CURRICULUM VITAE

FOTIOS MPEKRIS

PERSONAL AND CONTACT INFORMATION

Date and place of birth: August 27, 1988; Nicosia, Cyprus

Nationality: Cypriot

✉ fmperk01@ucy.ac.cy;

EDUCATION

Sept.2012 — Nov. 2016	*PhD* Cancer Biophysics Laboratory, Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus.
Sept.2008 — June 2012	*BSc in Physics* Department of Physics, University of Cyprus (GPA: 8.64/10)

PROFESSIONAL APPOINTMENTS

Nov. 2016 – present	Postdoctoral fellow, Cancer Biophysics Laboratory, Department of Mechanical and Manufacturing Engineering, University of Cyprus
Sept 2019 -present	Part time Lecturer, School of Sciences and Engineering, Department of Engineering, University of Nicosia
2017 — 2018	Research Assistant, Molecular and Cellular Biology Laboratory, Department of Life Sciences, European University of Cyprus
2012 — 2016	Research Scientist, Cancer Biophysics Laboratory, Department of Mechanical and Manufacturing Engineering, University of Cyprus
2012 — 2014	*Private Tutoring* AMP Institute, Nicosia, Cyprus

TEACHING EXPERIENCE

2019-2022 spring sem.	*Part time Lecturer* *Introduction to Electromagnetics* Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus.
2021 winter sem.	*Part time Lecturer* *Physics for the Medical School* Department of Physics, University of Cyprus, Nicosia, Cyprus.
2021 spring sem.	*Part time Lecturer* *General Physics III* School of Sciences and Engineering, Department of Engineering, University of Nicosia
2020 winter sem.	*Part time Lecturer* *Technical Writing and Speaking* Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus.
2019-2021 winter and spring sem.	*Part time Lecturer* *Physics I* School of Sciences and Engineering, Department of Engineering, University of Nicosia
2019 summer sem.	*Part time Lab Instructor* *Physics I and Physics II* University of Nicosia Global Semesters, University of Nicosia, Nicosia, Cyprus.
2018 winter sem.	*Visiting Lecturer* *1) Thermodynamics I* *2) Thermodynamics II* *3) Advanced Engineering Thermodynamics* Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus.
2017 winter sem.	*Part time Lecturer* *Computational Engineering II* Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus.
2013 spring sem.	*Teaching Assistant* *Introduction to Electromagnetics* Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus.
2012 winter sem.	*Teaching Assistant* *Thermodynamics I* Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus.

FUNDING ID

- Research Promotion Foundation, DIDAKTOR (POST DOCTORAL RESEARCHERS, Title: "*Optimizing immunotherapy in triple-negative breast cancer by normalizing the tumor microenvironment*", €160.000, December 2019-November 2021

- University of Cyprus, POST-DOCTORAL RESEARCHER, "*Combined use of immunotherapy and anti-angiogenic agents to improve cancer therapy"*, €25.000, January 2019-November 2019.

PROFESSIONAL AND RESEARCH ACTIVITIES

1. Animal procedures (license CY/EXP/P.L10/2014) by Cyprus veterinary services.
    - Animal handling and anesthetization
    - Drug preparation and administration (intraperitoneal, intravascular, retro orbital)
    - Other experimental procedures
        - measurements of tumor fluid pressure
        - measurements of solid stress
        - intracardiac administration of fluorescence molecules for imaging
        - immunofluorescence staining
2. COMSOL Multiphysics (COMSOL, Inc., Burlington, MA)
    - Design and simulation tumor growth (description in publications)
    - Design and simulation experiment for mechanical characteristics of materials (Tension, confined, unconfined and Stress Relaxation compression, Fluid Dynamics)
3. Expert user of a high precision mechanical testing (Instron 5944, Norwood, MA, USA).
    - Design experimental set-up and test protocol (Tension, Compression and Stress Relaxation)
4. MATLAB
    - Numerical Methods
    - Statistical analysis experimental data
5. Microsoft Office™ tools
6. Force fortran
    - Numerical Methods
    - Finite element methods
    - Finite volume methods
    - Computational Fluid Mechanics
7. Degrees in Languages:
    - English (IGCSE);
    - Italian (Medium Level);
    - French (Medium Level).

