, pp.1758-1777, 2012.
- [B38] Yi Lu, J.R. Bowler J., Theodoulidis T.P., “An analytical model of a ferrite-cored inductor used as an eddy current probe”, Journal of Applied Physics, Vol.111, 103907-1--103907-10, 2012.
- [B39] Theodoulidis T.P., Skarlatos A., “Eddy current interaction of an arbitrarily positioned probe coil with a conductive cylinder”, IEEE Transactions on Magnetics, Vol.48, No.8, pp.2392-2394, 2012.
- [B40] Theodoulidis T., “Exact solution of Pollaczek's integral for evaluation of earth-return impedance for underground conductors”, IEEE Transactions on Electromagnetic Compatibility, Vol.54, No.4, pp.806-814, 2012.
- [B41] Miorelli R., Reboud Ch., Lesselier D., Theodoulidis T.P., “Eddy current modeling of narrow cracks in planar-layered metal structures”, IEEE Transactions on Magnetics, Vol.48, No.10, pp.2551-2559, 2012.
- [B42] Bowler J.R., Theodoulidis T.P., Poulakis N., “Eddy current probe signals due to a crack at a right-angled corner”, IEEE Transactions on Magnetics, Vol.48, No.12, pp.4735-4746, 2012.
- [B43] Miorelli R., Reboud Ch., Theodoulidis T.P., Poulakis N., Lesselier D., “Efficient modeling of ECT signals for realistic cracks in layered half-space”, IEEE Transactions on Magnetics, Vol.49, No.6, pp.2886-2892, 2013.
- [B44] Voulgaraki Ch., Poulakis N., Theodoulidis T., “Theoretical simulations and quantitative magnetic field measurements for eddy current testing with a HTS SQUID system”, IEEE Transactions on Applied Superconductivity, Vol.23, No.4, 1603012, 2013.
- [B45] Martinos J., Theodoulidis T., Poulakis N., Tamburrino A., “A benchmark problem for eddy current nondestructive evaluation”, IEEE Transactions on Magnetics, Vol.50, No.2, 7026104, 2014.
- [B46] Burke S.K., Ditchburn R.J., Theodoulidis T.P., “Impedance of a curved circular spiral coil around a conductive cylinder”, NDT & E International, Vol.64, pp.1-6, 2014.
- [B47] Miorelli R., Reboud Ch., Theodoulidis T., Martinos J., Poulakis N., Lesselier D., “Coupled approach VIM-BEM for efficient modeling of ECT signal due to narrow cracks and

