

# Ioannis S. KANDARAKIS

(Curriculum Vitae)

## Personal details

**Family name:** KANDARAKIS  
**Given name:** Ioannis  
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**Current position:** Professor  
**University of West Attica**  
*Department of Biomedical Engineering,  
Lab. of Radiation Physics, Materials Technology and Biomedical Imaging  
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**International Societies:** American Association of Physicists in Medicine (AAPM)  
International Society for Radiation Physics (ISRP)  
European Association of Radiology (EAR-ECR)  
European Society for Engineering and Medicine (ESEM)  
IEEE

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## Education-Qualifications

- First degree: *Physics* ("Ptyheion"). Department of Physics, University of Patras, 1977.
- Postgraduate degree : *Diplome d' Etudes Approfondies (DEA): Physique Radiologique / Medicale.* Faculte des Sciences, Unite Physique-Chimie-Automatique, Centre de Physique Atomique de Toulouse (CPAT), Universite "Paul Sabatier"- Toulouse III, 1978,
- Doctorate: *Doctorat de Physique Radiologique / Medicale.* Faculte des Sciences, Unite Physique-Chimie-Automatique, Centre de Physique Atomique de Toulouse (CPAT), Universite "Paul Sabatier"-Toulouse III, 1981

## Research and Scientific Activities

### Areas of research

- Scintillator and phosphor materials evaluation for application in detectors of x-ray and gamma-ray medical imaging systems (*Experimental and theoretical methods*)
- Monte Carlo and analytical simulation methods in Diagnostic Radiology and in Nuclear Medicine (*Physics and Instrumentation*)
- Evaluation of medical imaging systems using objective image quality metrics (*Experimental and theoretical methods applied in Digital Radiology, Nuclear Medicine and in Portal Imaging – Radiation Therapy*)
- Non-ionizing radiations applications (*Magnetic Resonance Imaging /UltrasonicImaging*)

**Scientific Publications:**

- 132 publications in scientific journals (see attached list)
- 140 publications in conference proceedings and conference abstracts
- 1003 Citations (excluding self citations-Scopus), 2963 (Google Scholar) / h-index:25 (Scopus). 31 (Google Scholar) (15)

**Text Books** (*in Greek language*):

- Medical Physics-Biomedical Engineering: Diagnostic Radiology (ISBN: 978-960-89768-1-8)
- Medical Physics-Biomedical Engineering: Nuclear Medicine (ISBN: 978-960-91034-8-0)
- Medical Physics-Biomedical Engineering: Magnetic Resonance Imaging (978-960-91034-9-7) (*co-author with A. Karatopis*)

**Reviewer in scientific journals:**

1. European Radiology
2. Journal of Materials Science
3. Optical Materials
4. European Materials Research Symposium-2006
5. Radiation Physics and Chemistry
6. Medical and Biological Engineering and Computing
7. Nuclear Instruments and Methods in Physics Research A
8. Medical Physics
9. Physica Medica
10. Journal of Raman Spectroscopy
11. Journal of Alloys and Compounds
12. Nanomaterials
13. Applied Radiation and Isotopes
14. Science and Technology of Nuclear Installations
15. Radiation Protection and Dosimetry
16. Luminescence: Journal of Chemical and Biological Luminescence
17. Journal of Luminescence
18. Ecotoxicology and Environmental Safety
19. Applied Physics A
20. International Journal of Computer Assisted Radiology and Surgery
21. Sensors and Actuators A. Physical
22. Radiation Measurements
23. Nanomaterials

**Member of conference committees / session chairman / invited speaker**

- In (24) international conferences

**Evaluator in scientific proposals**

- In research and educational proposals within the Greek Ministry of Education EPEAEK framework (15)

