ANNA MITRAKI
Curriculum Vitae

Department of Materials Science and Technology
c/o Biology Department
University of Crete,
and Institute For Electronic Structure and Laser, IESL-FORTH
Vassilika Vouton
710 03 Heraklion, Crete, Greece
mitraki@materials.uoc.gr
phone: +30 2810 39 40 95 fax: +30 2810 39 44 08
http://www.materials.uoc.gr/en/general/personnel/mitraki.html

EDUCATION

B.S. Chemistry 1981
Aristotle University of Thessaloniki, Greece

PhD Biochemistry-Enzymology 1986
Université Paris-Sud, Orsay, France
Thesis advisor: Prof. Jeannine Yon-Kahn

Habilitation
Université Joseph Fourier, Grenoble, France 2003

PROFESSIONAL EXPERIENCE

Post-Doctoral Associate 1987-1991
Department of Biology
Massachusetts Institute of Technology
Cambridge, MA, U.S.A.
postdoctoral advisor: Prof. Jonathan King

Research Scientist 1991-1994
Department of Biology
Massachusetts Institute of Technology
Cambridge, MA, U.S.A.

Research Scientist, CNRS 1995- August 2004
(French National Research Center),
Institut de Biologie Structurale , Grenoble, France

Associate Professor of Biomaterials Sept. 2004-Sept. 2014
Department of Materials Science and Technology
University of Crete, Greece
And affiliated Research Scientist, IESL-FORTH

Professor of Biomaterials September 2014-present
Department of Materials Science and Technology
University of Crete, Greece
And affiliated Research Scientist, IESL-FORTH

RESEARCH INTERESTS

-the proteins as biomaterials; bioinspired materials;
-engineering and design of fibrous biomaterials;
-self-assembling peptides;
-protein folding and assembly;
-protein engineering and production
-adenovirus proteins

A chemist and biochemist by training, I have been working for more than 30 years on the folding, assembly and structure of natural fibrous proteins, such as phage P22 tailspikes and adenovirus fibers. I subsequently got interested in using them as models for the design of novel fibrous materials. I am particularly interested in translating fundamental structural knowledge from natural fibrous proteins into concrete integration strategies and applications in the area of fibrous bio-nano-materials. I especially focus on the study and use of amyloid-like, self-assembling peptide materials as technological objects and their integration in innovative applications. These efforts rely not only on biochemical and structural methodologies, but also on the fostering of interdisciplinary collaborations with colleagues from other disciplines (eg laser science) that develop techniques to manipulate, assemble and position these materials in a controlled manner. I am also continuing to work on adenoviral proteins and their self-assembly with particular focus on their use as transfer vehicles for small molecules, nucleic acids and enzymatic moieties targeted for delivery applications.

PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Desmadril, M., Mitraki, A., Betton, J.M. and Yon, J. M. (1984) GuHCl induced unfolding-refolding transition of a hinge-bending enzyme: horse muscle phosphoglycerate kinase. ***Biochem. Biophys. Res. Comm***. 118: 416-422.
2. Betton, J. M., Desmadril, M., Mitraki, A. and Yon, J. M. (1984) Unfolding -refolding transition of a hinge - bending enzyme: Horse muscle phosphoglycerate kinase induced by guanidinium hydrochloride. ***Biochemistry*** 23: 6654-666l
3. Betton, J. M., Desmadril, M., Mitraki, A. and Yon, J. M. (1985) Kinetic studies of the unfolding-refolding of horse muscle phosphoglycerate kinase induced by guanidinium hydrochloride. ***Biochemistry*** 24: 4570-4577.
4. Mitraki, A., Betton, J. M., Desmadril, M. and Yon, J. M. (1987) Quasi -irreversibility in the unfolding - refolding transition of phosphoglycerate kinase induced by guanidine hydrochloride. ***Eur. J. Biochem.*** 163: 29-34.
5. Chardot, T., Mitraki, A., Amigues, Y., Desmadril, M., Betton, J. M., and Yon, J. M. (1988) The effect of phosphate on the unfolding-refolding of phosphoglycerate kinase induced by guanidine hydrochloride. ***FEBS Letters*** 228: 65-68.
6. Yon, J. M., Betton, J. M., Desmadril, M., Mitraki, A., Minard, P., Gaillard, S., Ballery, N., and Missiakas, D. (1988) Survey of the folding pathway of a two domain protein: phosphoglycerate kinase. ***Journal of Chromatography*** 440: 421-437.
7. Mitraki, A. and King, J. (1989). Protein folding intermediates and inclusion body formation. ***Bio/Technology*** *(Publication name changed to****: Nature Biotechnology)*** 7:690-697.
8. Fane, B., Villafane, R., Mitraki, A. and King, J. (1991). Identification of global suppressors for temperature sensitive folding mutations of the P22 tailspike protein. ***J.Biol. Chem.*** 266: 11640-11648.
9. Mitraki, A., Fane, B., Haase-Pettingell, C., Sturtevant, J. and King, J. (1991). Global suppression of protein folding defects and inclusion body formation. ***Science***, 253: 54-58.

