Curriculum Vitae

of

Dr Nikolaos Kazakis

September 2026

1 Personal Information

Name	:	Nikolaos A. Kazakis	
Place of Birth	:	Xanthi	
Nationality	:	Greek	
Position	:	Research Director (Researcher Grade A'), Laboratory of Archaeometry and Physicochemical Measurements, Institute for Language and Speech Processing (ILSP), Athena R.C., P.O. Box 159, Kimmeria University Campus, Xanthi, GR-67100	
Languages	:	English (fluently), Greek (native)	
Phone	:	Work: 2541350650	
e-mail	:	nikkazak@athenarc.gr	
Online Profiles	:	**Website**	Kazakis-Site_apmlab Kazakis-Site_ilsp
		ORC ID	Kazakis-ORCID
		Google Scholar	Kazakis-Scholar
		Scopus	Kazakis-Scopus
		Research Gate	Kazakis-ResearchGate

2 Educational Information

2.1 Studies

2018	**2nd PhD in Physics** School of Physics, Faculty of Sciences, Aristotle University of Thessaloniki, Greece. Thesis title: "***High-dose dosimetry with emphasis on the industrial sterilization and accidental radiation dosimetry***" Advisor: George Kitis, Professor Grade: **Excellent**
2008	**1st PhD in Chemical Engineering** Chemical Engineering Department, Faculty of Engineering, Aristotle University of Thessaloniki, Greece. Thesis title: "***Study of bubble column equipped with porous gas sparger***"

	Advisor: Spiros Paras, Professor Grade: **Excellent**
2003	**Diploma in Chemical Engineering** Chemical Engineering Department, Faculty of Engineering, Aristotle University of Thessaloniki, Greece. Grade: **8.76/10.0 (With Honors)**

2.2 *Foreign languages*

English	**Excellent knowledge** *Certificate of Proficiency in English, University of Michigan (2005).*

2.3 *Training*

14/06/2023	Regional Capacity Building Workshop for the Circular Economy, co-organized by Green Fund and the Region of Eastern Macedonia and Thrace within the framework of the Integrated Project LIFE-IP CEI-Greece, "*Implementation of the Circular Economy in Greece*", held at the Evros Prefecture Building, Alexandroupoli.
25/04/2023 – 26/04/2023	Training school for users of portable X-ray fluorescence spectroscopy devices (*XRF*, Tracer 5i, 5g) by Bruker, held at the facilities of Analytical Instruments S.A. in Athens.
29/04/2014 – 30/04/2014	Educational seminar at the headquarters of the Oxford-Instruments company, in High Wycombe, UK on the use of the EBSD (*Electron Backscatter Diffraction*) unit attached to the Scanning Electron Microscope located at the facilities of the Athena R.C. in Xanthi.
12/12/2014 – 13/12/2014	Educational seminar in Xanthi on the use of the X-ray Diffraction (*XRD*) instrument (*Model D8 Focus* of *Bruker*) located at the facilities of the Athena R.C. in Xanthi: principles, selection of operating conditions, spectra analysis.
25/09/2013 – 27/09/2013	Educational seminar in Xanthi on the use of the Scanning Electron Microscope instrument (*Model JSM-6610LV* of *JEOL*) located at the facilities of the Athena R.C. in Xanthi: principles, selection of operating conditions for optical observations and elementary analysis with Energy-dispersive X-ray spectroscopy (*EDS*) and Wavelength-dispersive X-ray spectroscopy (*WDS*).
30/05/2012	Attending the meeting: "*Reviewing the Evaluation and Assurance of Quality at the Technological Educational Institute of Larisa*", Technological Educational Institute of Larisa.

21/03/2010 – 26/03/2010	Visit at the Department of Physics and Astronomy, University of Nottingham, UK, studying the degassing of magnetic levitated liquid drop.
31/01/2010 – 06/02/2010	Visit at the Institut de Mécanique des Fluides de Toulouse (IMFT), Toulouse, France.
24/01/2010 – 31/01/2010	Visit at the Laboratory of micro-gravity, Department of Applied Physics, Technical University of Catalonia, Barcelona, Spain.
04/12/2007	Attending the meeting "*New technologies in Computational Fluid Dynamics codes*", Chemical Engineering Department, Faculty of Engineering, Aristotle University of Thessaloniki, Greece.
05/07/2004	Attending the meeting "*ANSYS CFX: recent advances in Computational Fluid Dynamics*", Chemical Engineering Department, Faculty of Engineering, Aristotle University of Thessaloniki, Greece.
15/12/2004 – 16/12/2004	Attending the 2nd Scientific Meeting CPERI: "*Research Activities of CPERI in the fields of Advanced Materials, Production, Energy and En-vironment Systems, Development of New High-Technology Companies*", Centre for Research and Technology-Hellas (*CERTH*), Thessaloniki, Greece.

3 Research and work experience

3.1 Experience in Academic and Research Institutes

04/12/2025 – today	**Athena Research Center in Xanthi** Research Director (Researcher Grade A). Scientific field "*Dosimetry and Radiation Analytical Methods*".
26/03/2019 – 04/12/2025	**Athena Research Center in Xanthi** Principal Researcher (Researcher Grade B). Scientific field "*Dosimetry and Radiation Analytical Methods*".
01/07/2010 – 22/03/2019	**Athena Research Center in Xanthi** Post-Doctoral Fellow/Research Associate
03/06/2013 – 12/07/2018	**Nuclear and Elementary Particle Physics Section, School of Physics, Faculty of Sciences, Aristotle University of Thessaloniki, Greece** Research work as PhD candidate.
20/05/2011 – 30/06/2011 & 08/03/2012 – 17/07/2012	**Environmental Engineering Department, Democritus University of Thrace** Adjunct Researcher: "*Chemical analysis of water samples in heavy metals by means of Atomic Absorption Spectroscopy*".

01/07/2011 – 25/10/2016	**Quality Assurance Unit, Democritus University of Thrace, Greece** Research Associate: "*Database update, studying the trends and practice on quality assurance internationally, development, management and adjustment of quality assurance and international ranking criteria and indices*".
15/10/2009 – 07/06/2010	**Laboratory of Chemical and Environmental Technology, Division of Chemical Technology, School of Chemistry, Aristotle University of Thessaloniki, Greece** Post-Doctoral Fellow/Adjunct Researcher participating in several research projects funded by the European Space Agency (*ESA*).
15/12/2003 – 17/07/2008	**Chemical Process and Plant Design Laboratory, Chemical Engineering Department, Faculty of Engineering, Aristotle University of Thessaloniki, Greece** Research work as PhD candidate, participation in several research projects.
01/07/2002 – 31/08/2002	**Institute of Chemical Technologies and Analytics, Technical University, Vienna, Austria** Two-month employment (*IAESTE program*): "*Laboratory analysis for the cellulose determination in the atmosphere using HPLC*".

3.2 Other Experience

25/11/2013 – 30/06/2014 & 12/10/2011 – 29/06/2012	**Employment Organization (*OAED*), Xanthi, Greece** Instructor for student training at the "*Pharmaceutical, Cosmetics and Related Products Technician*" profession orientation.
01/10/2003 – 30/11/2003	**KLT company, Thessaloniki, Greece** Two-month technical experience (internship) regarding heating and air conditioning in industry (*EPEAEK II project*).
29/07/1998 – 02/10/1998	**National Bank of Greece, Xanthi, Greece** Three-month seasonal employment at the foreign currency exchange division.

4 Scientific and Research Activity

4.1 Distinctions, Awards & Fellowships

- Invited by the scientific journal *Atlas of Science* to write and publish a short and comprehensible summary (*Layman summary*) (***[I1]***) *Kazakis, N.A., Kitis, G., Tsirliganis, N.C., 2015. Identifying doses in commercial liquid drugs sterilized by ionizing radiation. Atlas of Science,*

17 November 2015, http://atlasofscience.org/identifying-doses-in-commercial-liquid-drugs-sterilized-by-ionizing-radiation/, based on the peer-reviewed article (***[J8]***) *Kazakis, N.A., Kitis, G., Tsirliganis, N.C., 2015. Preliminary thermoluminescence investigation of commercial pharmaceutical glass containers towards the sterilization dosimetry of liquid drugs. Applied Radiation and Isotopes 105, 130-138.*

- Interview to Bas den Hond, Science journalist about the published work (***[J6]***) *Kazakis, N.A., Anastasia Th. Tsetine, Kitis, G., Tsirliganis, N.C., 2016. Insect wings as accidental/retrospective dosimeters: An optically stimulated luminescence investigation. Radiation Measurements 89, 74-81.*
- Publication in the printed (***[OJ1]***) *Bas den Hond, 2016. Dragonfly wings can track radiation doses after a nuclear mishap. New Scientist, vol. 3073, 14 May 2016, page 16*) and electronic version (***[I3]***) *Bas den Hond, 2016. Dragonfly wings can track radiation doses after a nuclear mishap. New Scientist, 5 May 2016,* https://www.newscientist.com/article/2087136-dragonfly-wings-can-track-radiation-doses-after-a-nuclear-mishap//, of the scientific journal *New Scientist* based on the peer-reviewed article (***[J6]***) *Kazakis, N.A., Anastasia Th. Tsetine, Kitis, G., Tsirliganis, N.C., 2016. Insect wings as accidental/retrospective dosimeters: An optically stimulated luminescence investigation. Radiation Measurements 89, 74-81.*
- 25th position at the most downloaded paper (*Top 25 hottest paper*) at the *Chemical Engineering Science* journal, Elsevier, period April-June 2007, (***[J19]***) *Kazakis, N.A., Papadopoulos, I.D., Mouza, A.A., 2007. Bubble columns with fine pore sparger operating in the pseudo-homogeneous regime: Gas hold up prediction and a criterion for the transition to the heterogeneous regime. Chemical Engineering Science 62(12), 3092-3103.*
- Distinction Award for Excellent New Researchers, as PhD candidate in the Chemical Engineering Department, in 2005, Research Committee of Aristotle University of Thessaloniki, Greece after evaluation of the scientific and academic performance from a scientific committee of the Aristotle University of Thessaloniki.
- Graduation from the Chemical Engineering Department with the highest degree score, November 2003.
- Award for Distinction during Graduation from the Chemical Engineering Department (*highest degree score*) from the Hellenic Association of Chemical Engineers, 2003.
- Outstanding Student Award for academic years 2000-2001, Greek Institute of State Scholarships (*IKY*).
- Award for Academic Excellence for academic years 2000-2001, Technical Chamber of Greece (*TEE*).