**Member in doctorate supervising committees**

- In 24 doctorates

### **Teaching experience**

- **University of West Attica – TEI Athens**, Athens, Greece
  - (i) Dept. of Radiology Technology  
Courses: Radiation Physics I and II  
Radioactive isotopes I and II
  - (ii) Dept of Biomedical Engineering  
Courses: Ionizing Radiation Technology I, II, III  
(Medical Imaging/Radiology-Nucl. Med-MRI-US and Radiation Therapy instrumentation).  
From September 1985 until today  
Modern Physics  
Biophysics
- **Military School “Euelpidon”** -Vari, Athens, Greece  
Laboratory of Physics  
Course: General Physics  
From September 1985 until June 1989
- **University of Crete**-Herakleion, Greece  
Department of Medicine, Faculty of Health Sciences  
Laboratory of Medical Physics  
Course: Medical Physics I and II  
Instrumentation of Medical Imaging Systems  
Spectroscopy methods in Biology and Medicine  
From March 1987 until December 1989
- **University of Thessaly**-Larissa, Greece  
Department of Medicine, Faculty of Health Sciences  
Laboratory of Medical Physics.  
Courses: Medical Physics  
Ionizing and non-ionizing radiations in Medicine  
From September 1997 until 2000  
  
Postgraduate courses
- **University of West Attica**-Athens,  
Dept of Biomedical Engineering ” Advanced Systems and Methods In Biomedical Technology”
- **University of Patras**- Patras, Greece  
Department of Medicine and Department of Physics  
*Postgraduate course on “Medical Physics”*  
Course: Physics of Diagnostic Radiology  
Physics of Nuclear Medicine (*Course co-ordinator*)  
From September 1994 until today
- **University of Athens, TEI of Athens, Biomedical Research Foundation Academy of Athens, Institute of Informatics “Democritus” Research Centre of Physical Sciences** Athens, Greece  
Dept. of Informatics and Telecommunications (UoA), Dept of Med. Instrum. (TEI)  
*Postgraduate programme “Information Technologies in Medicine and in Biology”*

Course: Medical Imaging Systems  
From September 2007

### **Professional and training experience**

- 251 General Airforce Hospital-Athens, Greece.  
Depts. of Diagnostic Radiology, Ultrasound, Computed Tomography.  
From July 1982 until September 1983.  
And from January 1985 until April 1989.
- “Aretaieion” University General Hospital-Athens, Greece  
Depts. of Nuclear Medicine and Radiation Therapy  
From November 1983 until June 1984.
- Regional University General Hospital of Crete -Herakleion, Greece.  
Dept. of Diagnostic Radiology  
From May 1989 until January 1990.

### **Invited Talks**

1. I. Kandarakis and G. Fountos: New Developments in Radiation Detectors for Medical Imaging (invited refresher course). European Medical Physics and Engineering Conference (VI<sup>th</sup> European Conference of Medical Physics), 18-20 October 2012, Sofia Bulgaria
2. I Kandarakis, Luminescence in Medical image science 17 International Conference on Luminescence and Optical Spectroscopy (ICL 2014), 13-18 July 2014, Wroclaw, Poland, invited Lecture, Session Chairman).