10. Mitraki, A*. and King, J. (1992) Amino acid substitutions influencing intracellular protein folding pathways. ***FEBS Letters***, 307:20-25
11. Mitraki, A*., Danner, M., King, J., and Seckler, R*. (1993) Temperature-sensitive mutations and second-site suppressor substitutions affect folding of the P22 tailspike in vitro. ***J. Biol. Chem***. 268: 20071-20075
12. King, J., Haase-Pettingell, C.A. , Robinson, A. , Speed, M., and Mitraki, A. (1996) Thermolabile folding intermediates: inclusion body precursors and chaperonin substrates. ***FASEB Journal*** 10: 57-66
13. Mitraki, A.*, Barge, A., Chroboczek, J., Andrieu, J.P., Gagnon, J. and Ruigrok, R.W. (1999) Unfolding studies of human adenovirus type 2 fibre trimers: evidence for a stable domain. ***Eur. J. Biochem***. 264, 599-606.
14. van Raaij, M.J., Mitraki, A., Lavigne, G. and Cusack, S. (1999). A triple beta-spiral in the adenovirus fibre shaft reveals a new structural motif for a fibrous protein. ***Nature*** 401: 935-938.
15. Luckey, M., Hernandez, J-F., Arlaud, G., Forsyth, V. T., Ruigrok, R.W.H. and Mitraki, A.* (2000). A peptide from the adenovirus fiber shaft forms amyloid-type fibrils. ***FEBS letters*** 468 :23-27
16. Durmort, C., Stehlin, C., Schoehn, G., Mitraki, A., Drouet, E., Cusack, S., and Burmeister, W.P. (2001). Structure of the fibre head of Ad3, a non-CAR binding serotype of adenovirus. ***Virology***, 285 : 302-312
17. Mitraki, A.*, Miller, S. van Raaij, M.J.* (2002) Conformation and folding of novel beta-structural elements in viral fiber proteins: the triple beta-spiral and triple beta-helix ***J. Struct. Biol***. 137: 236-247
18. Papanikolopoulou, K., Forge, V., Goeltz, P., and Mitraki, A.* (2004) Formation of highly stable chimeric trimers by fusion of an adenovirus fiber shaft segment with the foldon domain of bacteriophage T4 fibritin. ***J. Biol. Chem.*** 279 : 8991-8998
19. Papanikolopoulou, K., Teixeira, S., Belrhali, H., Forsyth, V.T., Mitraki, A.*, and van Raaij, M.J.* (2004) Adenovirus fiber shaft sequences fold into the native triple beta-spiral fold when N-terminally fused to the bacteriophage T4 fibritin foldon trimerisation motif. ***J.Mol. Biol.*** 342: 219-227
20. van Raaij, M.J.* and Mitraki, A.* (2004) Beta-structured viral fibres: assembly, structure and implications for materials design. ***Current Opinion in Solid State and Materials Science*** 8 : 151-156
21. Papanikolopoulou, K., Schoehn, G., Forge, V., Forsyth, V. T., Riekel, C., Hernandez, J.-F., Ruigrok, R. W.H., and Mitraki, A.* (2005) Amyloid fibril formation from sequences of a natural β-structured fibrous protein, the adenovirus fiber. ***J. Biol. Chem.*** 280: 2481-2490
22. Retsos, H., Papanikolopoulou, K., Filippini, C., Riekel, C., Gardner, K.H., Forsyth, V.T., and Mitraki, A.* (2005) Amyloid character of self-assembling proteins based on adenovirus fiber shaft sequences: a fibrous biomaterial revisited. ***NanoBiotechnology*** 1: 219-225
23. Mitraki, A.*, Papanikolopoulou K, van Raaij MJ.* (2006) Natural triple beta-stranded fibrous folds. ***Advances in Protein Chemistry*** 73: 97-124.
24. Lepère M., Chevallard C., Hernandez J-F., Mitraki, A., and Guenoun P. (2007) Multiscale surface self-assembly of an amyloid-like peptide. ***Langmuir*** 23: 8150-8155
25. Dinca, V., Kasotakis, E., Catherine, J., Mourka, A., Mitraki, A., Popescu, A., Dinescu, M.,. Farsari, M., and Fotakis, C. (2007) Development of peptide-based patterns by laser transfer. ***Applied Surface Science***, 154 : 1160-1163
26. Dinca V., Kasotakis E., Catherine, J. , Mourka, A., Ranella, A., Ovsianikov A, Chichkov, B., Farsari, M., Mitraki, A., and Fotakis, C. (2008) Directed three-dimensional patterning of self-assembled peptide fibrils. ***Nanoletters***, 8: 538-543