- volumetric flaws in planar layered media”, *NDT & E International*, Vol.62, pp.178-183, 2014.
- [B48] Skarlatos A., Theodoulidis T., “Semi-analytical calculation of the low-frequency electromagnetic scattering from a near-surface spherical inclusion in a conducting half-space”, *Proceedings of the Royal Society A*, Vol.470, 20140269, 2014.
- [B49] Theodoulidis T., Bowler J.R., “Impedance of a coil at an arbitrary position and orientation inside a conductive borehole or tube”, *IEEE Transactions on Magnetics*, Vol.51, No.4, 6200806, 2015.
- [B50] Theodoulidis T., “On the closed-form expression of Carson's integral”, *Periodica Polytechnica, Electrical Engineering*, Vol.59, No.1, pp.26-29, 2015.
- [B51] Barbato L., Poulakis N., Tamburrino A., Theodoulidis T., Ventre S., “Solution and extension of a new benchmark problem for eddy-current nondestructive testing”, *IEEE Transactions on Magnetics*, Vol.51, No.4, 6895285, 2015.
- [B52] Skarlatos A., Theodoulidis T., “Calculation of the eddy-current flow around a cylindrical through-hole in a finite-thickness plate”, *IEEE Transactions on Magnetics*, Vol.51, No.9, 7100917, 2015.
- [B53] Skarlatos A., Theodoulidis T., “A modal approach for the solution of the non-linear induction problem in ferromagnetic media”, *IEEE Transactions on Magnetics*, Vol.52, No.2, 7000211, 2016.
- [B54] Pipis K., Skarlatos A., Theodoulidis T., Lesselier D., “ECT-signal calculation of cracks near fastener holes using an integral equation formalism with dedicated Green's kernel”, *IEEE Transactions on Magnetics*, Vol.52, No.4, 6200608, 2016.
- [B55] Wu T., Bowler J.R., Theodoulidis T.P., “Eddy-current induction by a coil whose axis is perpendicular to that of a tube”, *IEEE Transactions on Magnetics*, Vol.53, No.7, 7873290, 2017.
- [B56] Skarlatos A., Theodoulidis T., “Study of the non-linear eddy-current response in a ferromagnetic plate: Theoretical analysis for the 2D case”, *NDT & E International*, Vol.93, pp.150-156, 2018.
- [B57] Vafeas S., Skarlatos A., Theodoulidis T., Lesselier D., “Semianalytical method for the identification of inclusions by air-cored coil interaction in ferromagnetic media”, *Mathematical Methods in the Applied Sciences*, Vol.41, No.16, pp.6422-6442, 2018.
- [B58] Theodoulidis T., “Impedance of a coil above a planar conductor with an arbitrary continuous conductivity depth profile”, *International Journal of Applied Electromagnetics and Mechanics*, Vol.59, No.4, pp.1179-1185, 2019.
- [B59] Yu Y., Gao K., Theodoulidis T., Yuan F., “Analytical solution for magnetic field of cylindrical defect in eddy current nondestructive testing”, *Physica Scripta*, Vol.95, No.1, Article number 015501, 2020.

- [B60] Theodoulidis T., Skarlatos A., “Efficient calculation of transient eddy current response from multi-layer cylindrical conductive media: Transient response from multilayer media”, Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, Vol.378, No.2182, Article number 20190588, 2020.

C. Publications in Conference Proceedings

- [C1] Theodoulidis T.P., Panas S.M., Kriezis E.E., “Eddy current detection of the orientation of cracks in thin plates using elliptical excitation”, Workshop for Electric and Magnetic Fields, Liege, Belgium, September 1992, pp.14.1-14.6.
- [C2] Yioultis T., Theodoulidis T., Papadopoulos A., Antonopoulos C., Mouroulis I., Gilpathis G., Georgopoulos I., “Electromagnetic radiation pattern analysis for mobile communication antennas near complex tower structures with a moment method technique”, ISTET '95, Thessaloniki, Greece, September 1995, pp.54-57.
- [C3] Theodoulidis T.P., Antonopoulos C.S., Kriezis E.E., “Analytical solution for the eddy current problem inside a conducting cylinder using the second order magnetic vector potential”, ISEF '95, Thessaloniki, Greece, September 1995, pp.99-102.
- [C4] Rekanos I.T., Theodoulidis T.P., Panas S.M., Tsiboukis T.D., “Neural network inversion of impedance in eddy current testing of layered structures”, Proceedings of the First Joint Belgian-Hellenic Conference on Non Destructive Testing, Patras, Greece, May 1995, Edited by D. Van Hemelrijck, A. Anastassopoulos, A.A.Balkema Publishers, Rotterdam, Brookfield, 1996, pp.217-222.
- [C5] Giagoglou F.P., Theodoulidis T.P., Antonopoulos C.S., Kriezis E.E., “Determination of the field and losses inside a long conducting cylinder due to a current pulse running in coaxial surrounding coils”, AFRICON '96, Stellenbosch, South Africa, September 1996, pp.1051-1055.
- [C6] Kougiialis G.A., Theodoulidis T.P., Rekanos I.T., Antonopoulos C.S., “Determination of the excitation current for the generation of specified eddy currents. An analytical approach.”, International Symposium of Electromagnetic Theory, URSI Proceedings, Thessaloniki, Greece, May 1998, pp.828-830.
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#### F. Other Writing Activities

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- [F3] Manual «Eddy Current Inspection of Non-Ferrous Heat Exchanger Tubing» for the company Lavender International NDT Ltd.