4.2 Invited Participations

- Invitation to participate in the webinar entitled "*Studying the Research Footprint of the Greek Regions through Bibliometric and Scientometric Methods: Problems and Methodological Approaches*", organized on April 6, 2023, by the Department of Financial and Management

Engineering, University of the Aegean, due to my expertise in bibliometrics and scientometrics.

- Invitation to participate in the Scientific Committee of the International Conference: *Annual International Congress on Chemistry*, Oxford, United Kingdom, March 27-28, 2025, https://chemrtc.com/.

5 Contribution to the Scientific Community

5.1 Referee in international scientific journals

1. Agriculture, *MDPI*.
2. Applied Radiation and Isotopes, *Elsevier*.
3. Applied Sciences, *MDPI*.
4. Archaeometry, *Wiley*.
5. Bioresource Technology Reports, *Elsevier*.
6. BioTech, *MDPI*.
7. Bulgarian e-Journal of Archaeology, *Association of Bulgarian Archaeologists (ABA)*.
8. Chemical Engineering Journal, *Elsevier*.
9. Chiang Mai Journal of Science, *Chiang Mai University*.
10. Colloids and Surfaces A: Physicochemical and Engineering Aspects, *Elsevier*.
11. Education for Chemical Engineers, *Elsevier*.
12. Environments, *MDPI*.
13. Energy & Environmental Materials, *Wiley*
14. Environmental Health Insights, *Sage Journals*.
15. Environmental Toxicology, *Wiley*.
16. Heritage Science, *Springer*.
17. Industrial & Engineering Chemistry Research, *ACS Publications*.
18. Integrated Pharmacy Research and Practice, *Dove Press*.
19. International Journal of Radiology and Imaging Technology, *ClinMed International Library*.
20. Journal of Archaeological Science: Reports, *Elsevier*.
21. Journal of Cultural Heritage, *Elsevier*.
22. Journal of Materials Science and Chemical Engineering, *Scientific Research Publishing (SCIRP)*.
23. Marine Pollution Bulletin, *Elsevier*.
24. Molecules, *MDPI*.

25. Phycology, *MDPI*.
26. Processes, *MDPI*.
27. Radiation Measurements, *Elsevier*.
28. Radiation Physics and Chemistry, *Elsevier*.
29. Recent Innovations in Chemical Engineering, *Bentham Science*.
30. Research, *Science Partner Journals (SPJ)*.
31. Sci, *MDPI*.
32. Scientometrics, *Springer*.
33. Societal Impacts, *Elsevier*.
34. Sustainability, *MDPI*.
35. Sustainable Development, *Wiley*.
36. The Open Public Health Journal, *Bentham Open*.
37. Toxics, *MDPI*.
38. Toxins, *MDPI*.
39. Water, *MDPI*.

5.2 Technical committees of international scientific journals

- Leading Guest Editor for the Special Issue "Analytical Methods in Biology, Chemistry and Archaeometry" (2024-2026), in the *Methods and Protocols* journal, MDPI.
- Member of the Review Editorial Board of the *International Journal of Computational Methods in Heritage Science*, IGI-Group, http://www.igi-global.com/journal/international-journal-computational-methods-heritage/145079#contents.

5.3 Technical Boards of Scientific Conferences

- Member of the Scientific Committee of the International Conference: *Annual International Congress on Chemistry*, Oxford, United Kingdom, March 27-28, 2025, https://chemrtc.com/.
- Chairperson of the Poster Session entitled "Radiochemistry, Environmental Chemistry" within the framework of the International Conference *International Conference on Radiation Applications, RAP2022*, Thessaloniki, Greece, June 6-10, 2022, www.rap-conference.org.

5.4 Associations and organizations

- Member of IEEE (*Institute of Electrical and Electronics Engineers, No 100895030*).

- Member of EURADOS (*European Radiation Dosimetry Group*).
- Member of the Hellenic Artificial Intelligence Society (*EETN*).
- Member of CAA International (*Computer Applications and Quantitative Methods in Archaeology*).
- Member of the Hellenic Society for Archaeometry (*HSA*).
- Member of the Hellenic Association of Chemical Engineers.
- Member of the Technical Chamber of Greece.
- Member of the Greek Researchers Society.
- Member of the Athena R.C. Researchers Organization.

5.5 Registers

- Credentialed Evaluator of the General Secretariat for Research & Technology (GSRT) for research programs evaluation.
- Member of the Evaluators Registry of the State Scholarships Foundation (IKY).
- Certified Instructor of OAED-LAEK in programs of vocational training of employers.

5.6 Organization – participation in workshops/meetings & scientific/technological events

- European Researchers' Night, Xanthi, Greece for years 2016, 2017, 2018, 2024. Member of the organization team and demonstration of the advanced scientific/experimental instruments of the Laboratory of Archaeometry and Physicochemical Measurement.
- Informative/scientific meeting "*Quality Assurance and Accreditation in the Higher Education: Future challenges*", Alexandroupoli, 3 October 2014. Member of the seminar organization team.

6 Teaching experience

6.1 Stand-alone teaching

2013-2014	Instructor at the Institute of Vocational (*IEK*) Training of the ManPower Employment Organization (*OAED*), Xanthi, Greece, for student training at the "*Pharmaceutical, Cosmetics and Related Products Technician*" profession orientation, teaching the courses: **1st semester:** **Unit and Chemical Operations** (theory)

	Safety and Hygiene in Industry (theory) **2nd semester:** **Chemical Technology** (theory) **Environment** (theory)
2011-2012	Instructor at the Institute of Vocational (*IEK*) Training of the ManPower Employment Organization (*OAED*), Xanthi, Greece, for student training at the "*Pharmaceutical, Cosmetics and Related Products Technician*" profession orientation, teaching the courses: **1st semester:** **Unit and Chemical Operations** (theory) **Safety and Hygiene in Industry** (theory) **Analytical Chemistry I** (laboratory course) **2nd semester:** **Chemical Technology** (theory) **Environment** (theory)

6.2 *Laboratory teaching*

2003-2008	Teaching Assistant at the Division of Analysis, Design and Control of Chemical Processes and Plants, Chemical Engineering Department, Aristotle University of Thessaloniki, Greece, teaching the courses: **Chemical Engineering Laboratory II** (supervising laboratory courses of undergraduate students during the 4th year of studies) for the academic years 2003-2004, 2004-2005, 2005-2006, 2006-2007 and 2007-2008, and the following laboratory exercises: ▪ *Studying the dynamic and control of the liquid level in tanks: Experimental data collection and processing using a PC.* ▪ *Studying the effect of the properties of the liquid phase on the bubble column design.* **Technical and Economical Plant Design Project I & II** (supervising the techno-economic research project of undergraduate students during the 5th year of studies) for the academic years 2005-2006, 2006-2007 and 2007-2008. **Chemical Process/Plant design** (supervising the research project of undergraduate students during the 4th year of studies) for the academic years 2005-2006, 2006-2007 and 2007-2008.

6.3 Supervising master/diploma thesis of students

2020-2021	Supervisor of the master thesis project of Stelios Theologitis entitled "*Detection of Irradiated Food Signals in the Greek Market Using Luminescence Techniques*", conducted within the framework of the Interinstitutional Postgraduate Program in Medical Physics – Radiation Physics at the Laboratory of Archaeometry and Physicochemical Measurements, Athena Research Center, Xanthi Branch.
2015-2016	Co-Supervisor of the master Thesis project of the visiting student Lily Bossin from the Claude Bernard University with title: "*A theoretical and experimental approach to the correlation of Thermoluminescence (TL), Optically stimulated luminescence (OSL) and Infrared stimulated luminescence (IRSL) of natural feldspars*", Laboratory of Archaeometry and Physicochemical Measurements, Athena R.C., Xanthi.
2015-2016	Co-Supervisor of the diploma Thesis project of Maria Karampiperi from the School of Physics, Aristotle University of Thessaloniki, Greece with title: "*Evaluating the natural dose in fired ceramics with various methods – Comparison between the methods*", Laboratory of Archaeometry and Physicochemical Measurements, Athena R.C., Xanthi.
2005-2006	Co-Supervisor of the diploma Thesis project of Kiriakos Taxidis, with title: "*Measuring the void fraction in a bubble column by means of a tomographic method*", Chemical Engineering Department, Aristotle University of Thessaloniki, Greece.
2005-2006	Co-Supervisor of the diploma Thesis project of Iordanis Papadopoulos with title: "*Predicting the void fraction at the homogeneous regime and the transition from the homogeneous to heterogeneous regime in a bubble column equipped with porous sparger*", Chemical Engineering Department, Aristotle University of Thessaloniki, Greece.

6.4 Supervising internships

04/09/2017 – 26/10/2017	Supervision of the internship of undergraduate student Claudia Gösenbauer from the TU Wien within the framework of the IAESTE program, on the topic "*Study of Luminescence Properties of Various Types of Marble*" at the Laboratory of Archaeometry and Physicochemical Measurements, Athena Research Center, Xanthi Branch.
24/10/2016 – 18/12/2016	Supervision of the internship of undergraduate student Luca GRM from the University of Ljubljana within the framework of the IAESTE program, on the topic "*TL/OSL Measurements*" at the Laboratory of Archaeometry and Physicochemical Measurements, Athena Research Center, Xanthi Branch.

01/09/2013 – 31/10/2013	Supervision of the internship of undergraduate student Felipe de Oliveira from the Universidade de São Paulo within the framework of the IAESTE program, on the topic "*Characterization of Materials Using X-rays*" at the Laboratory of Archaeometry and Physicochemical Measurements, Athena Research Center, Xanthi Branch.
09/07/2012 – 14/09/2012	Supervision of the internship of undergraduate student Alicia Patricia Francis van Ham-Meert from the Vrije Universiteit Brussel within the framework of the IAESTE program, on the topic "*Characterization of Materials Using X-rays*" at the Laboratory of Archaeometry and Physicochemical Measurements, Athena Research Center, Xanthi Branch.