27. Dinca V., Kasotakis E., Mourka, A., Ranella, A., Farsari, M., Mitraki, A., and Fotakis, C. (2008) Fabrication of amyloid peptide micro-arrays using Laser-induced forward transfer and avidin-biotin mediated assembly ***Physica Status Solidi*** 5: 3576-3579
28. Tamamis, P., Kasotakis, E., Mitraki, A., and Archontis, G. (2009) Amyloid-like self-assembly of peptide sequences from the adenovirus fiber shaft: insights from molecular dynamics simulations. ***J. Phys. Chem. B***. 113: 15639-15647
29. Kasotakis, E., Mossou, E., Adler-Abramovich, L. Forsyth, V.T., Mitchell, E.P., Gazit, E. and Mitraki, A.* (2009) Design of metal-binding sites onto self-assembled peptide fibrils ***Biopolymers –Peptide Science*** 92: 164-172
30. Mitraki, A.* (2010) Protein aggregation: from inclusion bodies to amyloid and biomaterials. ***Advances in Protein Chemistry and Structural Biology***, 79*:* 89-125
31. Sedman,VL., Kasotakis, E., Chen, X., Allen, S., Roberts, CJ., Mitraki A., and Tendler SJ. (2011) Surface-Templated Fibril Growth of Peptide Fragments from the Shaft Domain of the Adenovirus Fibre Protein. ***Protein Pept Lett.,*** 18: 268-274
32. Tiggelaar, SM., Mossou, E., Callow, P., Callow, S., Teixeira, SC., Mitchell, EP., Mitraki, A., and Forsyth, VT. (2011). Neutron fibre diffraction studies of amyloid using H(2)O/D(2)O isotopic replacement. ***Acta Crystallogr Sect F Struct Biol Cryst Commun.*** 67:332-335.
33**.** Hyttel-Clausen C., Dimaki, M., Panagos, SP., Kasotakis, E., Mitraki, A., Svendsen, WE, and Castillo-Leon J. (2011) Electrostatic force microscopy of self-assembled peptide structures. ***Scanning*** 33:201-207
34. Viguier, B., Zor, K., Kasotakis, E., Mitraki, A., Hyttel-Clausen C., Svendsen, WE, and Castillo-Leon J. (2011) Development of an electrochemical metal-ion biosensor using self-assembled peptide nanofibrils. ***ACS Appl. Mater. Interfaces*** 3:1594-1600.
35. Charalambidis, G., Kasotakis, E., Lazarides, Th., Mitraki, A.*,* and Coutsolelos, A. G.* (2011) Self-assembly into spheres of a hybrid diphenylalanine-porphyrin: increased fluorescence lifetime, conserved electronic properties. ***Chemistry Eur. J.*** 17: 7213-7219
36. Kasotakis, E. and Mitraki, A.* (2012) Silica biotemplating by self-assembling peptides via serine residues activated by the peptide amino terminal group. ***Biopolymers –Peptide Science***, 98:501-509
37. Rissanou, A., Georgilis, E. Kasotakis, E., Mitraki, A. and Harmandaris, V. (2013) Effect of solvent on the self-assembly of dialanine and diphenylalanine peptides. ***J. Phys. Chem. B***., 117:3962-75
38. Terzaki, K., Kalloudi, E., Mossou, E., Mitchell, E.P., Forsyth, V.T., Rosseeva, E., Simon, P., Vamvakaki, M., Chatzinikolaidou, M., Mitraki, A.* and Farsari, M*. (2013) Mineralized self-assembled peptides on 3D laser-made scaffolds: A new route towards 'scaffold on scaffold' hard tissue engineering. ***Biofabrication***, 5:045002
39. Nuansing W., Georgilis, E., de Oliveira T., Charalambidis, G., Eleta, A., Coutsolelos A.G., Mitraki, A., Bittner, A.M. (2014) Electrospinning of tetraphenylporphyrin compounds into wires. ***Particles and Particle Systems Characterization,*** 31: 88-93
40. Tamamis, P., Terzaki., K., Kassinopoulos, M., Mastrogiannis, L., Mossou, E., Forsyth, V.T., Mitchell, E.P., Mitraki, A.*, and Archontis, G.* (2014) Self-Assembly of an Aspartate-Rich Sequence from the Adenovirus Fibre Shaft: Insights from Molecular Dynamics Simulations and Experiments. ***J. Phys. Chem. B***., 118: 1765-1774
41. Kasotakis, E. Kostopoulou, A., Spuch-Calvar, M., Androulidaki, M., Pelekanos, N., Kanaras, A. G., Mitraki, A.,* and Lappas, A. * (2014) Assembly of quantum dots on peptide nanostructures and their spectroscopic properties. ***Appl. Phys. A.,*** 116: 977-985
42. Loo, Y., Goktas, M., Tekinay, A.B., Guler, M.O., Hauser, C. A. E., Mitraki A. * (2015) Self-assembled proteins and peptides as scaffolds for tissue regeneration. ***Advanced Healthcare Materials***, 16: 2557-2586
43. Karikis, K., Georgilis, E., Charalambidis, G., Petrou, A., Vakuliuk, O., Chatziioannou, T., Raptaki, I., Tsovola, S., Papakyriacou, I., Mitraki, A.,* Grycko, D.T., * and Coutsolelos, A.