### **Scientific publications in international journals**

1. K. Psichis, N. Kalyvas, I. Kandarakis, G. Panayiotakis, MTF of columnar phosphors Q an analytical approach. *Medical and Biological Engineering and Computing* DOI: 10.1007/s11517-020-02243-4
2. C. Michail, V. Koukou, N. Martini, G. Saatsakis, N. Kalyvas, A. Bakas, I. Kandarakis, G. Fountos, G. Panayiotakis and I. Valais, Luminescence efficiency of Cadmium Tungstate (CdWO<sub>4</sub>) single crystal for medical imaging applications. (2020) *Crystals*. 10(6), 429; <https://doi.org/10.3390/cryst10060429>
3. D. Linardatos, A. Konstantinidis, I. Valais, K. Ninos, N. Kalyvas, A. Bakas, I. Kandarakis, G. Fountos and C. Michail, On the optical response of Tellurium activated Zinc Selenide ZnSe:Te single crystal (2020) *Crystals* 10(11), 961; <https://doi.org/10.3390/cryst10110961>.
4. C. Michail, K. Ninos, N. Kalyvas, A. Bakas, G. Saatsakis, G. Fountos, I. Sianoudis, G. Panayiotakis, I. Kandarakis and I. Valais, Spectral Efficiency of Lutetium Aluminum Garnet (Lu<sub>3</sub>Al<sub>5</sub>O<sub>12</sub>:Ce) with Microelectronic Optical Sensors (2020) *Microelectron. Reliab.* 109: 113658 ; <https://doi.org/10.1016/j.microrel.2020.113658>
5. A. Anastasiou, F. Papastamati, A. Bakas, C. Michail, V. Koukou, N. Martini, E. Lavdas, I. Valais, G. Fountos, I. Kandarakis and N. Kalyvas, Spatial frequency domain analysis of a commercially available digital dental detector (2020) *Measur.* 151: 1071712019. <https://doi.org/10.1016/j.measurement.2019.107171>
6. N. Martini, V. Koukou, G. Fountos, I. Valais, I. Kandarakis, C. Michail, A. Bakas, E. Lavdas, K. Ninos, G. Oikonomou, L. Gogou, G. Panayiotakis, Imaging performance of a CaWO<sub>4</sub>/CMOS sensor, *Frattura ed Integrità Strutturale*, 2019, 13(50):471-480. doi: 10.3221/IGF-ESIS.50.39.
7. George Saatsakis, Christos Michail, Christina Fountzoula, Nektarios Kalyvas, Konstantinos Ninos, Athanasios Bakas, Ioannis Sianoudis, Ioannis Kandarakis, George Fountos, George Panayiotakis