7 Technical/Laboratory experience and additional information

7.1 Computer and software knowledge/operation

- *SequenceEditor* software by Risø National Laboratory for the development of RISO measurement protocols.
- *Analyst* software for processing results obtained from thermoluminescence (TL) and optically stimulated luminescence (OSL) measurements.
- *X-LabPro* software for spectrum acquisition using X-ray fluorescence spectroscopy (XRF).
- *WinAxil* and *ARTAX* software for the processing and identification of spectra acquired using X-ray fluorescence spectroscopy.
- *WinFund* software for determining the concentration of elements identified during the processing of spectra acquired using X-ray fluorescence spectroscopy.
- *XRD Commander* software for the complete operation (parameterization, analyses, spectrum acquisition) of the X-ray diffractometer.
- *GUI* software for comprehensive sample analysis using scanning electron microscopy (SEM), including image acquisition, size/distance measurements, elemental analysis, and crystallographic mapping.
- *iX-Pect* software for acquiring X-ray images using an X-ray radiographer.
- *MuSIS*: image acquisition and processing in different wavelengths by means of the Multi-Spectral Imaging System.
- *LEICA IM50*: image acquisition and processing by means of the stereoscope.
- *WinLab32*: full operation of the atomic absorption spectrometer (instrument operation, measuring conditions, data acquisition).
- *STATISTICA® 7.0*: data statistical analysis.

- *KaleidaGraph*: data processing and chart/figure creation.
- *ANSYS CFX® 10.0*: commercial code of computational fluid dynamics.
- *ASPEN®*: commercial code of process simulator.
- Software related to video and image processing.

7.2 *Experience on advanced or specialized laboratory equipment (measuring instruments/systems) – techniques*

- Thermoluminescence (TL) and Optically Stimulated Luminescence (OSL) systems (Riso TL/OSL reader, models TL/OSL-DA-15 and TL/OSL-DA-20).
- X-ray Fluorescence Spectroscopy (XRF) systems (μ-XRF by SPECTRO, COPRA model, 5011 XTF, Oxford Instruments, and portable XRF by Bruker, model Tracer 5g).
- X-ray Diffraction (XRD) system (Model D8 Focus by Bruker).
- Gamma spectroscopy system (Aegis Portable HPGe, Mirion Technologies).
- Digital X-ray radiography system (Faxitron Cabinet X-ray System 43855E).
- Area dosimetry systems (RaySafe 452 Radiation Survey Meter and FH40GL by Thermo Fisher Scientific).
- Alpha particle measurement system for determining the concentration of radioactive isotopes U-238 and Th-234, required for material dating (Model 7286 Low Level Alpha Counter by ELSEC).
- Scanning Electron Microscopy (SEM) system (Model JSM-6610LV by JEOL), combined with elemental analysis using Energy-dispersive X-ray Spectroscopy (EDS) or Wavelength-dispersive X-ray Spectroscopy (WDS), and crystallographic surface mapping using Electron Backscatter Diffraction (EBSD).
- Multispectral imaging system for the surface analysis of heterogeneous objects (MuSIS MS & HS by forthphotonics).
- Atomic Absorption Spectroscopy (AAS) system with flame or graphite furnace (Model AA800 by PerkinElmer).
- Spectrophotometry system (Model CM-2600d by Konica Minolta).
- Stereoscopic systems for acquiring surface images of objects at various magnifications (Models Leica MZ APO and Leica M205 A by Leica Microsystems).
- Optical microscopy system (Evident/Olympus CX43 (FN20/22) LED).
- Sieving system for solid materials to separate grains into size fractions, required for dosimetry or dating measurements (Type AS 200 control by Retsch).
- Hydraulic press system for pellet preparation from fine-grained materials for use in XRF analysis (Atlas™ 25T Hydraulic Press by Specac).

- Ball mill grinding system for material pulverization (Planetary Mono Mill "pulverisette 6" by FRITSCH).
- Microwave digestion system for solid sample dissolution (Model MARS 6 by CEM Corporation). Laser Doppler Anemometry (LDA).
- Viscosity measurement using high-accuracy Brookfield rheometer (Model Physica MCR 301 of Anton Paar).
- Optical tensiometer for the surface tension measurement of liquids (KSV CAM 200).
- Viscosity determination with Capillary viscometers.
- Photographic techniques.

8 Funding - Research and Development Projects

8.1 Participation in Cross-border, European, and International Projects

[EUP.M-1]	***SMS-CBA – «Smart Marketing Strategies for tourism in the Cross-Border Area».*** Interreg V-A Greece–Bulgaria 2014–2020 Cross-border Cooperation Programme, Priority Axis 2, Thematic Objective 6, Investment Priority, Specific Objective 4, 2020–2023
Deputy Scientific Coordinator of the Project for Athena R.C.	
[EUP.M-2]	***3D-ICONS – 3D Digitization of Icons of European Architectural and Archaeological Heritage.*** European Commission's ICT Policy Support Programme (CIP-ICT-PSP.2011.2.2-297194), 2012-2016
Member of the Project Team of Athena Research Center.	
[EUP.M-3]	***ARIADNE – Predictive digitization restoration and degradation assessment of cultural heritage objects.*** FP7-INFRASTRUCTURES-2012-1-313193, 2013-2016
Member of the Project Team of Athena Research Center.	
[EUP.M-4]	***In-Vivo Embolic Detector, Phase IIIa.*** European Space Agency (ESA) (ESA GSTP CCN/6-18354/05/NL/PA), 2009-2010
Member of the Project Team of the Multiphase Dynamics group of the Chemistry Department of the Aristotle University of Thessaloniki.	
[EUP.M-5]	***Influence of gravity on mass and heat transfer in porous media.*** European Space Agency (ESA) (ESA TRP, ESTEC/22470/09/NL/Cbi), 2009-2011

Member of the Project Team of the Multiphase Dynamics group of the Chemistry Department of the Aristotle University of Thessaloniki.	
[EUP.M-6]	***Study of rheological behaviour of nanofluids and of their effect on heat transfer in compact heat exchangers.*** General Secretariat for Research & Technology (GSRT), Bilateral S&T Cooperation between the Republic of GREECE and the CZECH Republic (Transnational RTD Collaborations, Programmes 2000–2006 / 3rd Community Support Framework (CSF) / Sectoral Programmes / Operational Programme "Competitiveness"), 2006-2008
Member of the Project Team of Aristotle University of Thessaloniki.	

8.2 Participation in National Projects

[GRP.W.P-1]	***FiberScope - Towards the Automated Identification of Archaeological Fibers Using Microscopy and Machine Learning.*** ARCHIMEDES Research Unit, «Flagship Projects of ARCHIMEDES Research Unit/ Athena R.C.», 2025-2026
Scientific Coordinator of the Project.	
[GRP.W.P-2]	***microAlgAI – Smart cultivation of microalgae with Internet-of-Things and Artificial Intelligence.*** ARCHIMEDES Research Unit, «Flagship Projects of ARCHIMEDES Research Unit/ Athena R.C.», 2025-2026
Scientific Coordinator of the Project.	
[GRP.W.P-3]	***ALGEBRA – Innovative waste bioremediation practice for the removal of toxic compounds with use of microalgae in the context of a circular economy.*** Funded by the Natural Environment & Innovative Actions 2022 Programme / Priority Axis 3 "Research and Implementation," by the Green Fund, 2023-2025
Scientific Coordinator of the Project.	
[GRP.W.P-4]	***Smart-BioreAl – Innovative cultivation of the unicellular green alga Chlorella vulgaris in a "smart" photobioreactor using micro-bubble technology as part of a "blue circular economy.*** Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020 (ΕΡΑnΕΚ), Special Actions "Aquaculture" - "Industrial Materials" - "Open Innovation in Culture" (Project MIS: Τ6ΥΒΠ-00494), 2020-2023
Scientific Coordinator of the Project for Athena R.C.	
[GRP.W.P-5]	***AGRO4+ - Holistic approach to Agriculture 4.0 for new farmers.***

	Support of the Regional Excellence, Operational Program: "Competitiveness, Entrepreneurship and Innovation", co-funded by the European Regional Development Fund, (Project MIS: 5046239), 2019-2023
Deputy Scientific Coordinator of the Project.	
[GRP.W.P-6]	***Computational Science and Technologies: Data, Content and Interaction/Technologies for Content Analysis in Culture.*** Co-financed by Greece and European Union in the framework of the Operational Program: "Competitiveness, Entrepreneurship and Innovation", Athena R.C. (MIS Code 5002437), 2017-2021
Deputy Scientific Coordinator of the Project.	
[GRP.W.P-7]	***ESTIA – A platfmorm for the risk management in cultural heritage regions.*** Operational Program: "Competitiveness, Entrepreneurship and Innovation", under the call "RESEARCH – CREATE – INNOVATE", Priority Section 2.3.3, Athena R.C. (MIS Code 5031814), 2018-2021
Member of the Project Team of Athena Research Center.	
[GRP.W.P-8]	***MEDA: Efficient Management for Big Data – Challenges, Methods and Techniques.*** Within the framework of Priority Axis "03 – Strengthening Competitiveness, Innovation and Digital Convergence" of the Operational Programme "Attica," Athena R.C. (MIS Code 448842), 2012-2015
Member of the Project Team.	
[GRP.W.P-9]	***Gefyra – Quality Assurance Unit of Democritus University of Thrace.*** Funded by the National and European resources in the frame of the Operational Program "Education and Lifelong Learning", 2015-2016
Member of the Project Team.	
[GRP.W.P-10]	***Quality Assurance Unit of Democritus University of Thrace.*** Funded by the National and European resources in the frame of the Operational Program "Education and Lifelong Learning", 2011-2015
Member of the Project Team.	
[GRP.W.P-11]	***Internship of the students of the Chemical Engineering Department, Aristotle University of Thessaloniki, Greece.*** Funded by the Greek Ministry of Education and Religious Affairs (25%) and European Unit Resources (75%) (E.P.E.A.E.K.), 2006-2009
Member of the Project Team.	
[GRP.W.P-12]	***HERACLITUS - Influence of the liquid properties on the gas/liquid stratified co-flow.*** Funded by the Greek Ministry of Education and Religious Affairs, 2002-2005

Member of the Project Team.