G.* (2016) Corrole and porphyrin amino acid conjugates: synthesis and physicochemical properties. ***Chem. Eur. J.,*** 22:11245-11252
44. Charalambidis, G., Georgilis, E., Panda, M.K., Anson, C.E., Powell, A.K., Doyle, S., Moss, D., Jochum, T., Horton, P.N., Coles, S.J., Linares, M., Beljonne, D., Naubron, J.-V., Conradt., J., Kalt, H., Mitraki, A.,* Coutsolelos, A.G.,* Balaban, T.S.* (2016) A switchable self-assembling and disassembling chiral system based on a porphyrin-substituted phenylalanine-phenylalanine motif. ***Nature Communications***, 7: 12657
45. Georgilis, E., Gessmann, R., Mitraki, A., Petratos, K. (2017) Diphenylalanine in Tetrahydrofuran: a highly potent candidate for the development of novel nanomaterials. ***Acta Cryst. Section C-Structural Chemistry*** 73: 447-450
46. Deidda, G., Jonnalagadda S.V. R., Spies, J.W., Ranella, A., Mossou, E., Forsyth, V.T., Mitchell, E.P., Bowler, M. W., Tamamis, P.*, Mitraki, A.* (2017) Self-assembled amyloid peptides with Arg-Gly-Asp (RGD) motifs as scaffolds for tissue engineering. ***ACS Biomaterials Sci. and Engineering,*** 3: 1404-1416
47. Jonnalagadda, S.V.R.., Ornithopoulou, E., Orr, A.A.., Mossou, E., Forsyth, V. T., Mitchell, E. P., Bowler, M. W., Mitraki, A.,* Tamamis, P.* (2017) Computational design of amyloid self-assembling peptides bearing aromatic residues and the cell adhesive motif Arg-Gly-Asp ***Molecular Systems Design and Engineering***, 2 : 321-335
48. Prigipaki, A., Papanikolopoulou, K., Mossou, E., Mitchell, E.P., Forsyth, V.T., Selimis, A., Ranella, A., and Mitraki, A.* (2017) Laser processing of protein films as a method for accomplishment of cell patterning at the microscale. ***Biofabrication*** 9: 045004
49. Karikis, K., Butkiewicz, A., Folias, F., Charalambidis, G., Kokotidou, C., Charisiadis, C., Nikolaou, V., Nikoloudakis, E., Frelek, J.*, Mitraki, A.,* Coutsolelos, A.G.* (2018) Self-assembly of (boron–dipyrromethane)-diphenylalanine conjugates forming chiral supramolecular materials ***Nanoscale*** 10: 1735-1741
50. Nikoloudakis E, Karikis K, Laurans M, Kokotidou C, Solé-Daura A, Carbó JJ, Charisiadis A, Charalambidis G, Izzet G, Mitraki A, Douvas AM, Poblet JM, Proust A, Coutsolelos AG. (2018). Self-assembly study of nanometric spheres from polyoxometalate- phenylalanine hybrids, an experimental and theoretical approach. ***Dalton transactions*** 47:6304-6313
51. Kokotidou C, Jonnalagadda SVR, Orr AA, Seoane-Blanco M, Apostolidou CP, van Raaij MJ, Kotzabasaki M, Chatzoudis A, Jakubowski JM, Mossou E, Forsyth VT, Mitchell EP, Bowler MW, Llamas-Saiz AL *, Tamamis P *, Mitraki A.* (2018) A novel amyloid designable scaffold and potential inhibitor inspired by GAIIG of amyloid beta and the HIV-1 V3 loop. ***FEBS letters*** 592 :1777-1788.
52. Jonnalagadda SVR, Kokotidou C, Orr AA, Fotopoulou E, Henderson KJ, Choi CH, Lim WT, Choi SJ, Jeong HK, Mitraki A, *Tamamis P*. (2018) Computational Design of Functional Amyloid Materials with Cesium Binding, Deposition, and Capture Properties. ***J Phys Chem B.*** 122:7555-7568
53. de Marco A, Ferrer-Miralles N, Garcia-Fruitós E, Mitraki A, Peternel S, Rinas U, Trujillo-Roldán MA, Valdez-Cruz NA, Vázquez E, Villaverde A. (2019) Bacterial inclusion bodies are industrially exploitable amyloids. ***FEMS Microbiol Rev.*** 43:53-72.
54. Kokotidou, C., Tamamis, P. Mitraki, A*. (2019) Self-assembling amyloid sequences as scaffolds for materials design : a case study of building blocks inspired from the adenovirus fiber protein. ***Macromolecular Symposia*** 386 (1), 1900005
55. Nikoloudakis E, Karikis K, Han J, Kokotidou C, Charisiadis A, Folias F, Douvas AM, Mitraki A*, Charalambidis G*, Yan X, Coutsolelos AG*. (2019) A self-assembly study of PNA-Porphyrin and PNA-BODIPY hybrids in mixed solvent systems. ***Nanoscale*** 11:3557-3566.

56. Nikoloudakis E, Mitropoulou K, Landrou G, Charalambidis G, Nikolaou V, Mitraki A*, Coutsolelos AG*. (2019) Self-assembly of aliphatic dipeptides coupled with porphyrin and BODIPY chromophores. ***Chem. Commun. (Camb)*** 55:14103-14106
57. Nikoloudakis E., Orphanos E., Agapaki E., Nikolaou V., Charisiadis A, Charalambidis G., Mitraki A., Coutsolelos AG. (2020) Molecular self-assembly of porphyrin and BODIPY chromophores connected with diphenylalanine moieties**.** ***Journal of Porphyrins and Phthalocyanines,*** 24 : 775-785
58. Chang R., Nikoloudakis E., Zou Q, Mitraki, A., Coutsolelos, AG, Yan, X. (2020). Supramolecular nanodrugs constructed by self-assembly of peptide nucleic acid photosensitizer for photodynamic therapy. ***ACS Applied Biomaterials*** 3 : 2-9
59. Kokotidou C, Jonnalagadda SVR, Orr AA, Vrentzos G, Kretsovali A, Tamamis P*, Mitraki A.* (2020) Designer Amyloid Cell-Penetrating Peptides for Potential Use as Gene Transfer Vehicles. *Biomolecules* 10 :7, DOI: 10.3390/biom10010007
60. Rissanou AN., Simatos G., Siachouli P., Harmandaris V., Mitraki A.* (2020) Self-assembly of Alanine-Isoleucine and Isoleucine-Isoleucine Dipeptides through atomistic simulations and experiments ***J. Phys. Chem B*** 124: 7102-7114
61. Nikoloudakis E., Pigiaki M., Polychronaki MN., Margaritopoulou A., Charalambidis G., Serpetzoglou E., Mitraki A.,* Loukakos PA.,* Coutsolelos AG.* (2021) Self-assembly of Porphyrin-dipeptide Conjugates toward Hydrogen Production ***ACS Sustainable Chemistry and Engineering*** 9: 7781-7791
62. Glymenaki E., Kandyli M., Apostolidou CP., Kokotidou C., Charalambidis G., Nikoloudakis E., Panagiotakis S., Koutserinaki E., Klontza V., Michail P., Charisiadis A., Yannakopoulou K., Mitraki A.,* Coutsolelos AG.* (2022) Design and synthesis of porphyrin-nitrilotriacetic acid dyads with potential application in peptide labeling through metallochelate coupling ***ACS Omega,*** 7 : 1803-1818
63. Kokotidou, C., Tsitouroudi, F., Nistikakis, G., Vasila, M., Papanikolopoulou, K., Kretsovali, A., Mitraki, A.* (2022) Adenovirus fibers as ultra-stable vehicles for intracellular nanoparticle and protein delivery. ***Biomolecules*** 12 : 308