PUBLICATIONS IN PEER-REVIEWED JOURNALS (H-INDEX:16, CITATIONS:1276)

J1. **Mpekris F.**, Voutouri C., Panagi M., Baish J.W, Stylianopoulos T., Jain R.K., (2022). Normalizing the tumor microenvironment with nanomedicine and metronomic therapy: Implications for immunotherapy. Journal of Controlled Release 345: 190-199 [DOI:10.1016/j.jconrel.2022.03.008]

J2. **Mpekris F.**, Panagi M., Voutouri C., Martin J.D., Samuel R., Takahashi S., Gotohda N., Suzuki T., Papageorgis P., Demetriou P., Pierides C., Koumas L., Costeas P., Kojima M., Ishii G., Constantinidou A., Kataoka K., Cabral H., Stylianopoulos T. (2021). Normalizing the microenvironment overcomes vessel compression and resistance to nano-immunotherapy in breast cancer lung metastasis. Advanced Science 8(3): e2001917 [DOI:10.1002/advs.202001917]

J3. Voutouri C., Panagi M., **Mpekris F.**, Stylianou A., Averkiou M., Martin J.D., Stylianopoulos T. (2021). Endothelin inhibition potentiates cancer immunotherapy revealing mechanical biomarkers predictive of response. Advanced Therapeutics, 2000289, [DOI:10.1002/adtp.202000289].

J4. Igarashi K., Cabral H., Hong T., Anraku Y., **Mpekris F.**, Stylianopoulos T., Khan T., Matsumoto A., Kataoka K, Matsumoto Y., Yamasoba T., (2021) Vascular Bursts Act as a Versatile Tumor Vessel Permeation Route for Blood-Borne Particles and Cells, Small 17(42): 2103751 [DOI:10.1002/smll.202103751].

J5. **Mpekris F.**, Panagi M., Michael C., Voutouri C., Tsuchiya M., Tanabe A., Kinoh H., Osada A., Akinaga S., Yoshida S., Stylianopoulos T., Martin J.D., Translational nanomedicine regimen potentiates immune checkpoint inhibition in metastatic sarcoma by normalizing the microenvironment. (Under Review).

J6. Martin J.D., **Mpekris F**., Martin M.R., Mpekris F., Yuan F., Stylianopoulos T., Jain R.K., Passive transport explains molecular and nanoscale medicine transvascular transport in tumors. (Under Review).

J7. Martin J.D., Toh K., Martin M.R., Wang C., **Mpekris F.,** Stylianopoulos T., Stuber M.D., Kataoka K., and H. Cabral, Bone marrow vessels are hyperpermeable to nano-sized macromolecules. (Under review).

J8. Martin J.D., Panagi M., Hosoi A., Khan T.T., Martin M.R., **Mpekris F.,** Nagaoka K., Cheng D., Voutouri C., Louca M., Papageorgis P., Nitta N., Aoki I., Kataoka K., Kakimi K., Stylianopoulos T., and H. Cabral, Dexamethasone increases efficacy of immune checkpoint blockade in metastatic triple negative breast cancer by normalizing the microenvironment. (Under review).

J9. **Mpekris F.**, Voutouri C., Baish J.W, Duda D.G., Munn L.L., Stylianopoulos T., Jain R.K. (2020). Combining microenvironment normalization strategies to improve cancer immunotherapy. PNAS 117(7):3728-3737 [DOI:10.1073/pnas.1919764117]

J10. Panagi M., Voutouri C., **Mpekris F.**, Papageorgis P., Martin M.R., Martin J.D, Dmetriou P., Pierides C., Polydorou C., Stylianou A., Louca M., Koumas L., Costeas P., Kataoka K., Cabral H., Stylianopoulos T. (2020). TGF-β inhibition combined with nanomedicine normalizes the metastasis microenvironment towards anti-tumor immunity. Theranostics 10(4):1910-1922 [DOI:10.7150/thno.36936]

J11. Martin J.D., Panagi M., Khan T.T., Wang C., Martin M.R., Voutouri C., Toh K., Papageorgis P., **Mpekris F.**, Suzuki T., Wilheim M., Melo V.A., Polydorou C., Quader S., Norimatsu J., Lanning R.M., Kojima M., Stuber M.D., Stylianopoulos T., Cabral H., Kataoka K. (2019). Dexamethasone increases nanocarrier delivery by normalizing the tumor microenvironment. ACS Nano 13(6):6396-6408 [DOI:10.1021/acsnano. 8b07865]