- and Ioannis Valais, Luminescence Efficiency of Zn-Cu-In-S / ZnS Quantum Dot films, IEEE Xplore 2019, 1-4, DOI: 10.1109/DTIS.2019.8734940
8. Saatsakis, G. Kalyvas, N. Michail, C. Ninos, K. Bakas, A. Fountzoula, C. Sianoudis, I. Karpetas, G.E. Fountos, G. Kandarakis, I. Valais, I. Panayiotakis, G. Optical Characteristics of ZnCuInS/ZnS (Core/Shell) Nanocrystal Flexible Films Under X-Ray Excitation. *Crystals* 2019, 9, 343, <https://doi.org/10.3390/cryst9070343>
  9. Christos M. Michail, Kyriakos N. Agavanakis, George E. Karpetas, Nektarios I. Kalyvas, Ioannis G. Valais, Ioannis S. Kandarakis, George S. Panayiotakis, George P. Fountos, Information Content in Nuclear Medicine Imaging, *Energy Procedia*, Volume 157, 2019, pp. 1517-1524, <https://doi.org/10.1016/j.egypro.2018.11.317>.
  10. G. Saatsakis, C. Michail, C. Fountzoula, N. Kalyvas, A. Bakas, K. Ninos, G. Fountos, I. Sianoudis, I. Kandarakis, G. S. Panayiotakis and I. Valais, Fabrication and luminescent properties of Zn-Cu-In-S / ZnS Quantum Dot films under UV excitation (2019) *Applied Sciences*. 9(11): 2367. <https://doi.org/10.3390/app9112367>
  11. Niki Martini, Vaia Koukou, George Fountos, Ioannis Valais, Athanasios Bakas, Konstantinos Ninos, Ioannis Kandarakis, George Panayiotakis and Christos Michail, Towards the enhancement of medical imaging with non-destructive testing (NDT) CMOS sensors. Evaluation following IEC 62220-1-1:2015 international standard, (2018) *Procedia Structural Integrity* 10:326-332
  12. Christos Michail, Nektarios Kalyvas, Athanasios Bakas, Konstantinos Ninos, Ioannis Sianoudis, George Fountos, Ioannis Kandarakis, George Panayiotakis and Ioannis Valais (2019) Absolute Luminescence Efficiency of Europium-Doped Calcium Fluoride (CaF<sub>2</sub>:Eu) Single Crystals under X-ray Excitation. *Crystals*. 9(5):234.
  13. Christos Michail, George Karpetas, Nektarios Kalyvas, Ioannis Valais, Ioannis Kandarakis, Kyriakos Agavanakis, George Panayiotakis, George Fountos: Information Capacity of Positron Emission Tomography Scanners. *Crystals* 12/2018; 8(12):459., DOI:10.3390/cryst8120459
  14. I. E. Seferis, C. Michail, J. Zeler, N. Kalyvas, I. Valais, G. Fountos, A. Bakas, I. Kandarakis, E. Zych, G. S. Panayiotakis: Detective quantum efficiency (DQE) of high X-ray absorption Lu<sub>2</sub>O<sub>3</sub>:Eu thin screens: the role of shape and size of nano- and micro-grains. *Applied Physics A* 09/2018; 124(9)., DOI:10.1007/s00339-018-2034-2
  15. C. Michail, I. Valais, G. Fountos, A. Bakas, C. Fountzoula, N. Kalyvas, A. Karabotsos, I. Sianoudis, I. Kandarakis: Luminescence Efficiency of Calcium Tungstate (CaWO<sub>4</sub>) under X-ray radiation: Comparison with Gd<sub>2</sub>O<sub>2</sub>S:Tb. *Measurement* 02/2018; 120., DOI:10.1016/j.measurement.2018.02.027
  16. Niki Martini, Vaia Koukou, George Fountos, Christos Michail, Athanasios Bakas, Ioannis S. Kandarakis, Robert David Speller, George C. Nikiforidis: Characterization of breast calcification types using dual energy X-ray method. *Physics in Medicine and Biology* 08/2017; 62(19)., DOI:10.1088/1361-6560/aa8445
  17. I. Valais, C. Michail, C. Fountzoula, D. Tseles, P. Yannakopoulos, D. Nikolopoulos, A. Bakas, G. Fountos, G. Saatsakis, I. Sianoudis, I. Kandarakis, G. Panayiotakis: On the response of alloyed ZnCdSeS Quantum Dot films. *Results in Physics* 05/2017;., DOI:10.1016/j.rinp.2017.05.011
  18. V. Koukou, N. Martin, G. Fountos, C. Michail, A. Bakas, G. Oikonomou, I. Kandarakis, G. Nikiforidis: Application of a Dual Energy X-ray imaging method on breast specimen. *Results in Physics* 05/2017;., DOI:10.1016/j.rinp.2017.04.034
  19. George E. Karpetas, Christos M. Michail, George P. Fountos, Nektarios I. Kalyvas, Ioannis G. Valais, Ioannis S. Kandarakis, George S. Panayiotakis: Detective Quantum Efficiency (DQE) in PET Scanners: A Simulation Study. *Applied Radiation and Isotopes* 2017; DOI:10.1016/j.apradiso.2017.04.018
  20. Vaia Koukou, Niki Martini, George Fountos, Christos Michail, Panagiota Sotiropoulou, Athanasios Bakas, Nektarios Kalyvas, Ioannis Kandarakis, Robert Speller, George Nikiforidis: Dual energy subtraction method for breast calcification imaging. *Nuclear Instruments and Methods in Physics*

