SHORT CURRICULUM VITAE OF PROFESSOR MICHAEL TATARAKIS

Education:

Ph.D. (Department of Physics, Imperial College, University of London, 1997)
M.Sc. (Department of Physics, University of Crete, 1993, 2-year program)
B.Sc. (Department of Physics, University of Crete, 1990)

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h-index: Scopus **42**, Google Scholar **45**
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CURRENT POSITIONS

2004 – present: Professor, School of Engineering / Department of Electronic Engineering, Hellenic Mediterranean University

Also 2005 – present: Honorary Visiting Professor, Faculty of Natural Sciences, Department of Physics, Imperial College London, United Kingdom

05.2020 – present: Director of the "Institute of Plasma Physics & Lasers" (IPPL) of the University Research Center of the Hellenic Mediterranean University. IPPL is one of the two access points of the Greek National Research Laser Infrastructure HELLAS-CH.

01.2021 – present: Scientific Representative of the Hellenic Mediterranean University in ΕΠΕΘΣ (National Council for Research, Technology & Innovation).

08.2020 – present: Alternate Board Member of IKY (State Scholarships Foundation)

06.2018 – 08.2024: Representative of the Hellenic Mediterranean University in the General Assembly of ELIDEK (Hellenic Foundation for Research & Innovation)

Also currently:

- Elected member of the Beam Particles & Inertial Fusion (BP&IF) Council of the European Physical Society (EPS).
- Executive Committee member of the HiPER+ (High Power Energy Research) Enabling Research Project CfP-FSD-AWP26-ENR-01 for Laser-Driven Inertial Fusion Energy in Europe.
- Core member of the development and writing team for the European Roadmap for Laser Inertial Fusion Energy in Europe.
- Management Committee Member of COST ACTION 21128 PROBONO

Summary:

Michael Tatarakis received his B.Sc. in Physics and his M.Sc. in Atomic and Molecular Physics from the Department of Physics of the University of Crete, and his Ph.D. in 1997 from the Department of Physics of Imperial College London (with scholarship). He has held research positions at Imperial College London and at the Technical University of Crete.

He is also a Honorary Professor (Visiting) in the Department of Physics at Imperial College London. He has served as President of the Department of Electronic Engineering, Dean of the School of Applied Sciences, and member of the University Research Committee.

Michael Tatarakis has been a faculty member of the Department of Electronic Engineering (Chania) of the Hellenic Mediterranean University since 2004, at the rank of Professor, specializing in Optoelectronics & Lasers.

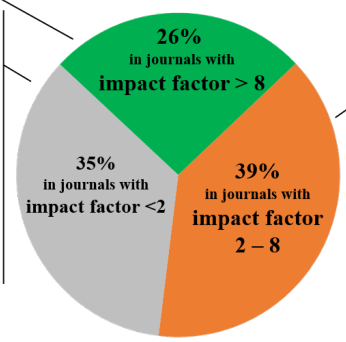
He is the Director of the **Institute of Plasma Physics & Lasers** (https://ippl.hmu.gr/) of the University Research and Innovation Centre of the Hellenic Mediterranean University and Director of the postgraduate program "Lasers, Plasma & Applications".

He has more than **270** publications in peer-reviewed journals and conferences (https://scholar.google.gr). Of these, more than **170** are peer-reviewed journal articles of high impact factor, with over 10,000 citations (https://scholar.google.gr).

A full list of his publications can be found in the databases https://scholar.google.gr and http://www.scopus.com by searching the author name "Tatarakis M".

Journal	*Impact Factor*	*#articles*
Nature	42.778	1
Nature Physics	19.256	1
Nature Communications	12.121	1
Physical Review Letters	8.385	22

Journal	*Impact Factor*	*#articles*
Physica Scripta	1.985	1
Physics of Plasmas	1.830	15
Applied Physics B	1.817	1
Applied Physics A	1.810	2
Fusion Eng. Des.	1.692	1
Journal of Modern Optics	1.544	2
Rev. Sci. Instrum.	1.480	3
IEEE Trans. Plas. Sci.	1.309	6
Nucl. Instr. Meth. B	1.270	1
Laser and Particle Beams	1.180	1



Journal	*Impact Factor*	*#articles*
Optics Letters	3.714	2
Optics Express	3.669	1
Applied Physics Letters	3.597	8
New Journal of Physics	3.579	2
Journal of Physics D	3.169	2
Int. J. Damage Mech.	3.125	1
Philos. Trans. R. Soc. A	3.093	1
Ultrasonics	3.065	1
Plasma Phys. & Contr. Fus.	2.829	10
Physical Review A	2.777	1
High Power Laser Sci. Eng.	2.606	3
Microelectron. Eng.	2.305	1
Physical Review E	2.296	4

His publications in peer-reviewed scientific journals are summarized below:

Research Interests:

His main research interests cover a wide range of fundamental and technological research and their applications.

- **High Power Laser Matter/ Plasma Interactions:**

Interaction of high-intensity laser radiation with matter (solids and gases). Study of the plasma generation and characterization. Study and generation of secondary relativistic particle (electrons, ions) and coherent photon sources, study of magnetohydrodynamic instabilities of

produced plasma, generation and study of ultra-high magnetic fields, study of inertial fusion conditions.