8.3 Participation in Private Projects and Service Provision Projects

[IRP.M-1]	***MAPS - Measurements in Archaeometry and Physicochemical Sciences.*** Provision of services to the Archaeological Museum of Pella, 2023-2024
Scientific Coordinator of the Project.	
[IRP.M-2]	***CLASSES - Analysis of clay from archaeological findings.*** Provision of archaeometric services to the Ephorate of Antiquities of Florina, 2024-2025
Scientific Coordinator of the Project.	
[IRP.M-3]	***SRACH-3/ Ypoergo i-Archem.*** Athena R.C., 2018-2019
Member of the Project Team.	
[IRP.M-4]	***Pella II – Contract of service with the Ministry of Culture and Sports - Ephorate of Antiquities of Pella.*** Athena R.C., 2017
Member of the Project Team.	
[IRP.M-5]	***Archaeometry Applications.*** Athena R.C., 2010-2015
Member of the Project Team.	
[IRP.M-6]	***Database of North-East Aegean Pottery.*** Athena R.C., 2011
Member of the Project Team.	
[IRP.M-7]	***Quality monitoring of rain and sewage water of the Idustrial Areas in Alexandroupoli, Komotini, Xanthi, Drama, Kavala, Orestiada and Sappes.*** Democritus University of Thrace, 2011-2012
Member of the Project Team.	
[IRP.M-8]	***Quality monitoring of potable water in the Agios Athanasios municipality in 2009.*** Funded by the Municipal Water and Sewerage Company (D.E.Y.A.) of Agios Athanasios, Aristotle University of Thessaloniki, 2010
Member of the Project Team.	

8.4 Attraction of Funding

8.4.1 Proposals Funded as Scientific Coordinator

[PS-1]	***FiberScope - Towards the Automated Identification of Archaeological Fibers Using Microscopy and Machine Learning.*** ARCHIMEDES Research Unit, «Flagship Projects of ARCHIMEDES Research Unit/ Athena R.C.», 2025-2026. **Total Budget: 140.380,00 €** **Budget for Athena R.C.: 140.380,00 €**
[PS-2]	***microAlgAI – Smart cultivation of microalgae with Internet-of-Things and Artificial Intelligence.*** ARCHIMEDES Research Unit, «Flagship Projects of ARCHIMEDES Research Unit/ Athena R.C.», 2025-2026. **Total Budget: 127.136,00 €** **Budget for Athena R.C.: 127.136,00 €**
[PS-3]	***ALGEBRA – Innovative waste bioremediation practice for the removal of toxic compounds with use of microalgae in the context of a circular economy.*** Funded by the Natural Environment & Innovative Actions 2022 Programme / Priority Axis 3 "Research and Implementation," by the Green Fund, 2023-2025 **Total Budget: 199.501,23 €** **Budget for Athena R.C.: 199.501,23 €**
[PS-4]	***MAPS - Measurements in Archaeometry and Physicochemical Sciences.*** Provision of services to the Archaeological Museum of Pella, 2023-2024 **Total Budget: 1.764,75 €** **Budget for Athena R.C.: 1.764,75 €**
[PS-5]	***CLASSES - Analysis of clay from archaeological findings.*** Provision of archaeometric services to the Ephorate of Antiquities of Florina, 2024-2025 **Total Budget: 5.000,00 €** **Budget for Athena R.C.: 5.000,00 €**
[PS-6]	***Smart-BioreAl – Innovative cultivation of the unicellular green alga Chlorella vulgaris in a "smart" photobioreactor using micro-bubble technology as part of a "blue circular economy.*** Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020 (ΕΡΑnΕΚ), Special Actions "Aquaculture" - "Industrial Materials" - "Open Innovation in Culture" (Project MIS: Τ6ΥΒΠ-00494), 2020-2023 **Total Budget: 199.257,16 €** **Budget for Athena R.C.: 82.741,16 €**
[PS-7]	***Simulation of ancient kiln operation with Computational Fluid dynamics.*** NVIDIA's GPU Grant Program, 2019

	Donation of an NVIDIA TITAN V graphics card.

8.4.2 Proposals Funded as Deputy Scientific Coordinator

[PSS-1]	***SMS-CBA – «Smart Marketing Strategies for tourism in the Cross-Border Area».*** Interreg V-A Greece–Bulgaria 2014–2020 Cross-border Cooperation Programme, Priority Axis 2, Thematic Objective 6, Investment Priority, Specific Objective 4, 2020–2023 **Total Budget: 1.378.577,06 €** **Budget for Athena R.C.: 186.965,00 €**
[PSS-2]	***AGRO4+ - Holistic approach to Agriculture 4.0 for new farmers.*** Support of the Regional Excellence, Operational Program: "Competitiveness, Entrepreneurship and Innovation", co-funded by the European Regional Development Fund, (Project MIS: 5046239), 2019-2023 **Total Budget: 3.161.137,92 €** **Budget for Athena R.C.: 2.653.089,92 €**
[PSS-3]	***Computational Science and Technologies: Data, Content and Interaction/Technologies for Content Analysis in Culture.*** Co-financed by Greece and European Union in the framework of the Operational Program: "Competitiveness, Entrepreneurship and Innovation", Athena R.C. (MIS Code 5002437), 2017-2021 **Total Budget: 399.999,90 €** **Budget for Athena R.C.: 399.999,90 €**

9 Completed Research Outputs Broadly Available to the Public

9.1 Applications - Softwares

[AS-1]	***TLDecoxcel – Computerized curve deconvolution analysis (CCDA) of thermoluminescence (TL) glow curves.*** Available: https://www.ilsp.gr/wp-content/uploads/2020/03/TLDecoxcel.xlsx
[AS-2]	***Web-based service for calculating the number of microalgae cells (Chlorella vulgaris) from microscope images.*** Available: http://chaos.athenarc.gr:31304/

9.2 Datasets – Resources

[DS-1]	***CIDACC: Chlorella vulgaris Image Dataset for Automated Cell Counting*** Available: https://zenodo.org/records/13219972

10 Scientific Work – Authorship

10.1 Theses

[D1]	**DOCTORAL THESIS_2**: "*High-dose dosimetry with emphasis on the industrial sterilization and accidental radiation dosimetry*" (in English). School of Physics, Faculty of Sciences, Aristotle University of Thessaloniki, Greece, 2018.
[D2]	**DOCTORAL THESIS _1**: "*Study of bubble column equipped with porous gas sparger*", (in Greek). Chemical Engineering Department, Faculty of Engineering, Aristotle University of Thessaloniki, Greece, 2008.
[D3]	**DIPLOMA THESIS**: "*Spray drying of tomato pulp using dehumidified air as drying medium*" (in Greek). Chemical Engineering Department, Faculty of Engineering, Aristotle University of Thessaloniki, Greece, 2003.

10.2 Book Chapters

[CB1]	**Kazakis, N.A.**, Tsirliganis, N.C., 2020. Scientific Datasets in Archaeological Research Through Pottery Dating and Provenance Cases. In: Pavlidis G. ed. *Applying Innovative Technologies in Heritage Science*. IGI Global (pp. 56-84), ISBN13: 9781799828716. DOI: 10.4018/978-1-7998-2871-6.ch004.
[CB2]	Sakalis, A., Tsiafaki, D., **Kazakis, N.A.**, Tsirliganis, N.C., 2017. Non-destructive analysis of ceramics using micro X-ray fluorescence spectroscopy (micro-XRF). In: Karivieri A. ed. *The early Christian Basilica of Arethousa in Macedonia I: production, consumption and trade*. Foundation of the Finnish Institute at Athens (pp. 91-100), ISBN 978-952-68500-2-3.
[CB3]	**Kazakis, N.A.**, Tsirliganis, N.C., 2015. Provenance of ceramics: Methods and Practices. In: Sarris A. ed. *Best Practices of GeoInformatic Technologies for the Mapping of Archaeolandscapes*. Oxford: Archaeopress (pp. 241-252), ISBN 978-1-78491-162-1. https://doi.org/10.2307/jj.15136073.26.

10.3 Publications in Peer-Reviewed Journals

As single Author

[J1]	**Kazakis, N.A.,** 2025. Green approaches to heavy metal removal from wastewater: microalgae solutions in a circular economy framework. *Societal Impacts* 5, 100103, https://doi.org/10.1016/j.socimp.2025.100103.
[J2]	**Kazakis, N.A.,** 2019. TLDecoxcel: A dynamic Excel spreadsheet for the Computerised Curve Deconvolution of TL glow curves into discrete-energy and/or continuous-energy-distribution peaks. *Radiation Protection Dosimetry*, 187(2), 154-163. https://doi.org/10.1093/rpd/ncz150.
[J3]	**Kazakis, N.A.**, 2019. Comment on the paper "Luminescence models by S.W.S. McKeever and R. Chen, *Radiation Measurements* 27(5/6), 1997, pp 625-661". Radiation Protection Dosimetry, 185(1), 131-134. https://doi.org/10.1093/rpd/ncy281.
[J4]	**Kazakis, N.A.**, 2018. A detailed investigation of the TL and OSL trap properties and signal stability of commercial pharmaceutical glass containers towards their use as post-sterilization dosimeters of liquid drugs. *Journal of Luminescence* 196, 347–358. https://doi.org/10.1016/j.jlumin.2017.12.049.
[J5]	**Kazakis, N.A.**, 2018. Comment on the paper "Thermoluminescence glow-curve deconvolution functions for mixed order of kinetics and continuous trap distribution by G. Kitis, J.M. Gomez-Ros, Nuclear Instruments and Methods in Physics Research A 440, 2000, pp 224-231". *Nuclear Instruments and Methods in Physics Research A* 877, 367-370. https://doi.org/10.1016/j.nima.2017.09.062.
[J6]	**Kazakis, N.A.**, 2015. The research activity of the current faculty of the Greek chemical engineering departments: A bibliometric study in National and International context. *Scientometrics* 103(1), 229-250. https://doi.org/10.1007/s11192-014-1523-0.
[J7]	**Kazakis, N.A.**, 2014. Bibliometric evaluation of the research performance of the Greek civil engineering departments in National and European context. *Scientometrics* 101(1), 505-525. https://doi.org/10.1007/s11192-014-1326-3.