- Research Section A Accelerators Spectrometers Detectors and Associated Equipment 03/2017; 848:31-38., DOI:10.1016/j.nima.2016.12.034
21. Konstantinos Psichis, Nektarios Kalyvas, Ioannis Kandarakis, George Panayiotakis: An analytical approach to the light transport in columnar phosphors. Detector Optical Gain, angular distribution and the CsI:Tl paradigm. *Physica Medica* 02/2017;., DOI:10.1016/j.ejmp.2017.02.008
  22. I.E. Seferis, J. Zeler, C. Michail, S. David, I. Valais, G. Fountos, N. Kalyvas, A. Bakas, I. Kandarakis, E. Zych, G.S. Panayiotakis: Grains size and shape dependence of light efficiency of Lu<sub>2</sub>O<sub>3</sub>:Eu thin screens. *Results in Physics* 02/2017;., DOI:10.1016/j.rinp.2017.02.015
  23. Christos M Michail, George E Karpetas, George P Fountos, Nektarios I Kalyvas, Ioannis G Valais, Christina Fountzoula, Antonis Zanglis, Ioannis S Kandarakis, George S Panayiotakis: A novel method for the optimization of positron emission tomography scanners imaging performance. *Hellenic journal of nuclear medicine* 11/2016; 19(3)., DOI:10.1967/s002449910405
  24. P. Liaparinis, N. Kalyvas, E. Katsiotis, I. Kandarakis: Investigating the particle packing of powder phosphors for imaging instrumentation technology: An examination of Gd<sub>2</sub>O<sub>2</sub>S:Tb phosphor. *Journal of Instrumentation* 10/2016; 11(10)., DOI:10.1088/1748-0221/11/10/P10001
  25. Dimitrios Nikolopoulos, Ioannis Valais, Christos Michail, Athanassios Bakas, Christina Fountzoula, Demetrios Cantzos, Debabrata Bhattacharyya, Georgios Fountos, Panayiotis Yannakopoulos, George Panayiotakis, Ioannis Kandarakis: Radioluminescence properties of the CdSe/ZnS Quantum Dot nanocrystals with analysis of long-memory trends. *Radiation Measurements* 09/2016; 92:19-31., DOI:10.1016/j.radmeas.2016.06.004
  26. P. Sotiropoulou, G. Fountos, N. Martini, V. Koukou, C. Michail, I. Kandarakis, G. Nikiforidis: Polynomial dual energy inverse functions for bone Calcium/Phosphorus ratio determination and experimental evaluation. *Applied radiation and isotopes: including data, instrumentation and methods for use in agriculture, industry and medicine* 08/2016; 118., DOI:10.1016/j.apradiso.2016.08.007
  27. C. Michail, I. Valais, N. Martini, V. Koukou, N. Kalyvas, A. Bakas, I. Kandarakis, G. Fountos: Determination of the detective quantum efficiency (DQE) of CMOS/CsI imaging detectors following the novel IEC 62220-1-1:2015 International Standard. *Radiation Measurements* 07/2016; 94., DOI:10.1016/j.radmeas.2016.04.005
  28. I. Seferis, J. Zeler, C. Michail, I. Valais, G. Fountos, N. Kalyvas, A. Bakas, I. Kandarakis, E. Zych: On the response of semitransparent nanoparticulated films of LuPO<sub>4</sub>:Eu in poly-energetic X-ray imaging applications. *Applied Physics A* 05/2016; 122(5)., DOI:10.1007/s00339-016-0081-0
  29. C. Michail, S. David, A. Bakas, N. Kalyvas, G. Fountos, I. Kandarakis, I. Valais: Luminescence efficiency of (Lu,Gd)<sub>2</sub>SiO<sub>5</sub>:Ce (LGSO:Ce) crystals under X-ray radiation. *Radiation Measurements* 09/2015; 80., DOI:10.1016/j.radmeas.2015.06.008
  30. V Koukou, N Martini, C Michail, P Sotiropoulou, C Fountzoula, N Kalyvas, I Kandarakis, G Nikiforidis, G Fountos: Dual Energy Method for Breast Imaging: A Simulation Study. *Computational and Mathematical Methods in Medicine* 08/2015; 2015:574238., DOI:10.1155/2015/574238
  31. Ioannis Vlachos, Xenophon Tsantilas, Nektarios Kalyvas, Harry Delis, Ioannis Kandarakis, George Panayiotakis: Measuring scatter radiation in diagnostic X rays for radiation protection purposes. *Radiation Protection Dosimetry* 04/2015;., DOI:10.1093/rpd/ncv093
  32. N. Kalyvas, I. Valais, C. Michail, G. Fountos, I. Kandarakis, D. Cavouras: A theoretical study of CsI:Tl columnar scintillator image quality parameters by analytical modeling. *Nuclear Instruments and Methods in Physics Research Section A Accelerators Spectrometers Detectors and Associated Equipment* 04/2015; 779., DOI:10.1016/j.nima.2015.01.027
  33. P. Sotiropoulou, G. Fountos, N. Martini, V. Koukou, C. Michail, I. Kandarakis, G. Nikiforidis: Bone calcium/phosphorus ratio determination using dual energy X-ray method. *Physica Medica* 02/2015; 31(3)., DOI:10.1016/j.ejmp.2015.01.019
  34. C. Michail, I. Valais, I. Seferis, N. Kalyvas, G. Fountos, I. Kandarakis: Experimental Measurement of a High Resolution CMOS Detector Coupled to CsI Scintillators under X-ray Radiation. *Radiation Measurements* 02/2015; 74., DOI:10.1016/j.radmeas.2015.02.007