J12. Zhao Y., Cao J., Jones D., Zhang Y., Nia H.T., Stylianopoulos T., **Mpekris F.**, Datta M., Sun Y., Wu L., Gao X., Jain R.K., Xu L. (2019). Losartan treatment augments chemotherapy efficacy and reduces ascites by normalizing the tumor stroma in ovarian cancer models. PNAS 116(6):2210-2219 [DOI:10.1073/pnas. 1818357116]

J13. Voutouri C., Kirkpatrick N.D., Chung E., **Mpekris F.**, Baish J.W, Munn L.L, Fukumura D., Stylianopoulos T., Jain R.K. (2019). Dynamics of vessel cooption in brain tumors revealed by integrative experimental and mathematical modeling studies. PNAS 116(7):2662-2671 [DOI:10.1073/pnas. 1818322116]

J14. Kalli M., **Mpekris F.**, Wong K.C., Panagi M., Ozturk S., Thiagalingam S., Stylianopoulos T., Papageorgis P. (2019). Activin A signaling regulates IL13Rα2 expression to promote breast cancer metastasis. Front Oncol 9: 32. [DOI: 10.3389/fonc.2019.00032].

J15. Demetriadou C., Pavlou D., **Mpekris F**., Achilleos C., Stylianopoulos T., Zaravinos A., Papageorgis P., Kirmizis A. (2019). Naa40 contributes to colorectal cancer growth by controlling PRMT5 expression. Cell Death and Disease 10 (3):236. [DOI: 10.1038/s41419-019-1487-3]

J16. **Mpekris F.**, Voutouri C., Papageorgis P., Stylianopoulos T. (2018). Stress alleviation strategy in cancer treatment: Insights from a mathematical model. Z Angew Math Mech., 1-12. [DOI: 10.1002/zamm.21700270]

J17. **Mpekris F.**, Baish J.W., Stylianopoulos T., Jain R.K. (2017). Role of vascular normalization in benefit from metronomic chemotherapy. PNAS, 114(8):1994-1999 [DOI:10.1073/pnas.1700340114]

J18. **Mpekris F.**, Papageorgis P., Polydorou C., Voutouri C., Kalli M., Pirentis A., Stylianopoulos T. (2017) Sonic-Hedgehog pathway inhibition normalizes desmoplastic tumor microenvironment to improve chemo- and nanotherapy, J Controlled Release, 261: 105-112. [DOI: 10.1016/j.jconrel.2017.06.022]

J19. Papageorgis P.*, Polydorou C.*, **Mpekris F.***, Voutouri C., Agathokleous E., Kapnissi-Christodoulou C.P., Stylianopoulos T. (2017) Tranilast-induced stress alleviation in solid tumors improves the efficacy of chemo- and nanotherapeutics in a size independent manner. Scientific Reports, 7:46140 [DOI: 10.1038/srep46140] * Equal contribution

J20. Polydorou C.*, **Mpekris F.***, Papageorgis P., Voutouri C., Stylianopoulos T. (2017). Pirfenidone normalizes the tumor microenvironment to improve chemotherapy, Oncotarget, 8(15):24506-24517. [DOI:10.18632/oncotarget.15534] *Equal Contribution

J21. Ilia R., Liatsou I., Savva I., Vasile E., Vekas L., Marinica O., **Mpekris F.**, Pashalidis I., Krasia-Christoforou T. (2017). Magnetoresponsive Polymer Networks as Adsorbents for the Removal of U(VI) Ions from Aqueous Media, Eur. Pol. J., 97: 138-146 [DOI:10.1016/j.eurpolymj.2017.10.005]

J22. Achilleos M., **Mpekris F.**, Stylianopoulos T., Krasia-Christoforou T. (2016). Structurally-defined semi-interpenetrating amphiphilic polymer networks with tunable and predictable mechanical response. RSC Advances 6:43278-43283 [DOI: 10.1039/C6RA07376j]

J23. **Mpekris F.**, Angeli S., Pirentis A.P., Stylianopoulos T. (2015), Stress-mediated progression of solid tumors: effect of mechanical stress on tissue oxygenation, cancer cell proliferation and drug delivery. Biomechanics and Modeling in Mechanobiology 14(6):1391-1402 [DOI: 10.1007/s10237-015-0682-0]

