ORESTIS KALOGIROU
Professor
President of DOATAP
(Hellenic NARIC – National Academic Recognition & Information Center)

Department of Physics
Aristotle University of Thessaloniki
54124 Thessaloniki, GREECE
e-mail: orestis.kalogirou@physics.auth.gr
URL: www.people.auth.gr/kalogiro

Positions held

2020-present	President of DOATAP (Hellenic NARIC – National Academic Recognition & Information Center)
2010-present	Professor, Dept. of Physics, Aristotle University of Thessaloniki Director of Laboratory of Magnetism & Magnetic Materials
2016	Fulbright Visiting Scholar, Center for Systems Biology, MGH, Harvard Medical School
2008-2009	Visiting Research Scientist, Magnetic Materials Laboratory, Dept. of Electrical & Computer Engineering, Northeastern University
2002-2010	Associate Professor, Dept. of Physics, Aristotle University of Thessaloniki
1996-2001	Assistant Professor, Dept. of Physics, Aristotle University of Thessaloniki
1993-1996	Research Fellow, Institute for Materials Science, NCSR "Demokritos", Athens
1990-1993	Post-doc, University of Hamburg, and Aristotle University of Thessaloniki

Academic Experience

Teaching in undergraduate courses: "Electricity – Magnetism", "Electrical Circuits", "Applied Magnetism", "Magnetic Materials" and graduate courses: "Magnetic Materials", "Laboratory of Magnetic Measurements", "Laboratory of Research Methodology" and "Nanosynthesis & Nanoprocesses"; teaching in Summer Schools; supervision of 26 MSc and 10 PhD theses; advisory committee member in 10 PhD theses.

Academic Activities

- Reviewer in international scientific journals for more than 200 papers from tens of peer review journals.
- Reviewer of R&D proposals for EU FP7, Lise Meitner program of the Austrian Science Fund (FWF), Romanian National Council for Research & Development, Fondo Nacional de Desarrollo Científico y Tecnológico de Chile (FONDECYT), Greek Secretary for Research & Technology (GSRT) and State Scholarships Foundation (IKY).
- Member of the "Greek Society for the Science and Technology of Condensed Matter" (Vice-president 2003-2005).
- Head of the Department of Applied and Environmental Physics of the Faculty of Physics at the Aristotle University of Thessaloniki (2005-2007).
- Member of the *IT Committee* (2015-2019), the *Library & Information Center Committee* (2015-2019) and the *Committee of Welfare Work* (2019-2020) of Aristotle University of Thessaloniki.