35. S. David, C. Michail, I. Seferis, I. Valais, G. Fountos, P. Liaparinos, I. Kandarakis, N. Kalyvas: Evaluation of Gd<sub>2</sub>O<sub>2</sub>S:Pr granular phosphor properties for X-ray mammography imaging. *Journal of Luminescence* 01/2015; 169., DOI:10.1016/j.jlumin.2015.01.044
36. N. Martini, V. Koukou, C. Michail, P. Sotiropoulou, N. Kalyvas, I. Kandarakis, G. Nikiforidis, G. Fountos: Pencil Beam Spectral Measurements of Ce, Ho, Yb, and Ba Powders for Potential Use in Medical Applications. *Journal of Spectroscopy* 01/2015; 2015(1):1-8., DOI:10.1155/2015/563763
37. I.S. Kandarakis: Luminescence in medical image science. *Journal of Luminescence* 11/2014; 169., DOI:10.1016/j.jlumin.2014.11.009
38. C. Michail, I. Valais, I. Seferis, N. Kalyvas, S. David, G. Fountos, I. Kandarakis: Measurement of the luminescence properties of Gd<sub>2</sub>O<sub>2</sub>S:Pr,Ce,F powder scintillators under X-ray radiation. *Radiation Measurements* 11/2014; 70., DOI:10.1016/j.radmeas.2014.09.008
39. I. Seferis, C. Michail, I. Valais, J. Zeler, P. Liaparinos, G. Fountos, N. Kalyvas, S. David, F. Stromatia, E. Zych, I. Kandarakis, G. Panayiotakis: Light emission efficiency and imaging performance of Lu<sub>2</sub>O<sub>3</sub>:Eu nanophosphor under X-ray radiography conditions: Comparison with Gd<sub>2</sub>O<sub>2</sub>S:Eu. *Journal of Luminescence* 07/2014; 151:229–234., DOI:10.1016/j.jlumin.2014.02.017
40. George E Karpetas, Christos M Michail, George P Fountos, Ioannis S Kandarakis, George S Panayiotakis: A new PET resolution measurement method through Monte-Carlo simulations. *Nuclear Medicine Communications* 06/2014; 35(9), DOI:10.1097/MNM.0000000000000151
41. Christos M Michail, Nektarios E Kalyvas, Ioannis G Valais, Ioannis P Fudos, George P Fountos, Nikos Dimitropoulos, Grigorios Koulouras, Dionisis Kandris, Maria Samarakou, Ioannis S Kandarakis: Figure of Image Quality and Information Capacity in Digital Mammography. *BioMed Research International* 05/2014; 2014:634856., DOI:10.1155/2014/634856
42. Alexandros P Samartzis, George P Fountos, Ioannis S Kandarakis, Evangelia P Kounadi, Emmanuel N Zoros, Evangelia Skoura, Ioannis E Datsaris, George H Nikiforides: A robust method, based on a novel source, for performance and diagnostic capabilities assessment of the positron emission tomography system. *Hellenic journal of nuclear medicine* 05/2014; 17(2):97-105.
43. N. Kalyvas, I. Valais, S. David, Ch. Michail, G. Fountos, P. Liaparinos, I. Kandarakis: Studying the energy dependence of intrinsic conversion efficiency of single crystal scintillators under X-ray excitation. *Optics and Spectroscopy* 05/2014; 116(5):743-747., DOI:10.1134/S0030400X14050117
44. C. Michail, N. Kalyvas, I. Valais, S. David, I. Seferis, A. Toutountzis, A. Karabotsos, P. Liaparinos, G. Fountos, I. Kandarakis: On the response of GdAlO<sub>3</sub>:Ce powder scintillators. *Journal of Luminescence* 12/2013; 144:45-52., DOI:10.1016/j.jlumin.2013.06.041
45. I.E. Seferis, C.M. Michail, I.G. Valais, G.P. Fountos, N.I. Kalyvas, F. Stromatia, G. Oikonomou, I.S. Kandarakis, G.S. Panayiotakis: On the response of a europium doped phosphor-coated CMOS digital imaging detector. *Nuclear Instruments and Methods in Physics Research Section A Accelerators Spectrometers Detectors and Associated Equipment* 11/2013; 729:307-315., DOI:10.1016/j.nima.2013.06.107
46. George E Karpetas, Christos M Michail, George P Fountos, Pipitsa N Valsamaki, Ioannis S Kandarakis, George S Panayiotakis: Towards the optimization of nuclear medicine procedures for better spatial resolution, sensitivity, scanimage quality and quantitation measurements by using a new Monte Carlo model featuring PET imaging. *Hellenic journal of nuclear medicine* 05/2013; 16(2), DOI:10.1967/s002449910082
47. S David, M Georgiou, G Loudos, C Michail, G Fountos, I Kandarakis: Evaluation of powder/granular Gd<sub>2</sub>O<sub>2</sub>S:Pr scintillator screens in single photon counting mode under 140 keV excitation. *Journal of Instrumentation* 01/2013; 8(01):P01006., DOI:10.1088/1748-0221/8/01/P01006
48. P. Liaparinos, N. Kalyvas, I. Kandarakis, D. Cavouras: Analysis of the imaging performance in indirect digital mammography detectors by linear systems and signal detection models. *Nuclear Instruments and Methods in Physics Research Section A Accelerators Spectrometers Detectors and Associated Equipment* 01/2013; 697:87–98., DOI:10.1016/j.nima.2012.08.014