J24. Savva I., Evaggelou E., Papaparaskeva G., Leontiou T., Stylianopoulos T., **Mpekris F.**, Stylianou K., Krasia-Christoforou T. (2015), Alignment of electrospun polymer fibers using a concave collector. RSC Advances 5(126): 104400-104407. [DOI: 10.1039/C5RA20429A]

J25. Papaphilippou P.Ch., I. Vyrides, **F. Mpekris**, T. Stylianopoulos, C.A. Papatryphonos, C.R. Theocharis, T. Krasia-Christoforou (2015), Evaluation of novel, cationic electrospun microfibrous membranes as adsorbents in bacteria removal. RSC Advances 5(83): 67617-67629. [DOI: 10.1039/C5RA11406C]

J26. Pirentis A.P., Polydorou C., Papageorgis P., Voutouri C., **Mpekris F.**, T. Stylianopoulos T. (2015). Remodelling of extracellular matrix due to solid stress accumulation during tumour growth. Connective Tissue Research 56(5): 345-354. [DOI: 10.3109/03008207.2015.1047929]

J27. **Mpekris F.**, Achilleos M., Vasile E., Vasile E., Krasia-Christoforou T., Stylianopoulos T. (2015), Mechanical Properties of Structurally-Defined Magnetoactive Polymer (Co)networks. RSC Advances 5:20011-20019 [DOI: 10.1039/C4RA16260A]

J28. Voutouri C.*, **Mpekris F.***, Papageorgis P., Odysseos A.D., Stylianopoulos T. (2014) Role of constitutive behavior and tumor-host mechanical interactions in the state of stress and growth of solid tumors. Plos One 9: e104717 [DOI: 10.1371/journal.pone.0104717], * Equal Contribution

J29. Stylianopoulos T., Martin J.D., Snuderl M., **Mpekris F.**, Jain S.R., Jain R.K. (2013) Coevolution of solid stress and interstitial fluid pressure in tumors during progression: implications for vascular collapse. Cancer Res 73:3833-3841 [DOI: 10.1158/0008-5472.CAN-12-4521]

PAPERS AND ABSTRACTS IN CONFERENCE PROCEEDINGS

C1. Mpekris F., Martin J.D., Panagi M., Khan T., Margaret R. Martin M.R., Voutouri C., Norimatsu J., Stylianopoulos T., Kataoka K., Cabral H., Dexamethasone normalizes tumor microenvironment and enhances efficacy of cisplatin-loaded nanocarrier in cancer, Nanomedicine meets the Tumor Micro Environment Conference (NANOTME) 2021 (podium presentation)

C2. Mpekris F., Martin J.D., Panagi M., Khan T., Margaret R. Martin M.R., Voutouri C., Norimatsu J., Stylianopoulos T., Kataoka K., Cabral H., Re-engineering the mechanical tumor microenvironment with dexamethasone enhances efficacy of cisplatin-loaded nanocarrier in metastatic breast cancer, Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C) 2021 (podium presentation)

C3. **Mpekris F.**, Baish J.W., Stylianopoulos T., Jain R.K. Role of vascular normalization and stress alleviation in metronomic chemotherapy: Insights from a mathematical model. 14th World Congress in Computational Mechanics (WCCM) ECCOMAS Congress 2020, Paris, France (podium presentation)

C4. **Mpekris F.**, Martin J.D., Panagi M., Khan T.T., Martin M.R., Voutouri C., Papageorgis P., Polydorou C., Norimatsu J., Stylianopoulos T., Kataoka K., Cabral H., Re-engineering the mechanical tumor microenvironment with dexamethasone enhances efficacy of cisplatin-loaded nanocarrier in metastatic breast cancer, 12th European and Global Conference and Exhibition for Clinical Nanomedicine & Targeted Medicine (CLINAM 2020), Basel, Switzerland (poster)

C5. **Mpekris F.**, Baish J.W., Stylianopoulos T., Jain R.K. Role of vascular decompression and functional normalization in benefit from metronomic chemotherapy: Insights from a mathematical model. World Congress of Biomechanics (WCB 2018), Dublin, Ireland (podium presentation)