* *Corresponding author papers*

BOOK

"Plenty of Room for Biology at the Bottom: An Introduction to Bionanotechnology", 2nd Edition (2013), by Ehud Gazit and Anna Mitraki, ISBN: 978-1-84816-930-2, Imperial College Press (World Scientific Publishing),
http://www.worldscientific.com/worldscibooks/10.1142/p862
The book epitomizes an educational effort to initiate readers from various backgrounds to the rapidly growing interface between biology and nanotechnology.

BOOK CHAPTERS

1. King, J., Fane, B., Haase-Pettingell, C., Mitraki, A. and Villafane, R. (1990) Genetic analysis of polypeptide chain folding and misfolding *in vivo*. in: ***Protein design and the development of new therapeutics and vaccines*****.** pp. 59-78 (Hook and Poste, editors) Plenum Publishing Corporation, New York.
2. King, J., Fane, B., Haase-Pettingell, C., Mitraki, A., Villafane, R. and Yu, M-H. (1990) Identifying amino acid sequences influencing intracellular folding pathways using temperature sensitive folding mutations. in: ***Protein folding: Deciphering the second half of the genetic code.*** pp. 225-240 (Gierasch and King, editors). American Association for the Advancement of

Science, Washington, D.C.
3. Mitraki, A., Haase-Pettingell, C. and King, J. (1991). Mechanisms of inclusion body formation. in: ***Protein refolding*** pp. 35-49 (G.Georgiou and E. de Bernardez, editors). American Chemical Society, Washington, D.C.
4. Mitraki, A., Fane, B., Haase-Pettingell C., and King, J. (1991). Mutations affecting protein folding and misfolding *in vivo*. in: ***Applications of Enzyme Biotechnology*** pp 129-136 (J. W. Kelly and T. O. Baldwin, editors) Plenum Press, New York.
5.King, J., Teschke, C.M., Haase-Pettingell, C.A., and Mitraki, A. (1993) Protein misfolding and inclusion body formation in procaryotes. in: ***Biomolecular Engineering: the interface between chemical engineering and biology.*** (I. Glowinski and G. Georgiou, eds) American Chemical Society, Washington, D.C.
6. King, J., Haase-Pettingell, C., Gordon, C., Sather, S. and Mitraki, A. (1993) Amino acid sequence determinants of polypeptide chain folding and inclusion body formation. in: ***Protein Folding in Vivo and in Vitro***. pp. 24-37. (Jeffrey L. Cleland, editor). American Chemical Society, Washington, D.C.
7. *Mitraki, A., van Raaij, M., Ruigrok, R., Cusack, S., Hernandez, J-F., and Luckey, M. (2001) Structure, folding and assembly of adenovirus fibers. in: ***Self-assembling peptide systems in Biology, Medicine and Engineering*** ch. 16, pp 221-233. (A. Aggeli, N. Boden and S. Zhang, editors). Kluwer Academic Publishers, Dordrecht, The Netherlands.
8. *Mitraki, A. and van Raaij, M.J. (2005) "Folding of beta-structured fibrous proteins and self-assembling peptides" in ***"Protein Nanotechnology"*** Methods in Molecular Biology series, vol. 300, pp 125-140, edited by Dr. Tuan Vo-Dinh, Humana Press, Totowa, NJ.
9. Papanikolopoulou, K. van Raaij, M.J. and Mitraki, A. * (2008) "Creation of hybrid nanorods from sequences of natural trimeric fibrous proteins by use of the fibritin trimerization motif " in ***"Protocols in Nanostructure Design",*** vol. 474, pp 15-33, edited by Ruth Nussinov and Ehud Gazit, Methods in Molecular Biology series, Humana Press, Totowa, NJ.
10. Mitraki, A. and Farsari, M. (2010) "Self-assembled peptide nanostructures and their controlled positioning on surfaces". Edited by Challa Kumar, In: ***"Nanomaterials for Life Sciences"*** series, vol. 15, pp 105-119, Wiley- VCH
11. Mitraki, A* and Kasotakis, E. (2012) "Natural and designed self-assembling peptides and their applications in bionanotechnology" in: ***"Self-assembled peptide nanostructures: Advances and applications in Nanobiotechnology"***, pp 39-66, edited by Winnie Svendsen, Jaime Castillo, Luigi Sasso, Pan Stanford Publishing, Singapore
12. Kasotakis, E. and Mitraki, A*. (2013) "Design of metal-binding sites onto self-assembled peptides" In: ***Protein Nanotechnology: Protocols, Instrumentation, Applications;*** Second, completely revised edition, vol. 996, pp. 195-202, edited by Juliette Gerrard, in: Methods in Molecular Biology series, Humana Press, Totowa, NJ
13. van Raaij, MJ. and Mitraki, A. (2013) "Natural fibrous proteins: structure, assembly and applications" in: ***"Proteins in solution and at interfaces: Methods and applications in Biotechnology and Materials Science"*** pp 219-232, edited by Juan M. Ruso and Ángel Piñeiro, John Wiley & Sons, Hoboken, NJ
14. Tamamis, P., Kasotakis, E. Archontis, G. and Mitraki, A.* (2014) "Combination of experimental and theoretical approaches for the design and study of fibril-forming peptides" in ***"Protein design: Methods and applications, second edition"*** edited by Valentin Kohler, in Methods in Molecular Biology series, Humana Press, Springer Science, NY, 1216: 53-70
15. Kokotidou, C., Tamamis, P. & Mitraki, A.* (2020) "Amyloid-like peptide aggregates" "in "***Peptide-based Biomaterials"*** edited by Mustafa O. Guler, The Royal Society of Chemistry series, pp. 217-268.