Honors

- As an author of a highly co-cited paper "*Existence range, structural and magnetic properties of* $Nd_3Fe_{27.5}Ti_{1.5-y}Mo_y$ *and* $Nd_3Fe_{27.5}Ti_{1.5-y}Mo_yN_x$ *(0.0≤y≤1.5), J. Magn. Magn. Mater. 146, pp. 335-345 (1995),* ***O. Kalogirou****, V. Psycharis, L. Saettas and D. Niarchos*" recorded in the Institute for Scientific Information's (ISI) 1999 Research Fronts database, invited to participate in an international Science Foresight Project by the institution "Science and Technology Policy Research" (U.K.) The invitation concerned the authors of 483 publications among 15.467.671 publications, published between 1985 and 1999 in several Physical Science and Engineering fields (*http://www.sussex.ac.uk/spru/foresight/*).
- That paper was included in *Structure Determination from Powder Diffraction – Database SDPD- D* catalogue *Powder Diffraction Selected "Famous" "Recent" Papers (http://sdpd.univ-lemans.fr).*
- Paper "*Controlled synthesis and phase characterization of Fe-based nanoparticles obtained by thermal decomposition J. Magn. Magn. Mater. 316(2) pp. e1-e4 (2007) K. Simeonidis, S. Mourdikoudis, M. Moula, I. Tsiaoussis, C. Martinez-Boubeta, M. Angelakeris, C. Dendrinou-Samara and* ***O. Kalogirou***" was ranked 4th in the list *Top 25 Hottest Articles* of *Journal of Magnetism & Magnetic Materials* for the period July – September 2007 and paper "*Structural and magnetic features of heterogeneous nucleated Fe-oxide nanoparticles J. Magn. Magn. Mater.320(9) pp. 1631-1638 (2008) K. Simeonidis, S. Mourdikoudis, I. Tsiaoussis, M. Angelakeris, C. Dendrinou-Samara and* ***O. Kalogirou***" was ranked 20th in the same list for two cumulative periods, January–March 2008 and April–June 2008. *(http://top25.sciencedirect.com).*
  - Paper "*High coercivity cobalt carbide nanoparticles processed via polyol reaction: A new permanent magnet material, J. Phys. D: Appl. Phys. 43 (2010) 165003, V.G. Harris, Y. Chen, A. Yang, S. Yoon, Z. Chen, A. Geiler, C.N. Chinnasamy, L.H. Lewis, C. Vittoria, E.E Carpenter, K. Carroll, R. Goswami, M.A. Willard, L. Kurihara, M. Gjoka and* ***O. Kalogirou***" has been included in a selection of the most popular articles *published in Journal of Physics D: Applied Physics* for 2010 (*http://iopscience.iop.org/0022-3727/page/JPhysD%20celebrates%20Impact%20Factor%20success*)
- Mentored PhD student, K. Simeonidis, was awarded with the *Fellowship of Excellence 2009 for Post-Doctoral Research* by the Research Committee of the Aristotle University of Thessaloniki. Mentored PhD students, K. Simeonidis and S. Mourdikoudis, were awarded with the Action "*Support of post-doctoral researchers*" of GSRT.
- Member of the *Nature Reader Panel 2010-2011*.
- Invited by the *Royal Swedish Academy of Sciences* to submit proposals for the award of the *Nobel Prize in Physics* in 2012.
- 2016 *Fulbright* Visiting Scholar
- Mentored PhD student, A.R. Tsiapla, was awarded with the *Poster Presentation Excellence Award* at the *XXXIV Panhellenic Conference on Solid State Physics & Materials Science*, Patras 2019.

Synergistic Activities

- Member of the Organizing Committee of the *12th International Conference on Solid State Ionics*, Chalkidiki, June 1999.
- Member of the Organizing Committee of the Summer School "*Advanced Materials for Industrial Applications*", Kavala, June 1999.
- Member of the Organizing Committee of the *8th Intensive Program "Advanced Physics and Chemistry of Materials"*, Thessaloniki, July 2004.
- Member of the Scientific Committee of the *E-MRS 2005 Fall Meeting Symposium "Multi-component Alloys and Intermetallic Compounds for Magnetic Applications and Nanotechnology"*, Warsaw, September 2005.
- Member of the National Advisory Committee of the *XXIII Pan-Hellenic Conference on Solid State Physics and Materials Science*, Athens, September 2007.
- Member of the Organizing Committee of the *Workshop "Research Trends in Novel Magnets for Electromagnetic Applications"*, Santorini, September 2008.

- Co-chairman and member of the Program Committee of the *20th International Workshop on Rare–Earth Magnets and their Applications*, Crete, September 2008.
- Co-chairman and member of the Publication Committee of the *Joint European Magnetic Symposia JEMS 2013*, Rhodes, August 2013.

Areas of interest

Magnetic nanoparticles for biomedical applications (magnetic particle hyperthermia, MRI contrast agents, magneto-mechanical cell stress); intermetallic compounds for permanent magnet applications; ionic conductors for Li batteries applications.