49. D Nikolopoulos, N Kalyvas, I Valais, X Argyriou, E Vlamakis, T Sevvos, I Kandarakis: A semi-empirical Monte Carlo based model of the Detector Optical Gain of Nuclear Imaging scintillators. *Journal of Instrumentation* 11/2012; 7(11):P11021., DOI:10.1088/1748-0221/7/11/P11021
50. G P Fountos, C M Michail, A Zanglis, A Samartzis, N Martini, V Koukou, I Kalatzis, I S Kandarakis: A novel easy-to-use phantom for the determination of MTF in SPECT scanners. *Medical Physics* 03/2012; 39(3):1561-70., DOI:10.1118/1.3688196
51. Christos M. Michail, George P. Fountos, Ioannis G. Valais, Nektarios I. Kalyvas, Panagiotis F. Liaparinos, Ioannis S. Kandarakis, George S. Panayiotakis: Evaluation of the Red Emitting Gd<sub>2</sub>O<sub>2</sub>S:Eu Powder Scintillator for Use in Indirect X-Ray Digital Mammography Detectors. *IEEE Transactions on Nuclear Science* 11/2011; 58(5-58):2503 - 2511., DOI:10.1109/TNS.2011.2162002
52. P F Liaparinos, I S Kandarakis: Overestimations in zero frequency DQE of x-ray imaging converters assessed by Monte Carlo techniques based on the study of energy impartation events. *Medical Physics* 07/2011; 38(7):4440-50., DOI:10.1118/1.3603190
53. Christos M. Michail, Vasiliki A. Spyropoulou, George P. Fountos, Nektarios I. Kalyvas, Ioannis G. Valais, Ioannis S. Kandarakis, George S. Panayiotakis: Experimental and Theoretical Evaluation of a High Resolution CMOS Based Detector Under X-Ray Imaging Conditions. *IEEE Transactions on Nuclear Science* 03/2011; 58(1-58):314 - 322., DOI:10.1109/TNS.2010.2094206
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### **B. LIST OF FUNDED RESEARCH PROJECTS**