C6. **Mpekris F.**, Papageorgis P., Polydorou C., Voutouri C., Stylianopoulos T. Repurposing common anti-fibrotic to improve the efficacy of chemo- and nanotherapeutics in solid tumors. World Congress of Biomechanics (WCB 2018), Dublin, Ireland (poster)

C7. **Mpekris F.**, Baish J.W., Stylianopoulos T., Jain R.K. Role of vascular decompression and functional normalization in benefit from metronomic chemotherapy. Angiogenesis Gordon Research Conference (GRC 2017), Newport RI, USA (poster)

C8. Papageorgis P., Polydorou C., **Mpekris F.**, Voutouri C., Agathokleous E., Kapnissi-Christodoulou C.P., Stylianopoulos T. Re-engineering cancer: A new strategy to improve the efficacy of cancer nanomedicines. 10th European and Global Conference and Exhibition for Clinical Nanomedicine & Targeted Medicine (CLINAM 2017), Basel, Switzerland (poster)

C9. **Mpekris F**., Baish J.W., Stylianopoulos T., Jain R.K. Vascular Normalization Improves Metronomic Chemotherapy. Biomedical Engineering Society Annual Meeting (BMES 2017), Phoenix, USA (podium presentation)

C10. Krasia-Christoforou T., Achilleos M., Christodoulou K., Leontidis E., Polydorou C., Papaparaskeva G., Voutouri C., **Mpekris F.**, Stylianopoulos T., Well-defined Semi-interpenetrating Polymer Networks: The BIEE-Crosslinking Approach, 12th International Conference on "Advanced Polymers via Macromolecular Engineering" 2017 (APME 2017), Belgium (poster)

C11. **Mpekris F.**, Baish J.W., Stylianopoulos T., Jain R.K, *Role of vascular normalization and mechanical stress alleviation in metronomic chemotherapy: A computational study for solid tumor treatment*. European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2016), Crete, Greece (podium presentation)

C12. **Mpekris F.**, Angeli S., Pirentis A., Stylianopoulos T., Mechanical Stress regulates Tissue Oxygenation, Cancer Cell Proliferation and Drug Delivery during Progression of Solid Tumorss. XIV Mediterranean Conference on Medical and Biological Engineering and computing (MEDICON 2016), Paphos, Cyprus (podium presentation)

C13. Papaparaskeva G., Savva I., Evaggelou E., Leontiou T., Stylianopoulos T., **Mpekris F.,** Stylianou K., Krasia-Christoforou T., *Fabrication of aligned electrospun fibers using a static concave collector*. 4th International Conference on Electrospinning 2016 (Electrospin 2016), Italy (poster)

C14. **Mpekris F.**, Achilleos M., Vasile E., Vasile E., Krasia-Christoforou T., Stylianopoulos T., *Mechanical behavior of the DMAEMA and DMAEMA-b-BuMA (co)networks in the presence of Fe3O4 nanoparticles*. Workshop on Magnetic Materials (2015), Nicosia, Cyprus (podium presentation)

C15. **Mpekris F.**, Angeli A., Pirentis A., Stylianopoulos T., *Heterogenous stress distribution results in non-uniform tumor oxygenation, cancer cell proliferation and drug delivery*. 21st Congress of the European Society of Biomechanics (ESB 2015), Prague, Czech Republic (poster)

C16. **Mpekris F.**, Angeli S., Pirentis A., Stylianopoulos T., *Solid stress accumulation inhibits the delivery of drugs*. 2nd International Conference on Nanotheranostics (ICON 2015), Limassol, Cyprus (podium presentation)

C17. Kokonou M., **Mpekris F.**, Stylianopoulos T., Siaugue J.M., Odysseos A., *Electrospun PEO/PLLA Fibrous Meshes for Sustained Tyrosine Kinase Inhibitors Delivery in Situ*. International Conference on Nanotheranostics (ICoN 2013), Larnaca, Cyprus (podium presentation)

WORKSHOP

1. 32nd Annual Critical Issues in Tumor Microenvironment: Angiogenesis, Metastasis and Immunology. Harvard Medical School, 5-8 September 2017, Boston, Massachusetts, USA.
2. 35th Annual Critical Issues in Tumor Microenvironment: Angiogenesis, Metastasis and Immunology. Harvard Medical School, 26-29 October 2020, Boston, Massachusetts, USA.