SELECTED LECTURES IN INTERNATIONAL MEETINGS

1. « What can we learn from the genetic analysis of protein folding in procaryotes », invited speaker, UCLA symposium « Structure and assembly of the myofibril » Frisco, Colorado, USA January 1990.
2. « Novel suppressors of folding defects in the P22 tailspike », oral presentation, FASEB conference on « Protein folding and assembly in the cell » Copper Mountain, Colorado, USA, June 1990.
3. « Mutational suppression of inclusion body formation in the P22 tailspike », invited speaker, 4th International Chemical Congress and American Chemical Society Symposium on « Biocatalyst design for stability and specificity » New York City, USA, August 1991.
4. « Global suppressors of protein folding defects in the P22 tailspike act by inhibiting inclusion body formation » invited speaker, European research conference on « Biology of Molecular Chaperones » Canterbury, UK, September 1991.
5. « Mechanisms of inclusion body formation » oral presentation, FASEB conference on « Protein folding and assembly in the cell » Saxtons River, Vermont, USA, June 1992.
6. « Amino acid sequence control of protein folding in vivo and in vitro», oral presentation, FEBS advanced course on « Methods in protein structure analysis », Halkidiki, Greece, April 1995
7. « Folding of viral proteins: adenovirus fibers as a model system », oral presentation, FASEB conference on « Protein folding and assembly in the cell », Saxtons River, Vermont, USA, July 1996
8. « Protein folding and amyloidosis: adenovirus fibers as a model system » invited speaker, XIIth international conference on « Methods in Protein Structure Analysis », Halkidiki, Greece, September 1998
9. "A biological fiber: from folding to structure of adenovirus fibers" Invited speaker, Faltertag-colloquium on "Structure, stability and folding of proteins", Regensburg, Germany, April 1999
10. "A self-assembling peptide from the adenovirus fiber protein" Invited speaker, Conference on "Self-assembling peptide systems in Biology, Medicine and Engineering", Crete, Greece, July 1999
11. "Folding, assembly and misassembly of a triple beta-spiral : adenovirus fibers", Invited speaker, Alpbach workshop on "Coiled coils, collagen and co-proteins : III". Alpbach, Austria, September 2001
12. « Les protéines fibrillaires, un exemple de projet à l'interface biologie-matériaux » Invited speaker, Journées Matériaux du CEA, Paris, France, November 2001
13. "Folding of a fibrous protein and its self-assembling peptides" oral presentation, SAFIN Euroconference on "Self-Assembled Fibrillar Networks in Chemistry, Physics and Biology" Autrans, France, November 2001
14. "Folding of a fibrous protein and its self-assembling peptides" Invited speaker, ACS symposium on "Fiber Diffraction methods" (Biological Polymer session) Orlando, Florida, USA, April 2002
15. "Folding and assembly of adenovirus fiber proteins" Oral presentation, EURESCO conference on "High performance fibers - Euroconference on self-assembling fibrous materials" Bad Herrenalb, Germany, September 2002
16. "Beta-structured fibrous proteins: Folding, registration mechanisms and self-assembling peptides" Oral presentation, Conference on "Self-assembling peptide systems in Biology, Medicine and Engineering", Crete, Greece, August 2003
17. "Beta-structured fibrous proteins: from novel folds to amyloid and biomaterials" Invited