With co-Authors

[J8]	Malletzidou, L., Kyratzopoulou, E., Nerantzis, E., **Kazakis, N.A.**, 2026. *Chlorella vulgaris* and *Arthrospira platensis* show distinct removal dynamics for multiple heavy metals in real water matrices. *Scientific Reports*. https://doi.org/10.1038/s41598-026-71494-2
[J9]	L., Malletzidou, E., Kyratzopoulou, E., Nerantzis, **N.A., Kazakis**, 2026. Towards circular bioremediation: Pilot-Scale assessment of *Chlorella vulgaris* for heavy metal removal, recovery, and biomass regeneration. *Journal of Environmental Management* 415, 130696. https://doi.org/10.1016/j.jenvman.2026.130696.

[J10]	E., Kyratzopoulou, L., Malletzidou, E., Nerantzis, **N.A., Kazakis**, 2026. Multi-metal removal, recovery, and regeneration dynamics of Arthrospira platensis in intermediate-scale cultivation. *Bioresource Technology Reports* 35, 102904. https://doi.org/10.1016/j.biteb.2026.102904.
[J11]	E., Nerantzis, L., Malletzidou, E., Kyratzopoulou, Nestor C. Tsirliganis, **N.A., Kazakis,** 2025. From Contemporary Datasets to Cultural Heritage Performance. Explainability and Energy Profiling of Visual Models Towards Textile Identification. *Heritage* 8(11), 447; https://doi.org/10.3390/heritage8110447.
[J12]	L., Malletzidou, E., Kyratzopoulou, E., Nerantzis, N., Kyzaki, Nestor C. Tsirliganis, **N.A., Kazakis**, 2025. Optimizing *Chlorella Vulgaris* Bioremediation of Wastewater via Advanced Aeration Systems: A Pilot-scale implementation. *Processes 13(6), 1709*. https://doi.org/10.3390/pr13061709.
[J13]	E., Kyratzopoulou, L., Malletzidou, N., Kyzaki, E., Nerantzis, **N.A., Kazakis**, 2025. The Efficiency of *Chlorella vulgaris* in Heavy Metal Removal: A Comparative Study of Mono- and Multi-Component Metal Systems. *Clean Technologies* 7, 35. https://doi.org/10.3390/cleantechnol7020035.
[J14]	L., Malletzidou E., Kyratzopoulou, N., Kyzaki, E., Nerantzis, **N.A., Kazakis**, 2025. Towards the Sustainable Removal of Heavy Metals from Wastewater Using Arthrospira platensis: A Laboratory-Scale Approach in the Context of a Green Circular Economy. *Applied Sciences* 15, 791. https://doi.org/10.3390/app15020791.
[J15]	L., Malletzidou E., Kyratzopoulou, N., Kyzaki, E., Nerantzis, **N.A., Kazakis**, 2024. Near-Infrared Spectroscopy for Growth Estimation of Spirulina platensis Cultures. *Methods and Protocols* 7(6), 91. https://doi.org/10.3390/mps7060091.
[J16]	E., Pistolas, E., Kyratzopoulou, L., Malletzidou, E., Nerantzis, Ch., Kiourt, **N., Kazakis**, 2024. CIDACC: *Chlorella vulgaris* image dataset for automated cell counting. *Data in Brief* 57, 110941. https://doi.org/10.1016/j.dib.2024.110941.
[J17]	**Kazakis, N.A.**, Tsirliganis, N.C. 2023. Holistic approach to Agriculture 4.0 for new farmers. *Societal Impacts* 1, 100007. https://doi.org/10.1016/j.socimp.2023.100007.
[J18]	**Kazakis, N.A.**, Ch. Betsou 2023. Detection of baby food sterilized with Ionizing radiation using thermoluminescence. *The European Physical Journal Special Topics* 232(10), 1531-1542. https://doi.org/10.1140/epjs/s11734-023-00875-9.
[J19]	Karampiperi, M., **Kazakis, N.A.**, 2023. Thermoluminescence characterization and kinetic parameters of eyeglass lenses for applications in retrospective/accidental dosimetry. *Radiation Measurements* 163, 106934. https://doi.org/10.1016/j.radmeas.2023.106934.
[J20]	Ch. Betsou, A. Tsiaousi, C. Kiourt, **N.A. Kazakis**, N.C. Tsirliganis, 2022. Greek Farming in National and European Context: The role of Digital in Agriculture Transformation. *Agriculture & Food* 10, 104-118.

[J21]	Karampiperi, M., Theologitis S., **Kazakis, N.A.**, 2022. Thermoluminescence characterization of minerals extracted from dried oregano for retrospective and/or sterilization dosimetry. *Radiation Measurements* 158, 106850. https://doi.org/10.1016/j.radmeas.2022.106850.
[J22]	Koutsoudis, A., Ioannakis, G., Pistofidis, P., Arnaoutoglou, F., **Kazakis, N.A.,** Pavlidis, G., Chamzas, Ch., Tsirliganis, N., 2021. Multispectral aerial imagery-based 3D digitisation, segmentation and annotation of large scale urban areas of significant cultural value. *Journal of Cultural Heritage* 49, 1-9. https://doi.org/10.1016/j.culher.2021.04.004.
[J23]	Maria Karampiperi, Nestor C. Tsirliganis, **Nikolaos A. Kazakis**, 2020. Use of commercial pharmaceutical drug (Daktarin®) for retrospective/accidental/forensic Thermoluminescence dosimetry. *Applied Radiation and Isotopes* 166, 109364. https://doi.org/10.1016/j.apradiso.2020.109364.
[J24]	**Nikolaos A. Kazakis**, George I. Dallas, Nestor C. Tsirliganis, 2020. A study of various types of natural marble towards their use in cultural applications. *International Journal of Art, Culture and Design Technologies* 9(2), 1-15. DOI: 10.4018/IJACDT.2020070101.
[J25]	**Kazakis, N.A.**, Tsirliganis, N.C., 2019. Optically stimulated luminescence investigation of chicken bones towards their use at food post-sterilization and retrospective dosimetry. *Applied Radiation and Isotopes* 154, 108899. https://doi.org/10.1016/j.apradiso.2019.108899.
[J26]	Hamari, P., Tsiafakis, D., **Kazakis, N.A.**, Tsirliganis, N.C., 2019. Tracing ancient fingerlines: Applying micro-XRF to signatures on Laconian roof tiles in Late Antique Arethousa, Paliambela (Greece). *Journal of Archaeological Science: Reports* 26, 101869, 10.1016/j.jasrep.2019.05.034.
[J27]	**Kazakis, N.A.**, Tsirliganis, N.C., Kitis, G., 2018. Post-sterilization radiation dosimetry of commercial pharmaceuticals using optically stimulated luminescence. *Radiation Physics and Chemistry* 150, 111-119. https://doi.org/10.1016/j.radphyschem.2018.04.034.
[J28]	Nerantzis, N., **Kazakis, N.A.**, Sfampa, I.K., Polymeris, G.S., Kitis, G., Tsirliganis, N.C., 2017. An integrated approach to the characterization and dating of furnaces in smelting sites in Macedonia, Greece. *Journal of Archaeological Science: Reports* 16, 65-72. https://doi.org/10.1016/j.jasrep.2017.09.027.
[J29]	**Kazakis, N.A.**, Tsirliganis, N.C., 2017. An Insight Into the Scientific Datasets in Archaeological Research Through the Pottery Provenance Case. *International Journal of Computational Methods in Heritage Science* 1(2), 58-73. DOI: 10.4018/IJCMHS.2017070104.
[J30]	Bossin, L., **Kazakis, N.A.**, Kitis, G., Tsirliganis, N.C., 2017. Thermoluminescence characteristics of a chondrite (Holbrook) and an aubrite achondrite (Norton