- ΕΠΕΑΕΚ II-«ARCHIMEDES»: «Investigation of phosphors-scintillators for use in radiation detectors of medical imaging systems», 01.02.2004-31.08.2006 (coordinator)
- ΕΠΙΤΡΟΠΗ ΕΡΕΥΝΩΝ ΤΕΙ ΑΘΗΝΑΣ-«ΑΘΗΝΑ 2004»: «Προσομοίωση συστήματος Υπολογιστικής Τομογραφίας Μαστού: Η επίδραση του υλικού του ανιχνευτή και του αλγορίθμου ανακατασκευής στην ποιότητα της εικόνας». (01/02/2005 – 31/12/2006) (Επιστημονικός Υπεύθυνος).
- ΕΡΕΑΕΚ II-«ARCHIMEDES II»: «Experimental investigation and Monte Carlo simulation of radiation detector materials used in Diagnostic Radiology and Nuclear Medicine systems», 01.01.2005-31.12.2006
- ΕΡΕΑΕΚ II-«ARCHIMEDES»: «Development of phosphor films for use in high resolution near-infrared Optical Imaging», 01.02.2004-31.08. 2006
- ΕΡΕΑΕΚ II-«PYTHAGORAS» «Optimization of lesion detectability in mammography by Monte Carlo techniques»



- ΓΤΕΤ (GSRT) – Greece-Ukraine “Development simulation and experimental evaluation of scintillation crystals for the optimization of a high resolution  $\gamma$ -ray imaging system for the localization of cancerous tumors”2004-2006
- ΕΠΕΑΕΚ II-«ARCHIMEDES»: «Development of a classification system for evoked potentials and intracranial currents using Support Vector Machines and Probabilistic Neural Networks (PNN)», 01.02.2004-31.08.2006
- ΕΠΕΑΕΚ-«ARCHIMEDES»: «Computer aided diagnosis system for thyroid cancer», 01.02.2004-31.08.2006
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- IKY-POSTDOCTORAL RESEARCH PROGRAMMES: Application of Monte Carlo Methods for the investigation of new structure materials of high packing density grains in the region of nanoparticles (ccordinator)
- ARHIMEDES III: (XDUALGNOSIS) Novel Applications of X-Ray Dual Energy for Early Diagnosis in Osteoporosis, Mammography and Angiography (Participant in the main research group /coordinator George Fountos).
- ARHIMEDES III: (NANOCARLO) Evaluation of Nanophosphors for Medical Imaging Applications: Monte Carlo Simulation and Experimental Evaluation of a Nanophosphor - CMOS Prototype (coordinator Ioannis Kandarakis)
- ARHIMEDES III: (SCoDo) Experimental Evaluation of New co-doped Scintillator Materials for Use in Combined Tomographic Imaging Systems ((Participant in the main research group / coordinator Konstantinos Kourkoutas)
- EXCELENCE (ARISTEIA)-GSRT. Medical Image Science through Luminescence (MISCIRLU) (No 1476) (Scientific coordinator Ioannis Kandarakis)