Higher Education Policies & Reforms; Academic Recognition

Principle Investigator in R&D projects

1. "Development of hard magnetic materials of the R-Fe-T type", national funded PENED95, Institute for Materials Science (IMS) NCSR "Demokritos, 1996-1998.
2. "Development and investigation of the hard magnetic materials of the type R-Fe-M", NATO - International Scientific Exchange Programs, U of Thessaloniki, IMS NCSR "Demokritos", U Tirana, U of Elbasan and U of Sofia, 1996-1998.
3. "Development of humidity sensors and proton conductors for fuel cells applications based on inorganic solid electrolytes", Greek-German bilateral project, U of Thessaloniki, U of Hamburg, 1999-2000.
4. "Development of bulk and nanocomposite permanent magnets", national funded PENED99, U of Thessaloniki and U of Ioannina, 2000-2001.
5. "Design and Optimization of Low Temperature Proton Conductors" Greek-German bilateral project IKYDA, U of Thessaloniki and U of Augsburg, 2003-2004.
6. "Development of novel R-T-M intermetallic compounds for permanent magnet applications", Greek-Bulgarian bilateral project, U of Thessaloniki and "St. Kl. Ohridski" U of Sofia, 2005-2007.
7. "Science for People – Technology for Society", U of Thessaloniki, 2006.
8. "Self-assembly of magnetic nanoparticle arrays for permanent magnet, sensor and magnetic recording media applications", U of Thessaloniki, Institute for Materials Science NCSR "Demokritos", U of Ioannina and U of Patras, national funded PENED03, 2005-2008.
9. "Study of biocompatibility/cytotoxicity of novel magnetic nanoparticles for Magnetic Particle Hyperthermia applications" funded in the frame of the official collaboration of U of Thessaloniki and Bulgarian Academy of Sciences, 2018-2020.
10. "Thermal and mechanical activation of magnetic nanoparticles as a strategy for fighting cancer", U of Thessaloniki, national funded EDVM2019, 2019-2020.

Participation in R&D projects

1. "Ceramic materials for permanent magnets development" Greek French bilateral project, U of Thessaloniki, CNRS Grenoble, 1985-1988.
2. "Properties of zeolites and metal-oxides" Greek-German bilateral project, U of Thessaloniki, U of Hamburg, NTU Athens, 1990-1993.
3. "Structural, magnetic and electrical properties of functional oxides" Greek-German bilateral project, U of Thessaloniki, U of Hamburg, 1993-1995.
4. "Development of Sm-Fe-N permanent magnets" BRITE/EURAM, NCSR "Demokritos" + six partners, 1993-1994.
5. "Magnetostriction in films for integrated technologies" BRITE/EURAM, NCSR "Demokritos" + seven partners, 1994-1997.
6. "Magnetic field imaging based on giant magnetoresistance sensors" CSF II EU and national funded project, NCSR "Demokritos", 1995-1997.

7. “Study of hydrogen storage in Al-metallic alloys for their use as a clean energy process”, Greek-Cypriot bilateral project, Frederick Research Centre of Cyprus, U of Thessaloniki, NCSR “Demokritos”, 1996-1997.
8. “Hydrogen technology in high technology materials for industrial production” Research Foundation of Cyprus (Frederick Research Centre of Cyprus, U of Thessaloniki, NCSR “Demokritos”, University of Delaware, TEI Piraeus, MITSUBISHI Materials Corporation, Nemitsas ltd) 1999-2001.
9. “Greek Technology Foresight Program”, member of the Working Group “Materials”, EU and national funded, 2002-2003.
10. “Technology Foresight Program in the region of Central Macedonia”, member of the Working Group “Nanotechnology, materials and industrial processes”, EU and national funded, 2003-2004.
11. “Laboratories Network for Development & Characterization of Magnetic Materials – MagNet” U of Thessaloniki, funded by the Research Committee of the Aristotle University of Thessaloniki, 2003-2004.
12. “Development of metal-bonded powder of strong permanent magnets (Nd-Fe(Co)-B, Sm-Fe-N) using metallic bonds (Zn,Al) for high temperature applications” funded by the Republic of Cyprus, Frederick Research Centre of Cyprus, NCSR “Demokritos”, U of Thessaloniki, 2003-2005.
13. “Development of a portable high sensitive magnetic detector” spin-off, EU and national funded project, National Technical University, U of Thessaloniki, 2003-2005.
14. “Technological Magnetic Materials”, EU and national funded project, U of Thessaloniki, 2004-2006.
15. “New nanocomposite hard magnets by melt spinning and mould casting: synthesis, characterization and applications”, Greek-Romania bilateral project (NCSR “Demokritos”, U of Thessaloniki, National Institute of R&D for Technical Physics, Iasi) 2007-2008.
16. “Smart magnetic nanoparticles probes for magnetic resonance imaging (MRI)” THALES project (U of Thessaloniki, U of Patras, U of Thessaly) 2012-2015
17. “Magnetic Nanohybrids for Cancer Therapy” Twinning | Horizon 2020 (Inst. Phys. Res. Nat. Acad. Sci. Armenia, U of Thessaloniki, U Duisburg-Essen, Intell. Cons. Sarl LU) 2019-2022

Invited lectures

More than 20 invited lectures at conferences, summer schools, universities and research centers including among others, Harvard Medical School, MIT, Northeastern University, Villanova University, University of Delaware, University of California at Riverside, University of Iasi, University of Hamburg.