- **High Power CW Lasers:** Interaction of CW high power laser radiation with materials. Propagation of CW high power laser radiation in gaseous environments. Materials processing.

- **Optics/Optical probing diagnostics:** High Power Laser interactions with optical materials. High Power Laser Beam driving. Laser driven Optical probing diagnostics (interferometry, shadowgraphy, schlieren).

- **Characterization of Fusion Plasmas:**

Laser-driven inertial fusion energy: Co Author of a European research roadmap for direct drive laser driven fusion, study of the dynamic behavior of hot and dense plasma, study and characterization of ablators, elasto-thermomechanical instabilities, investigation of plasma instabilities in the compression phase, plasma diagnostics.

Magnetic confinement fusion: Plasma-wall interactions, plasma instabilities, runaway electron wall interactions, plasma devices for scaled experiments (Z-pinch, Plasma Focus), plasma and materials diagnostics.

- **Biomedical applications of laser driven relativistic particles from plasmas:**

Study of the interaction of short pulse (fs) laser generated pulsed particle beams (electrons, protons) with cells and tissues. Characterisation of the particle-cell/tissue interaction. Diagnostics of the electron/proton doses.

- **Plasma and materials diagnosis:**

High-resolution spatiotemporal imaging of plasmas, microstructures and nanostructures in materials using laser-based diagnostics. Thermoelastic and nano-acoustic properties of materials. X-ray radiography of materials and biological systems. Characterization / profilometry of ultrathin films using nano-acoustic waves.

- **Development of high energy pulsed power plasma devices:**

Design and development of high energy pulsed power plasma devices for generating dense and hot plasma using high currents. Study of the dynamic behaviour and instabilities of generated plasma, study of secondary particle and photon sources from plasma produced by Z-pinch, X-pinch, and Plasma Focus devices. Use of these sources in magnetic confinement fusion research. Use of plasma sources for neutron spectroscopy and XUV imaging.

Research Achievements:

His research achievements include major contributions and innovations in Physics with high international impact. He is a key scientist and main author of the European Roadmap for Inertial Fusion Energy in Europe (High Power Laser Science and Engineering (2023), doi:10.1017/hpl.2023.80) and a principal scientist for the HiPER+ consortium, aimed at developing a European facility for laser-based inertial fusion studies.
Regarding magnetic confinement fusion, he is a leading researcher on the behaviour of materials (tungsten, graphite) due to interactions with runaway electrons, with significant recent results.
His achievements have received broad international attention from researchers worldwide and from scientific news outlets such as Physics Today, Physics World, etc.

Recent high impact achievements (last five years) include:
Discovery of a new mechanism (Electro-Thermo-Mechanical instability – ETM) that triggers plasma instabilities with strong implications for fusion.
Demonstration of laser driven highly repeatable (high repetition rate) high-energy ion beams from high-intensity laser interactions with optically gaseous targets.
For this work, he received the **"Certificate of Honour"** on 18 October 2023 in Suzhou, China, for the Excellent Research Award, during the 10th anniversary of High Power Laser Science and Engineering – Cambridge University Press, at the International Symposium on High Power Laser Science and Engineering (HPLSE2023).

Awards / Distinctions:

Michael Tatarakis has received numerous major awards and distinctions. The most recent is the **"Certificate of Honour"** on 18 October 2023 in Suzhou, China, for excellence in laser-driven particle acceleration research.
Notable distinctions include:

- Award from the Ministry of Education, following evaluation by the National Council for Research & Technology, in the Academic & Scientific Excellence program, for his contribution to the advancement of excellence in Greek Higher Education (First Prize in the Physical Sciences)
- Award from IKY for his coordination and contribution to the Erasmus Intensive Program "Applications of Electronics in Plasma Physics"
- The honour of delivering the keynote opening lecture in basic science at the I-MAX Theatre of the London Science Museum during the Pan-European opening ceremony of the HiPER-ESFRI project, in the presence of scientific and political leadership
- Distinctions for projects under his scientific leadership (Marie Curie DAIX ToK for the development of a Centre of Excellence, National Research Infrastructure for HiPER)
- Coordinator of the pan-European "Fundamental Science Programme" of HiPER-Europe
- Member of the governing board of HiPER-Europe
- Coordinator of 14 Greek Universities and institutions in the HiPER-GR network
- National Representative of Greece at ESFRI (European Strategy Forum on Research Infrastructures) in the Energy domain

He has successfully led many research projects as Principal Investigator and maintains collaborations with numerous leading universities and research centres in Greece and abroad. He has coordinated internationalization initiatives through Erasmus Intensive Programmes, Erasmus Curriculum Development, Erasmus+ KA2, etc.

He is a **Topical Editor** for the scientific journal *High Power Laser Science and Engineering* (Cambridge University Press) and reviewer for several leading high-impact journals including *Nature*, *Physical Review Letters*, *Physics of Plasmas*, *Plasma Physics & Controlled Fusion*, *Nature Communications*, *Scientific Reports*, *Applied Physics B*, *Optics & Laser Technology*, *Journal of Fusion Energy*, *Nuclear Fusion*, and others.

He is a member of the International Scientific Committee of the *European Conference on Laser Interaction with Matter (ECLIM)* and has delivered numerous invited and plenary talks at international and national conferences and symposia.