speaker, the IRC in Nanotechnology "Amyloid @ Nanoscience" meeting, Cambridge, U.K., June 2004
18. "Natural beta-structured fibrous proteins: from novel folds to amyloid and biomaterials" Invited speaker, Conference on "Self-assembling peptide systems in Biology, Medicine and Engineering", Crete, Greece, June 2005
19. **"**BeNatural- Bioengineered Nanomaterials for Research and Applications." Nano2Life Network of Excellence Annual meeting, Sitges, Spain, 2006
20. "Biological structures and materials as a source of inspiration for the design of novel nano-biomaterials" Invited speaker, Nano2Life Network of Excellence Summer School in Micro-Nanotechnology and Biotechnology, Athens, Greece, July 2006 and 2007
21. **"**BeNatural- Bioengineered Nanomaterials for Research and Applications." Nano2Life Network of Excellence Annual meeting, Crete, Greece, 2008
22. «Common self-assembling sequence motifs in natural beta-structured proteins and self-assembling peptides" Invited speaker, Jacques Monod Conference on "Protein folds in infectious and neurodegenerative diseases" , Aussois, France, April 2009
23. "Self-assembling peptides from natural fibrous proteins as templates for inorganic nanomaterials" Invited speaker, 2nd International Conference IC4N (From Nanoparticles and Nanomaterials to Nanodevices and Nanosystems), Rhodes, Greece, July 2009
24. **"**Self-assembled biological nanofibers and tubes as templates for the growth of inorganic nano / bio / materials" Invited speaker, NanoSWEC Conference, Bordeaux, France, November 2009
25. **"**Self-assembled peptides as templates for the growth of metal nanoparticles and their controlled positioning on surfaces / interfaces" Invited speaker, Nanobiotechnology International Workshop, EC Joint Research Centre, Ispra, Italy, December 2009
26. "Amyloid-type fibrils as templates for he design of novel nanobiomaterials" Oral presentation, 21st 'Faltertage" meeting, Regensburg, Germany, October 2010
27. "Amyloid-type fibrils as templates for the design of novel nanobiomaterials", invited speaker, French Network "GDR 3334, Supramembio", L'Isle-sur-la-Sorgue, France, December 2010
28. "Application of self-assembling fibrous materials in nanobiotechnology", invited speaker, The Nanotech workshop at IC4N 2011, Crete, Greece, June 2011
29. "Natural fibrous proteins as a source of inspiration for the design of novel nano-biomaterials" short lecture, DGM conference on "Bioinspired Materials", Potsdam, Germany, March 2012
30. "Self-assembling peptides and their controlled positioning using laser technologies" Keynote lecture at Symposium G, "Bioinspired and Biointegrated Materials as Frontiers Nanomaterials III", E-MRS fall meeting, Warsaw, September 2013
31. "Combining self-assembling peptide materials with hybrid organic-inorganic photostructurable materials towards biomedical applications" Oral presentation, Symposium Q, E-MRS 2014 Spring Meeting, Lille, May 2014
32. "Self-assembling peptides and "scaffold-on-scaffold" approaches for biomedical applications". Invited lecture at Symposium W – « Harnessing nano-bio-engineering tools for tissue engineering and regenerative medicine » applications, E-MRS fall meeting, Warsaw, September 2014
33. "Self-assembling peptides and their controlled positioning using laser technologies" Invited lecture at the first Israel-Greece Joint meeting of Nanotechnology and Nanoscience, Rehovot, Israel, October 2014
34. "Natural fibrous proteins as a source of inspiration for the design of novel nano-bionaterials and their controlled positioning using laser technologies" Invited lecture, Annual meeting of the Hellenic Society for Biomaterials, Athens, November 2014

35. “From protein misfolding to bioinspired materials” Invited lecture, EMBO conference on “The Biology of Molecular Chaperones” Crete, May 2015
36. “From protein folding to self-assembling bionanomaterials and applications” Invited lecture, 5th Conference on “Biomolecules and Nanostructures”, Krakow, Poland, May 2015
37. “Complex 3D scaffolds for tissue engineering” Selected oral presentation, EuroNanoforum 2015, Riga, Latvia, June 2015
38. “Combining self-assembling peptide materials with hybrid organic-inorganic photostructurable materials towards biomedical applications” Selected oral presentation, Symposium M, ICMAT 2015, Singapore, July 2015
39. “Natural fibrous proteins as a source of inspiration for the design of novel nanobiomaterials”, Invited keynote lecture, AFOB-EFB Joint Symposium on Nanobiotechnology, Biosensors and Biochips, Asian Congress on Biotechnology 2015, Kuala Lumpur, Malaysia, November 2015
40. “Design and study of self-assembled peptides with RGD motifs as scaffolds for tissue engineering” invited lecture, IC4N meeting, Porto Heli, Greece, June 2016
41. “Self-assembled peptides and proteins as scaffolds for cell attachment and proliferation” Selected oral presentation, EUROMAT meeting, Thessaloniki, Greece, September 2017
42. “Design and study of self-assembled peptides with RGD motifs as scaffolds for tissue engineering » Selected oral presentation, PEPMAT, The third International Conference on Peptide Materials for Biomedicine and Nanotechnology, London, UK, July 2018
43. “Rational design of self-assembling amyloid building blocks as scaffolds for novel biomaterials” Invited Lecture, Proteins and Peptides 2018 Conference: Structure, Function and Biotechnology, Geneva, Switzerland, July 2018
44. “Self-assembling amyloid building blocks as scaffolds for rational material design” Invited Lecture, Polysolvat 12 Conference, Grenoble, France, September 2018
45. “Self-assembling amyloid building blocks as scaffolds for rational bionanomaterial design” Invited Lecture, NanoBio International Conference on Nanotechnologies and Bionanoscience, Heraklion, Greece, September 2018
46. “Design and study of self-assembling peptides as scaffolds for tissue engineering” Invited Lecture, TERMIS – EU 2019 Meeting, Rhodes, Greece, May 2019
47. “Amyloid designable peptide bionanomaterials and their applications” Invited Lecture, IC4N Meeting, Corfu, Greece, July 2019

