

4th Research group: Electric Properties of Materials Laboratory, Technological Educational Institute (TEI) of Athens

Webpage: <http://research.ee.teiath.gr/index.php#index>

The research activities of the lab are the following:

1. Electric properties of materials and structures investigated using the technique of dielectric spectroscopy as well as measurements of I-V & C-V characteristics and dc conductivity at temperatures 77K-450K. Optical properties of quantum-electronic and optoelectronic materials and devices.
2. Lab experiments for the detection of electric signal emissions on geomaterials and cement-based materials in a regime of temporally varying compressive or bending loading up to fracture. Advanced mathematical tools (e.g. wavelet analysis, etc) for signal processing and artificial intelligence techniques (e.g. neural networks, fuzzy systems, etc).
3. Novel techniques regarding the introduction of new technologies and methodologies in Education.

List of Research group's top 10 publications in journals	Citations*
1. K. Moutzouris, I. Stavrakas, D. Triantis, M. Enculescu, <i>Temperature-dependent refractive index of potassium acid phthalate (KAP) in the visible and near-infrared</i> , Optical Materials , 33 , 812-816 (2011).	-
2. Vallianatos F., Triantis D.: <i>Scaling in Pressure Stimulated Currents related with Rock Fracture</i> , Physica A , 387 , 4940-4946 (2008).	5
3. Triantis D., Anastasiadis C., Stavrakas I.: <i>The Correlation of Electrical Charge with Strain on Stressed Rock Samples</i> , Natural Hazards and Earth System Sciences , 8 , 1243–1248 (2008).	2
4. Moutzouris K., Adler F., Sotier F., Trautlein D., Leitenstorfer A.: <i>Multimilliwatt ultrashort pulses continuously tunable in the visible from a compact fiber source</i> . Optics Letters , 31 , 1148-1150-2542 (2006).	28
5. Vallianatos F., Triantis D., Tzanis A., Anastasiadis C., Stavrakas I.: <i>Electric Earthquake Precursors: From Laboratory Results to Field Observations</i> . Physics and Chemistry of the Earth , 29 , pp. 339-351 (2004).	10
6. Stavrakas I. Anastasiadis C., Triantis D., Vallianatos F.: Piezo stimulated currents in marble samples: Precursory and concurrent-with-failure signals, Natural Hazards and Earth System Science , 3 , 243-247 (2003).	5
7. Tsonos C., Stavrakas I., Anastasiadis C., Kyriazopoulos A., Kanapitsas A., Triantis D., <i>Probing the microstructure of cement mortars through dielectric parameters' variation</i> , Journal of Physics and Chemistry of Solids , 70 , 576-583 (2009).	2
8. Saltas V., Vallianatos F., Soupios P., Makris J. P., Triantis D.: <i>Dielectric and conductivity measurements as proxy method to monitor contamination in sandstone</i> , Journal of Hazardous Materials , 142 , 520-525 (2007).	5
9. Erny C., Moutzouris K., Biegert J., Kuhlke D., Adler F., Leitenstorfer A., Keller U.: <i>Mid-infrared difference-frequency generation of ultrashort pulses tunable between 3.2 and 4.8 μm from a compact fiber source</i> . Optics Letters , vol. 32 , pp. 1138-1140 (2007).	37
10. Ventouras E., Triantis D., Tsiakas P. Stergiopoulos C. : <i>Comparison of examination methods based on multiple-choice questions and constructed-response questions using personal computers</i> , Computers & Education , 54 , 455–461 (2010).	2

Short CVs for the main and external research team members

1. Dimos Triantis (team leader): He has studied at the University of Athens. He received his BSc in Physics in 1975, the MSc in Electronics in 1980 and his PhD in Solid State Physics in 1983. In 1989 he was appointed Professor in the Department of Electronics of the T.E.I. of Athens, in the discipline of Semiconductor and Dielectric Physics. Since 2007 he has been Honorary Professor Associate of the School of Engineering and Design of Brunel University (UK). He was Head of the Department of Electronics from 1992 to 1997, and Subject Area Leader in Electronics for several years. He is Dean of Faculty of Technological Applications for the academic period 2010-14 His research interests include the areas of Electric properties of materials and non-destructive testing, dielectric spectroscopy of solid materials, detection and study of mechanically stimulated electric signals, new technologies in Education. His published research work in international journals and conference proceedings numbers over 150 papers (Journals: 49, Conference Proceedings: 105).

- 2. Ilias Stavrakas (main researcher):** He graduated from the Dept of Electronics of the T.E.I. of Athens in 1997 and he received his MSc in Data Communication Systems in 1999 from Brunel University, UK. He conducted his PhD research at the Dept of Information Systems, Computing and Mathematics of Brunel University in the field of electric current emissions due to mechanical stress in laboratory and field environments (2005). Since 2008 he is an Assistant Professor in the Dept of Electronics of the T.E.I. of Athens, in the discipline of electric circuits and electronic measurement systems. His research interests focus on electric and electronic measurement technologies, non-destructive testing of materials and the electric characterization of materials. He has participated in national and European research projects. His published research work in international journals and conference proceedings numbers over 75 papers.
- 3. George Hloupis (main researcher)** (BSc in Electronics, 1996, TEI of Athens, MSc in Data Communications Systems, 1999, Brunel University, BSc in Energy Technology, 2003, TEI of Athens and PhD in Seismological Signal Processing, 2009, Brunel University) is a lecturer in Department of Electronics of TEI of Athens. His areas of expertise are the Early Warning Systems, real time data processing and signal analysis using non-linear methods and embedded prototyping systems as well as design and development of embedded measurements systems. He worked as researcher in the design, implementation, configuration, administration, development and upgrading of Hellenic Seismological Network of Crete. He participated in several research projects. His published research work in international journals and conference proceedings numbers 39 publications.
- 4. Konstantinos Moutzouris (external researcher)** studied Physics at the National University of Athens, Greece. He also holds MSc and PhD degrees in optoelectronics and lasers from the University of St Andrews, UK. He worked for several years as a postdoctoral researcher at the University of Konstanz, Germany and ETH-Zurich, Switzerland. He has carried out research visits at the Rutherford Appleton Laboratory in Oxford, as well as the Technical University of Munich. Since September 2010, he has been elected assistant Professor at the Technological Educational Institution of Athens. His research interests include the areas of optical characterization of materials, applied nonlinear optics and ultrafast lasers. He is author of more than 50 original papers in collective volumes, scientific journals and conferences. His research work is widely cited by other scientist (more than 300 non-self citations) and has been presented in the “research highlights” of the international scientific press. He has participated in various European funded projects; he has delivered invited lectures in many Universities and Research Centers; he also serves as reviewer for journals published by the Optical Society of America and Elsevier.
- 5. Panagiotis Photopoulos (external researcher)** carried out his PhD Thesis at the Institute of Microelectronics NCSR “Demokritos”. He holds a BSc awarded by the Department of Physics, University of Athens and a MSc awarded by King’s College London. He worked as a researcher in several projects (“Touch and Glo project”, “Silicon modules for integrated light engineering”, “Integrated gas flow sensors by using porous Si micromachining”, “Nanoelectronic Memory devices”, “Optical Spectroscopy measurements in low-dimension systems”) in NTUA and NCSR “Demokritos”. He has teaching experience both in under and postgraduate studies and today serves as a Lecturer in the Department of Electronics of TEI of Athens. His research interests cover optical and dielectric properties of semiconducting and metallic nanoparticles. His published research work in international journal and conference proceedings numbers 18 publications and his work is widely cited (more than 150 citations) by other researchers.