Books chapters

K. Athanassiadis, S. Logothetidis, **O. Kalogirou**, K. Tzitzinou, M. Chachamidou, N. Katsiadakis, *The evolution of nanotechnology, materials and industrial technologies until 2018*, in N. Maroulis, I. Tolias (Eds.), *Technological Foresight in: Central Macedonia to 2018*, Research Committee AUTh Publish., pp. 266–315, Thessaloniki, 2004

O. Kalogirou, *Biomedical Applications of Nanoparticle Ferrites*, in: V.G. Harris (ed.), *Modern Ferrites, Volume 2: Emerging Technologies and Applications*, Chapter 10, pp. 347–382, 2023, John Wiley & Sons Limited, 2023, ISBN 9781394156139

Book translation/editing

J.M.D. Coey, *Magnetism & Magnetic Materials*, Translation – Editing M. Angelakeris, K.G. Efthimiadis, **O. Kalogirou**, C. City Publish, ISBN 978-960-9551-10-6 (656 pages), Thessaloniki 2014

Publications

113 publications in peer reviewed journals; 19 publications in peer reviewed proceedings volumes; 134 presentations at international conferences; >2000 non-self-citations; h-index=24

Selected publications

Controlled synthesis and phase characterization of Fe-based nanoparticles obtained by thermal decomposition, J. Magn. Magn. Mater. 316(2) pp. e1-e4 (2007), K. Simeonidis, S. Mourdikoudis, M. Moula, I. Tsiaoussis, C. Martinez-Boubeta, M. Angelakeris, C. Dendrinou-Samara and **O. Kalogirou**

High coercivity cobalt carbide nanoparticles processed via polyol reaction: A new permanent magnet material, Phys. D: Appl. Phys. 43 (2010) article no 165003, V.G. Harris, Y. Chen, A. Yang, S. Yoon, Z. Chen, A. Geiler, C.N. Chinnasamy, L.H. Lewis, C. Vittoria, E.E Carpenter, K. Carroll, R. Goswami, M.A. Willard, L. Kurihara, M. Gjoka and **O. Kalogirou**

Evolution of $Nd_2Fe_{14}B$ nanoparticles magnetism during surfactant-assisted ball-milling, Intermetallics, 19 pp. 589-595 (2011), K. Simeonidis, C. Sarafidis, E. Papastergiadis, M. Angelakeris, I. Tsiaoussis and **O. Kalogirou**

Morphology influence on nanoscale magnetism of Co nanoparticles: Experimental and theoretical aspects of exchange bias, Phys. Rev. B 84 144430 (2011), K. Simeonidis, C. Martinez-Boubeta, Òscar Iglesias, A. Cabot, M. Angelakeris, S. Mourdikoudis, I.Tsiaoussis, A. Delimitis, C. Dendrinou-Samara, **O. Kalogirou**

Magnetic mediated hyperthermia for cancer treatment by Fe/MgO nanoparticles, J. Magn. Magn. Mater. 323 pp. 775–780 (2011), A. Chalkidou, K. Simeonidis, M. Angelakeris, Th. Samaras, C. Martinez-Boubeta, Ll. Balcells, K. Papazisis, C. Dendrinou-Samara and **O. Kalogirou**

Magnetic Graphene Oxide: Effect of preparation on Reactive Black 5 adsorption, Materials 6 pp. 1360-1376 (2013), G.Z. Kyzas, N.A. Travlou, **O. Kalogirou** and E.A. Deliyanni

Reducing the inversion degree of $MnFe_2O_4$ nanoparticles through synthesis to enhance magnetization; Evaluation of their ^1H NMR relaxation and heating efficiency, Dalton Transactions 43(33) pp. 12754-12765 (2014), K. Vamvakidis, M. Katsikini, D. Sakellari, E.C. Paloura, **O. Kalogirou** and C. Dendrinou-Samara