	County) meteorites. *Applied Radiation and Isotopes* 127, 26–34. https://doi.org/10.1016/j.apradiso.2017.05.002.
[J31]	**Kazakis, N.A.**, Anastasia Th. Tsetine, Kitis, G., Tsirliganis, N.C., 2017. A SAR protocol for heat-sensitive materials exhibiting sensitization (SARHS) for the estimation of the equivalent dose. *Radiation Measurements* 99, 1-9. https://doi.org/10.1016/j.radmeas.2017.02.011.
[J32]	**Kazakis, N.A.**, Anastasia Th. Tsetine, Kitis, G., Tsirliganis, N.C., 2016. Insect wings as accidental/retrospective dosimeters: An optically stimulated luminescence investigation. *Radiation Measurements* 89, 74-81. https://doi.org/10.1016/j.radmeas.2016.03.004.
[J33]	**Kazakis, N.A.**, Tsirliganis, N.C., Kitis, G., 2016. Commercial pharmaceutical glass containers as probes for the post-sterilization dosimetry of liquid drugs. *Radiation Measurements* 85, 32-40. https://doi.org/10.1016/j.radmeas.2015.12.007.
[J34]	**Kazakis, N.A.**, Kitis, G., Tsirliganis, N.C., 2015. Preliminary thermoluminescence investigation of commercial pharmaceutical glass containers towards the sterilization dosimetry of liquid drugs. *Applied Radiation and Isotopes* 105, 130-138. https://doi.org/10.1016/j.apradiso.2015.08.005.
[J35]	Kourtidis, K., Georgoulias, A.K., Vlahopoulou, M., Tsirliganis, N., Kastelis, N., Ouzounis, K., **Kazakis, N.**, 2015. Radon and radioactivity at a town overlying Uranium ores in northern Greece. *Journal of Environmental Radioactivity* 150, 220-227. https://doi.org/10.1016/j.jenvrad.2015.08.001.
[J36]	**Kazakis, N.A.**, Sakalis, A.J., Tsiafakis, D., Tsirliganis, N.C., 2015. Island of Andros pottery in Argilos? Archaeometric study using μ-XRF and multivariate statistical analysis. *Mediterranean Archaeology and Archaeometry* 15(3), 73-86.
[J37]	**Kazakis, N.A.**, Kitis, G., Tsirliganis, N.C., 2015. A cleaning method to minimize contaminant luminescence signal of empty sample carriers using off-the-shelf chemical agents. *Applied Radiation and Isotopes* 95, 226-232. https://doi.org/10.1016/j.apradiso.2014.10.021.
[J38]	**Kazakis, N.A.**, Tsirliganis, N.C., Kitis, G., 2014. Preliminary thermoluminescence and optically stimulated luminescence investigation of commercial pharmaceutical preparations towards the drug sterilization dosimetry. *Applied Radiation and Isotopes* 91, 79-91. https://doi.org/10.1016/j.apradiso.2014.05.012.
[J39]	**Kazakis, N.A.**, Diamantidis, A.D., Fragidis, L.L., Lazarides M.K., 2013. Evaluating the Research Performance of the Greek Medical Schools using Bibliometrics. *Scientometrics* 98(2), 1367–1384. https://doi.org/10.1007/s11192-013-1049-x.
[J40]	Sakalis, A.J., **Kazakis, N.A.,** Merousis, N., Tsirliganis N.C., 2013. Study of Neolithic pottery from Polyplatanos (Imathia) using micro X-ray fluorescence spectroscopy, stereoscopic microscopy and multivariate statistical analysis. *Journal of Cultural Heritage* 14(6), 485–498. https://doi.org/10.1016/j.culher.2012.11.005.

[J41]	Anastasiou, A.D., **Kazakis, N.A.**, Mouza, A.A., Paras, S.V., 2010. Effect of organic surfactant additives on gas holdup in the pseudo-homogeneous regime in bubble columns equipped with fine pore sparger. *Chemical Engineering Science* 65(22), 5872-5880. https://doi.org/10.1016/j.ces.2010.08.011.
[J42]	Evgenidis, S.P., **Kazakis, N.A.**, Karapantsios, T.D., 2010. Bubbly flow characteristics during decompression sickness: Effect of surfactant and electrolyte on bubble size distribution. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 365(1-3), 46–51. https://doi.org/10.1016/j.colsurfa.2010.02.032.
[J43]	**Kazakis, N.A.**, Mouza, A.A., Paras, S.V., 2008. Coalescence during bubble formation at two neighbouring pores: An experimental study in microscopic scale. *Chemical Engineering Science* 63(21), 5160-5178. https://doi.org/10.1016/j.ces.2008.07.006.
[J44]	**Kazakis, N.A.**, Mouza, A.A., Paras, S.V., 2008. Experimental study of bubble formation at metal porous spargers: Effect of liquid properties and sparger characteristics on the initial bubble size distribution. *Chemical Engineering Journal* 137(2), 265-281. https://doi.org/10.1016/j.cej.2007.04.040.
[J45]	**Kazakis, N.A.**, Papadopoulos, I.D., Mouza, A.A., 2007. Bubble columns with fine pore sparger operating in the pseudo-homogeneous regime: Gas hold up prediction and a criterion for the transition to the heterogeneous regime. *Chemical Engineering Science* 62(12), 3092-3103. https://doi.org/10.1016/j.ces.2007.03.004.
[J46]	Goula, A.M., Adamopoulos, K.G., **Kazakis, N.A.**, 2004. Influence of spray drying conditions on tomato powder properties. *Drying Technology* 22(5), 1129-1151. https://doi.org/10.1081/DRT-120038584.

10.4 Other Journals

[OJ1]	Bas den Hond, 2016. Dragonfly wings can track radiation doses after a nuclear mishap. *New Scientist*, vol. 3073, 14 May 2016, page 16. Based on the publication "**Kazakis, N.A.,** Anastasia Th. Tsetine, Kitis, G., Tsirliganis, N.C., 2016. Insect wings as accidental/retrospective dosimeters: An optically stimulated luminescence investigation. *Radiation Measurements* 89, 74-81".

10.5 Conferences with Peer-Review Process

[C1]	Chairi Kiourt, Evangelos Nerantzis, Evangelos Pistolas, **Nikolaos A. Kazakis**. Deep learning-based microalgae cells quantification. *29th Pan-Hellenic Conference on Progress in Computing and Informatics (PCI) with International Participation*, April 24-26, 2026, Athens, Greece.
[C2]	Nerantzis E., Malletzidou L., Kyratzopoulou E, Tsirliganis N.C., **Kazakis, N.A.**, Trust-Gated Model Context Protocol Middleware: Sensor Data Reliability

	Assessment for Safe Large Language Model Control of Cyber-Physical Systems. *29th Pan-Hellenic Conference on Progress in Computing and Informatics (PCI) with International Participation*, April 24-26, 2026, Athens, Greece.
[C3]	Lamprini Malletzidou, Eleni Kyratzopoulou, Nikoletta Kyzaki, Evangelos Nerantzis, Nestor C. Tsirliganis, **Nikolaos A. Kazakis**. Towards heavy metal bioremediation using Chlorella vulgaris: The influence of advanced aeriation systems. *Annual International Congress on Chemistry*, March 27-28, 2025, Oxford, United Kingdom.
[C4]	Maria Karampiperi, Lamprini Malletzidou, Anna Mrozik, Christopher L. Rääf, **Nikolaos A. Kazakis**, Christian Bernhardsson. Characterization of thermoluminescence properties of salt grains and NaCl pellets for R/N emergencies. *21st International Conference on Solid State Dosimetry (SSD21)*, 8-13 June 2025, Mexico City.
[C5]	Nerantzis E., Kyratzopoulou E, Malletzidou L., Tsirliganis N.C., **Kazakis, N.A.**, 2024. Towards fiber identification of artifacts using a deep learning approach. *8th ARCH_RNT Symposium, Archaeological Research and New Technologies, In Memoriam Nikolaos Zacharias*, 3-5 October, Kalamata, Greece.
[C6]	Nerantzis E., Kyzaki N., Malletzidou L., Tsirliganis N.C., **Kazakis, N.A.**, 2024. Heavy metal removal from wastewater or surface waters using Chlorella vulgaris in the context of a circular economy. *5th International Congress on Applied Ichthyology, Oceanography, and Aquatic Environment (HydroMediT 2024)*, 30 May-2 June 2024, Mytilene, Greece.
[C7]	Mente, M.S., Papadimitriou, A, Lioga, A, Flora, E., Nerantzis, E., Tsirliganis, N.C., **Kazakis, N.A.**, Mountourakis, F., Papazi, A., Stamatis, N., Kotzabasis, K., Orfanidis, S., 2023. Chlorella vulgaris cultivation in low-cost photo-bioreactors. *8th European Phycological Congress "Scientific Opportunities for a Global Algal Revolution"*, 20-26 August, Brest, France.
[C8]	Chiniadis, L., Tamvakis, P., **Kazakis, N.A.**, Tsirliganis, N.C., Kiourt, C., 2023. Deep learning for soil carbonates content prediction from NIR spectral data. *International Conference on Near Infrared Spectroscopy, NIR 2023*, 20-24 August, Congress Innsbruck, Austria.
[C9]	Georgios Symeonidis, Chairi Kiourt, **Nikolaos Kazakis**, Evaggelos Nerantzis and Tsirliganis Nestor, 2022. Fat calculation from raw-beef-steak images through machine learning approaches: an end-to-end pipeline. *Pan-Hellenic Conference on Informatics, PCI 2022*, 25 - 27 November, Athens, Greece.
[C10]	Ch. Betsou, E. Tsakiri, E. Ioannidou, **N.A. Kazakis**, N. Tsirliganis, M.V. Frontasyeva, A. Ioannidou 2022. Radionuclides concentrations in moss bags close to a coal fired power plant in Northern Greece. *30th Symposium of the Hellenic Nuclear Physics Society, HNPS 2022*, October 7-8, Ioannina, Greece.

[C11]	Karampiperi, M., Theologitis S., **Kazakis, N.A.**, 2022. Radiation dosimetry applications based on silicate minerals extracted from dried oregano. *11th Conference of the Balkan Physical Union (BPU11 Congress)*, 28 August-1 September, Belgrade, Serbia.
[C12]	Karampiperi, M., **Kazakis, N.A.**, 2022. Characterization of thermoluminescence properties of eye glasses for applications in retrospective/accidental dosimetry. *11th Conference of the Balkan Physical Union (BPU11 Congress)*, 28 August-1 September, Belgrade, Serbia.
[C13]	Ch. Betsou, A. Tsiaousi, C. Kiourt, **N.A. Kazakis**, N.C. Tsirliganis, 2022. Greek Farming in National and European Context: The role of Digital in Agriculture Transformation. *10th International Conference Agriculture & Food*, 16-19 August, Burgas, Bulgaria.
[C14]	Ch. Betsou, E. Ioannidou, E. Tsakiri, **N.A. Kazakis**, N. Tsirliganis, M.V. Frontasyeva, A. Ioannidou, 2022. Assessment of temporal variations of radionuclides close to a coal power plant in Northern Greece. *International Conference on Radiation Applications, RAP2022*, Thessaloniki, Greece, June 6-10, 2022.
[C15]	**N.A. Kazakis**, Ch. Betsou, 2022. Detection of baby food sterilized with Ionizing radiation using thermoluminescence. *International Conference on Radiation Applications, RAP2022*, Thessaloniki, Greece, June 6-10, 2022.
[C16]	Ch. Betsou, E. Ioannidou, **N.A. Kazakis**, A. Ioannidou, N.C. Tsirliganis, 2022. Study of radionuclides concentrations in Greek vineyards: from cultivation to consumers' table. *International Conference on Radiation Applications, RAP2022*, Thessaloniki, Greece, June 6-10, 2022.
[C17]	M. Karampiperi, N.C. Tsirliganis, **N.A. Kazakis**, 2021. Effect of the firing temperature on the luminescence properties of quartz. *XXXV Panhellenic Conference on Solid State Physics and Materials Science*, Congress Center, NCSR "Demokritos", 26-29 September 2021, Athens, Greece.
[C18]	**Kazakis, N.A.**, Tsirliganis, N.C., Kitis, G., 2018. Post-sterilization dosimetry of pharmaceutical preparations using Optically Stimulated Luminescence. *17th PanHellenic Conference in Physics, "Physics meets Society" discoveries – achievements – prospective for Physics of the 21st century*, Thessaloniki, Greece, March 15-18.
[C19]	Tsave, K.P., Stratis, I.A., Prokopiou, E., Charalambous, E., Tsirliganis, N.C., **Kazakis, N.A.**, 2017. Investigating the manufacturing technology of glass mosaic from the Cyprus Cape. Physicochemical approaches. *11th PanHellenic Scientific Chemical Engineering Conference. Chemical Engineering: Lever for innovation and development*, Thessaloniki, Greece, May 25-27.
[C20]	Tsave, K.P., Stratis, I.A., Prokopiou, E., Charalambous, E., Tsirliganis, N.C., **Kazakis, N.A.**, 2016. Investigating the manufacturing of glass mosaic from Cyprus using a physicochemical approach. *22nd PanHellenic Chemistry Conference,*