In-vitro application of ferrite nanoparticles as novel magnetic hyperthermia agents, Journal of Materials Chemistry B 2 pp. 8390-8398 (2014), A. Makridis, K. Topouridou, M. Tziomaki, D. Sakellari, K. Simeonidis, M. Angelakeris, M.P. Yavropoulou, J.G. Yovos and **O. Kalogirou**

Unveiling the physicochemical features of $CoFe_2O_4$ NPs synthesized via a variant hydrothermal method: NMR relaxometric properties, Journal of Physical Chemistry C 119(15) pp. 8336–8348 (2015), V. Georgiadou, V. Tangoulis, I. Arvanitidis, **O. Kalogirou** and C. Dendrinou-Samara

Arrangement at the nanoscale: Effect on magnetic particle hyperthermia, Scientific Reports 6 article no 37934 (2016), E. Myrovali, N. Maniotis, A. Makridis, A. Terzopoulou, V. Ntomprougkidis, K. Simeonidis, D. Sakellari, **O. Kalogirou**, T. Samaras, R. Salikhov, M. Spasova, M. Farle, U. Wiedwald and M. Angelakeris

Processing of magnetically anisotropic MnBi particles by surfactant assisted ball milling, J. Magn. Magn. Mater. 426 pp. 691-697 (2017), K. Kanari, C. Sarafidis, M. Gjoka, D. Niarchos and **O. Kalogirou**

Carbon Encapsulated Cobalt Nanoparticles: Synthesis, Properties and Magnetic Particle Hyperthermia Efficiency, J. Nanopart. Res. 19(12) article no 399 (2017), A. Kotoulas, C. Dendrinou-Samara, C. Sarafidis, Th. Kehagias, J. Arvanitidis, G. Vourlias, M. Angelakeris and **O. Kalogirou**

Effect of low frequency magnetic fields on the growth of MNPs-treated HT29 colon cancer cells, Nanotechnology 29(17) article no 175101 (2018), K. Spyridopoulou, A. Makridis, N. Maniotis, N. Karypidou, E. Myrovali, T. Samaras, M. Angelakeris, K. Chlichlia and **O. Kalogirou**

Improving the subcutaneous mouse tumor model by effective manipulation of magnetic nanoparticles-treated implanted cancer cells, Annals of Biomedical Engineering 46(12) pp.1975–1987 (2018), K. Spyridopoulou, G. Aindelis, E. Lampri, M. Giorgalli, E. Lamprianidou, I. Kotsianidis, A. Tsingotjidou, A. Pappa, **O. Kalogirou** and K. Chlichlia

The effect of polyol composition on the structural and magnetic properties of magnetite nanoparticles for magnetic particle hyperthermia, Materials 12(17) article no 2663 (2019), A. Kotoulas, C. Dendrinou-Samara, M. Angelakeris and **O. Kalogirou**

Rapid Millifluidic Synthesis of Stable High Magnetic Moment Fe_xC_y Nanoparticles for Hyperthermia, ACS Applied Materials & Interfaces 12(25) pp. 28520–28531 (2020), K. Loizou, S. Mourdikoudis, A. Sergides, M.O. Besenhard, C. Sarafidis, K. Higashimine, **O. Kalogirou**, S. Maenosono, T. Nguyen and A. Gavriilidis

Mitigation of Magnetic Particle Hyperthermia side effects by magnetic field controls, International Journal of Hyperthermia 38(1) (2021) pp. 511-522, A.R. Tsiapla, A.A. Kalimeri, N. Maniotis, E. Myrovali, T. Samaras, M. Angelakeris and **O. Kalogirou**

Biogenic selenium nanoparticles produced by Lactobacillus casei ATCC393 inhibit colon cancer cell growth in vitro and in vivo, Nanoscale Advances 3 (2021) pp. 2516-2528, K. Spyridopoulou, E. Tryfonopoulou, G. Aindelis, P. Ypsilantis, C. Sarafidis, **O. Kalogirou** and K. Chlichlia

Cell behavioral changes after the application of magneto-mechanical activation to normal and cancer cells, Magnetochemistry 8(2) (2022) pp. 21-33, A.R. Tsiapla, V. Uzunova, T. Oreshkova, M. Angelakeris, T. Samaras, **O. Kalogirou** and R. Tzoneva