	"*Chemistry: Research and education towards the sustainable development*", Thessaloniki, Greece, December 2-4.
[C21]	Stratis, I.A., Tsirliganis, N.C., **Kazakis, N.A.**, Kilikoglou, V., 2016. Analytical Chemistry: Key to the study of archaeological materials, contribution to the conservation science. *22nd PanHellenic Chemistry Conference,* "*Chemistry: Research and education towards the sustainable development*", Thessaloniki, Greece, December 2-4.
[C22]	Karampiperi, M., Sfampa, I.K., **Kazakis, N.**, Tsirliganis, N.C., Kitis, G., 2015. Natural Dose Evaluation using Thermoluminescence and component resolved Optically Stimulated Luminescence analysis. *XXXI Panhellenic Conference on Solid State Physics and Materials Science*, Thessaloniki, Greece, September 20-23.
[C23]	**Kazakis, N.A.**, Bossin, L., Tsirliganis, N.C., Kitis, G., 2015. Preliminary characterization and Thermoluminescence of Norton County and Holbrook meteorites. *LAIS15: Luminescence in Archaeology International Symposium*, Paris, France, September 1-4.
[C24]	**Kazakis, N.A.**, Tsirliganis, N.C., 2015. Scientific Datasets in Archaeological Research. *43rd Computer Applications and Quantitative Methods in Archaeology (CAA) "KEEP THE REVOLUTION GOING"*, Siena, Italy, March 30-April 3.
[C25]	Giannoulatou, V., Sfamba, I.K., Nerantzis, N., Afouxenidis, D., **Kazakis, N.**, Polymeris, G.S., Kitis, G., Tsirliganis, N.C., 2013. Technological characterization and thermoluminescence dating of metallurgical furnaces in northeastern Greece. *6th conference of the Hellenic Society for Archaeometry,* "*Craft-based Cultural Influences in the Mediterranean",* Athens, Greece, May 16-18.
[C26]	Tsiafaki, D., **Kazakis, N.A.**, Sakalis, A., Tsirliganis, N., 2011. Andrian (?) Pottery at Argilos: The First Two Phases of the Archaeometrical Study. *Archaic pottery of the Northern Aegean and its periphery (700-480 BC.)*, *Archaeological Meeting*, Thessaloniki, Greece, May 19-22.
[C27]	Ilieva, P., Tsiafaki, D., Tsirliganis, N., Sakalis, A., **Kazakis, N.A.**, 2011. G 2-3 Ware from the North Aegean Basin: The Archaeometric Research 2008-2011. *Archaeological Work in Macedonia and Thrace (AEMTH), 24th Scientific Meeting*, Thessaloniki, Greece, March 10-12.
[C28]	Sakalis, A., Merousis, N., **Kazakis, N.A.**, Tsirliganis, N., 2010. Study of Neolithic Pottery from Polyplatanos using physicochemical techniques and Multivariate Statistical Analysis. *1st Scientific Conference "Imathia, History – Archaeology – Art – Folklore*", Veroia, Greece, September 29-October 3.
[C29]	Karapantsios, T., Evgenidis, S.P., Zacharias, K., **Kazakis, N.A.**, 2010. A non-invasive electrical technique for determining bubbles characteristics in low gas concentration bubbly flows. *61st International Astronautical Congress 2010*, Prague, Czech Republic, September 27-October 1.

[C30]	**Kazakis, N.A.**, Anastasiou, A., Mouza, A.A., Paras, S.V., 2008. Effect of surfactant additives on holdup in bubble columns equipped with fine pore spargers. *CHISA 2008, 18th International Congress of Chemical and Process Engineering*, Prague, Czech Republic, August 24-28.
[C31]	Pantzali, M.N., **Kazakis, N.A.**, Tsolakidis, N., Mouza, A.A., Tihon, J., 2007. Measuring transport properties of nanofluids. *6th PanHellenic Scientific Chemical Engineering Conference*, Athens, Greece, May 31-June 2.
[C32]	**Kazakis, N.A.**, Mouza, A.A., Paras, S.V., 2007. Experimental study of bubble formation at porous spargers. *ICMF 2007, 6th International Conference on Multiphase Flow*, Leipzig, Germany, July 9-13.
[C33]	**Kazakis, N.A.**, Papadopoulos, J., Mouza, A.A., 2006. Prediction of gas holdup for the homogeneous regime in bubble columns equipped with porous sparger. *CHISA 2006, 17th International Congress of Chemical and Process Engineering*, Prague, Czech Republic, August 27-31.
[C34]	**Kazakis, N.A.**, Mouza, A.A., Paras, S.V., 2006. Bubble size distribution at the entrance of bubble columns with pore sparger. *CHISA 2006, 17th International Congress of Chemical and Process Engineering*, Prague, Czech Republic, August 27-31.
[C35]	**Kazakis, N.A.**, Mouza, A.A., Paras, S.V., 2005. Study of coalescence and breakage in bubble columns with fine pore spargers. *43rd European Two-Phase Flow Group Meeting*, Prague, Czech Republic, 11-13 May.
[C36]	Mouza, A.A., **Kazakis, N.A.**, Paras, S.V., 2004. Bubble column reactor design using a CFD code. *1st International Conference "From Scientific Computing to Computational Engineering"*, Athens, Greece, 8-10 September.
[C37]	Goula, A.M., Adamopoulos, K.G., **Kazakis, N.A.**, 2003. Influence of spray drying conditions on tomato powder properties. *53rd Canadian Chemical Engineering Conference in Hamilton*, Ontario, Canada, October 26-29.

10.6 Other Conferences

[OC1]	**Kazakis, N.**, 2026. Innovative waste bioremediation practice for the removal of toxic compounds with use of microalgae in the context of a circular economy. *Online Two-day Conference "From Research to Action: Innovative Solutions for the Environment, Climate and Biodiversity", Presentation of Results of the Green Fund's "Research & Implementation" Program*, April 27-28.
[OC2]	**Kazakis, N.**, 2014. Evaluating the Research Performance of the Greek University Departments using Bibliometrics. *Meeting organized by the Quality Assurance Unit of the Democritus University of Thrace, "Quality Assurance and Accreditation in the Higher Education: Future challenges"*, Alexandroupoli, Greece, October 3.

[OC3]	Tsirliganis, N.C., **Kazakis, N.A.**, 2014. Scientific Data and Metadata in Archaeological Research Opportunities within the Ariadne Network. *20th Annual Meeting of the European Association of Archaeologists*, Istanbul, Turkey, September 10-14.
[OC4]	**Kazakis, N.**, 2014. Ceramics elemental analysis. *ARIADNE WP14 Task 14.1-2 Workshop on Modeling scientific data*, Plakias, Rethymnon, Greece, July 21-24.

10.7 Web Publications

[I1]	**Kazakis, N.A.**, Kitis, G., Tsirliganis, N.C., 2015. Identifying doses in commercial liquid drugs sterilized by ionizing radiation. *Atlas of Science*, 17 November 2015. Available in http://atlasofscience.org/identifying-doses-in-commercial-liquid-drugs-sterilized-by-ionizing-radiation/.
[I2]	**Kazakis, N.A.**, Tsirliganis, N.C., 2017. Thermoluminescence Dating: A Guide to Good Practice. Archaeology Data Service/Digital Antiquity Guides to Good Practice. Electronic document, https://doi.org/10.5284/wx7g-bv79.
[I3]	Bas den Hond, 2016. Dragonfly wings can track radiation doses after a nuclear mishap. *New Scientist*, 5 May 2016. Available in https://www.newscientist.com/article/2087136-dragonfly-wings-can-track-radiation-doses-after-a-nuclear-mishap//. Based on the publication "**Kazakis, N.A.**, Anastasia Th. Tsetine, Kitis, G., Tsirliganis, N.C., 2016. Insect wings as accidental/retrospective dosimeters: An optically stimulated luminescence investigation. *Radiation Measurements* 89, 74-81".

10.8 Other Works/Studies

[OW1]	**Kazakis, N.A.**, 2016. *Investigating the methodology used by organizations which produce worldwide university rankings*. Democritus University of Thrace.
[OW2]	**Kazakis, N.A.**, 2004. *Studying the air-inlet area in a bubble column using CFD*. Chemical Engineering Department, Aristotle University of Thessaloniki, Greece.
[OW3]	**Kazakis, N.A.**, Vittorias, I., Dritsas, G., 2003. *Technical and Economical Plant Design Project: "k-butanol production using propylene"*. Chemical Engineering Department, Aristotle University of Thessaloniki, Greece.
[OW4]	**Kazakis, N.A.**, 2002. *Laboratory analysis for the cellulose determination in the atmosphere using HPLC*. Institute of Chemical Technologies and Analytics, Technical University, Vienna, Austria.

10.9 Technical Reports

[TR1]	**Kazakis, N.A.**, 2026. *Dating of the Holy Monastery of Saint Nicholas (Makranikola) (dependency of the Holy Monastery of Saint John the Baptist, Desfina)*. Technical Report (in Greek) (*Code APML-2601-01001-04/S),* Laboratory of Archaeometry and Physicochemical Measurements, Athena R.C., Xanthi.
[TR2]	**Kazakis, N.A.**, 2019. *Dating of materials from an ancient building structure (palace) in Pylos using the Optically Stimulated Luminescence (OSL) method*. Technical Report (in Greek) (*Code 11.2019.01.TR*), Laboratory of Archaeometry and Physicochemical Measurements, Athena R.C., Xanthi.
[TR3]	**Kazakis, N.A.**, 2018. *Study of the structure, chemical composition, and luminescence properties of various types of marble*. Technical Report (in Greek) (*Code 11.2018.01.TR*) withini the framework of the Project «*Computational Science and Technologies: Data, Content and Interaction/Technologies for Content Analysis in Culture (MIS 5002437)*, Laboratory of Archaeometry and Physicochemical Measurements, Athena R.C., Xanthi.
[TR4]	**Kazakis, N.A.**, 2014. *Elementary and statistical analysis of ceramics from Argilos using micro X-ray fluorescence spectroscopy*. Technical Report (in Greek) (*Code 11.2014.01.TR*) in the frame of the internal project "*Archaeometry Applications*", Department of Archaeometry and Physicochemical Measurements , Athena R.C., Xanthi, Greece.
[TR5]	**Kazakis, N.A.**, 2011. *Elementary and statistical analysis of ceramics from Argilos region using micro X-ray fluorescence spectroscopy*. Technical Report (in Greek) (*Code 11.2011.05.TR*) in the frame of the internal project "*Archaeometry Applications*", Archaeometry Department, Cultural and Educational Technology Institute, Xanthi, Greece.
[TR6]	**Kazakis, N.A.**, 2011. *Studying pottery from Andros using micro X-ray fluorescence spectroscopy*. Technical Report (in Greek) (*Code 11.2011.04.TR*) in the frame of the internal project "*Archaeometry Applications*", Archaeometry Department, Cultural and Educational Technology Institute, Xanthi, Greece.
[TR7]	**Kazakis, N.A.**, 2011. *Studying pottery from Pella using micro X-ray fluorescence spectroscopy*. Technical Report (in Greek) (*Code 11.2011.03.TR*) in the frame of the internal project "*Archaeometry Applications*", Archaeometry Department, Cultural and Educational Technology Institute, Xanthi, Greece.
[TR8]	**Kazakis, N.A.**, 2011. *Micro-XRF analysis of 22 Byzantine ceramic samples to obtain information regarding their provenance*. Technical Report (in English) (*Code 11.2011.02.TR*) in the frame of the internal project "*Archaeometry Applications*", Archaeometry Department, Cultural and Educational Technology Institute, Xanthi, Greece.
[TR9]	**Kazakis, N.A.**, 2011. *Micro-XRF analysis of 120 ceramic samples from Samothraki, Lesvos, Argilos, Macedonia, Hion, Neapoli and Thasos*. Technical Report (in English)

	(*Code 11.2011.01.TR*) in the frame of the internal project "*Archaeometry Applications*", Archaeometry Department, Cultural and Educational Technology Institute, Xanthi, Greece.

10.10 Course Notes

[TN1]	Notes for the course "*Unit and Chemical Operations*" for the students of the "Pharmaceutical, Cosmetics and Related Products Technician" profession orientation students (1st semester), Institute of Vocational Training of the ManPower Employment Organization (OAED), Xanthi, Greece, 2011-2012.
[TN2]	Notes for the course "*Safety and Hygiene in Industry*" for the students of the "Pharmaceutical, Cosmetics and Related Products Technician" profession orientation students (1st semester), Institute of Vocational Training of the ManPower Employment Organization (OAED), Xanthi, Greece, 2011-2012.
[TN3]	Notes for the course "*Chemical Technology*" for the students of the "Pharmaceutical, Cosmetics and Related Products Technician" profession orientation students (2nd semester), Institute of Vocational Training of the ManPower Employment Organization (OAED), Xanthi, Greece, 2011-2012.
[TN4]	Notes for the course "*Environment*" for the students of the "Pharmaceutical, Cosmetics and Related Products Technician" profession orientation students (2nd semester), Institute of Vocational Training of the ManPower Employment Organization (OAED), Xanthi, Greece, 2011-2012.

11 Analysis of Research Work & Interests

Research on special radiation dosimetry methods

- Application of advanced luminescence techniques, such as Thermoluminescence (TL) and Optically Stimulated Luminescence (OSL), using excitation sources of different wavelengths (infrared–IR or blue), on materials known for their luminescent behavior (dosimeters), aiming at the calculation of absorbed dose for dosimetric purposes.
- Investigation of the characteristics and luminescent behavior of materials (e.g., porcelains) for their exploitation in archaeometric applications and authenticity studies.
- Investigation of the luminescence properties of novel materials (biological or everyday-use materials) to evaluate their suitability as dosimeters in various applications, including post-sterilization dosimetry, retrospective dosimetry, accidental dosimetry, and forensic dosimetry.

- Investigation of the luminescence properties of extraterrestrial materials (meteorites) with the aim of identifying terrestrial materials with similar properties, as well as their broader study within the framework of space dosimetry.
- Investigation of the luminescent behavior of materials such as pharmaceuticals or pharmaceutical containers exposed to very high doses (up to 30 kGy) of ionizing radiation, aiming at their use as dosimeters in post-sterilization dosimetry.
- Research and development of new measurement protocols for the detection of irradiated materials and the determination of released/absorbed dose in past exposure scenarios (retrospective dosimetry), or more specifically in accidents (accidental dosimetry), terrorist attacks (forensic dosimetry), workplace incidents (personal dosimetry), and sterilization processes using ionizing radiation (post-sterilization dosimetry).

Archaeometry / Research in Cultural Heritage

- Physicochemical and luminescence analyses (e.g., dating) of archaeological findings (such as ceramics) aiming to draw conclusions regarding their manufacturing technology.
- Multivariate statistical analysis of data aiming to identify similarities and differences among various properties and to draw conclusions regarding the provenance of archaeological findings.
- Application of Artificial Intelligence in cultural heritage research.

Radiation Dosimetry Applications for Dating Objects and Inorganic Materials

- Application of advanced luminescence techniques, such as Thermoluminescence and Optically Stimulated Luminescence, for determining the age of archaeological findings (e.g., ceramics, slags) or the geological age of other materials (e.g., rocks, meteorites).
- Research and development of new material dating methods and optimization of widely used dating techniques according to the type and behavior of the material.

Use of Advanced Diagnostic and Analytical Radiation-Based Methods in Archaeometric Research and Materials Science

- Investigation of the chemical composition of materials (ceramics, tesserae, geological samples, etc.) aiming at determining their provenance within the framework of archaeometric studies, as well as studying the manufacturing technology used (e.g., pigments/coatings on decorated ceramics) using micro X-ray Fluorescence Spectroscopy (micro-XRF).
- Study of the chemical composition of other materials (biological materials, meteorites, glasses, pharmaceuticals, etc.) using X-ray Fluorescence Spectroscopy (XRF) in the context of their broader investigation and comparison with "known" materials exhibiting luminescent behavior.

- Mineralogical study of materials using X-ray Diffraction (XRD). Determination of the crystalline compounds composing materials (e.g., ceramics) aiming at a better understanding of the manufacturing technology used, as well as improved discrimination in provenance determination during archaeometric studies. Investigation of crystalline compounds in materials (marbles, biological materials, pharmaceuticals, etc.) to identify those exhibiting luminescent behavior.
- Use of multispectral imaging systems to identify differences in materials, combined with high-resolution visual observation at the micro-/nano-scale and elemental analysis using Scanning Electron Microscopy (SEM), aiming at a better understanding of manufacturing technologies in archaeological findings (e.g., ceramics), as well as evaluating the performance of innovative methods (e.g., chemical etching on silicon substrates) and the physical characterization of microstructures (formation of specific surface patterns) during the development of new materials (e.g., photovoltaics, batteries, microchips).

Research in Agri-food/Aquaculture – Integration of Artificial Intelligence in Natural Sciences

- Physicochemical and radiological measurements of materials in the agri-food and environmental sectors (e.g., soil, leaves, water), combined with composition prediction using Artificial Intelligence techniques.
- Identification of optimal cultivation conditions for microalgae, with or without the use of Artificial Intelligence, aiming at their exploitation in a wide range of applications and for sustainable green development.
- Removal of toxic compounds (e.g., heavy metals) from surface waters and wastewater using microalgae within the framework of the circular economy.
- Utilization of microalgae in various applications.

Physicochemical Measurements, Analysis, and Design of Equipment for Physical and Chemical Processes with Emphasis on Gas/Liquid Two-Phase Flow

- Research and study of bubble column operation using advanced non-invasive techniques (electrical tomography, high-speed imaging, laser anemometry). Investigation of the effect of the physical properties of the liquid phase (surface tension, viscosity, density) and operating conditions on the efficient operation of bubble columns and gas–liquid two-phase flow in general.
- Research and study of the influence of various parameters/properties on bubble size, as well as coalescence and breakup phenomena in gas/liquid two-phase flow.
- Computational Fluid Dynamics (CFD) simulations in single-phase and two-phase flows aiming at a better understanding of the underlying phenomena and investigation of parameters that cannot be studied experimentally.

Processing, Statistical Analysis, and Determination of Required Data and Metadata in Various Applications

- Determination of appropriate scientific (derived from experimental measurements) and non-scientific data, and their organization for the development of functional and efficient databases with the minimum possible number of data/metadata, within the framework of archaeometric research.
- Study of the research activity of academics and researchers, development of new evaluation indicators, and creation of methodologies for assessing the research quality of Academic and Research Institutions.