RESEARCH GRANTS

- “Design and study of fibrous proteins and their use as biomaterials” from the DGA (Délégation Générale pour l’ Armement” (French Ministry of Defense) 2002-2004, 57.600 Euros (Coordinator)
- “Study of formation of artificial nacre towards the fabrication of biomimetic composite materials” from the CNRS (Action Concertee Nanosciences) 2003-2005, 45.000 Euros (Partner)
- “FIBRAMAT: Design, folding and structure of artificial fibrous biomaterials derived from trimeric viral fibres” Greek-Spanish bilateral programme, 2006-2008, 11.005 Euros (Greek side)
- “BeNatural” “Bioengineered Nanomaterials For Research and Applications” STREP NMP CT2006-033256, 2006-2009, total budget 1.900.990 Euros (Coordinator), UoC budget: 350.000 Euros
- "Bioinspired nanotechnologies: from concepts to applications" European Science Foundation – COST Programme TD1003, Greek representative to the Management Committee, 2010-2014

- “Non-linear laser micro-nanolithography; applications in biomaterials and biosensing” Heraklitus II, (PhD fellowship of Konstantina Terzaki), 2010-2013, 45.000 Euros
- “Formation and metallization of peptide thin-films at the air-water interface” ELKE Small size grant, 2011-2012, 2.420 Euros
- “SOLEMAT: Solenoid-based protein materials”, IKYDA 2011 Greek-German collaboration, 2011-2013, 6.480 Euros (Greek side)
- “AngioMatTrain” “Development of biomaterial-based delivery systems for ischemic conditions- An integrated Pan-European approach”, Marie Curie Industry –Initial Training Network (ITN), call FP7-PEOPLE-2012-ITN, start date: February 2013- end date: February 2017, 473.623 Euros (Partner)
- “ProGreeC” “Attaching Functions to Protein Scaffolds: Development of Artificial Enzymes for Green Chemistry”, Greek Secretariat for Research and Technology, SYNERGASIA II, 2013-2015, 110.000 Euros (Partner)
- "PHOTOPEPMAT” Design, production and Laser PHOTO structuring of self-assembling PEPtides and proteins destined for bioMATerials applications" Greek Secretariat for Research and Technology, ARISTEIA II Excellence grant, 2014-2015, 220.000 Euros (PI)
- “EPHESIAN” “Encapsulation of chromophores by self-assembled hydrogels with biomedical applications” Greek Secretariat for Research and Technology, «ΕΡΕΥΝΩ-ΔΗΜΙΟΥΡΓΩ-ΚΑΙΝΟΤΟΜΩ» grant, 2018-2021, 128.000 Euros (Partner)

MENTORING

- Post-Doctoral advisor of Haris Retsos, Institut de Biologie Structurale, France, 2003-2004
- Post-Doctoral advisor of Fani Tsitouroudi, Department of Materials Science and Technology, UoC, 2014-2015
- Post-Doctoral advisor of Paraskevas Lamprou, Department of Materials Science and Technology, UoC, 2014-2015
- Master and PhD thesis advisor of Katerina Papanikolopoulou, Universite Joseph Fourier, France, PhD awarded on September 2004
- PhD thesis advisor of Emmanouil Kasotakis, Department of Materials Science and Technology, UoC, PhD awarded on February 2012
- PhD thesis advisor of Konstantina Terzaki (co-advising with Dr. Maria Farsari, IESL/FORTH), Department of Materials Science and Technology, UoC, PhD awarded on October 2013
- PhD thesis advisor of Ariadne Prigipaki, (co-advising with Prof. Michael Kokkinidis), Department of Biology, UoC, PhD awarded on September 2017
- PhD thesis advisor of Graziano Deidda, Department of Materials Science and Technology, UoC, PhD awarded on March 2018
- PhD thesis advisor of Chrysoula Kokotidou, Department of Materials Science and Technology, UoC, PhD awarded on December 2019
- PhD thesis advisor of Chrysanthi-Pinelopi Apostolidou, started October 2017
- PhD thesis advisor of Petros Divannac, started May 2020
- PhD thesis advisor of Georgios Nistikakis, started September 2020
- Master thesis advisor of Emmanouil Kasotakis, Department of Materials Science and Technology, Master awarded 2008
- Master thesis advisor of Erifylli Kalloudi, Department of Materials Science and Technology, UoC, Master awarded on May 2008
- Master thesis advisor of Evangelia-Eleni Anagnostopoulou, Department of Materials Science and Technology, UoC, Master awarded on January 2013

- Master thesis advisor of Evangelos Georgilis, (co-advising with Prof. Michael Kokkinidis), Department of Biology, UoC, (February 2016) and Eirini Ornithopoulou, Department of Materials Science and Technology, UoC (July 2016).
- Master thesis advisor of Petros Divannac (February 2020) and Georgios Nistikakis (May 2020)
- Diploma thesis advisor of Vassiliki Psarra (2007), Marianna Kotzampasaki (2008), Lefteris Mastrogiannis (2009), Evangelos Georgilis (2013), Eirini Ornithopoulou (2013), Apostolos Chatzoudis (2016), Klytaimnistra Katsara (2016), Emmanouella Fotopoulou (2017), Marita Vasila (2018), Stella Mountaki (2019), Konstantina Mitropoulou (2019), Georgios Simatos (2020).

TEACHING

Since at UoC, taught courses on "Protein engineering" (2004-2007), "Biological Materials" (2004-2008), "Biochemistry and Molecular biology" (2007- present), "Materials IV: Natural Biomaterials" (2008- present).

Teaching:

-ETY-232 "Biochemistry and Molecular biology",
http://www.materials.uoc.gr/el/undergrad/courses/ETY232/

-ETY- 391 "Materials IV: Natural Biomaterials"
http://www.materials.uoc.gr/el/undergrad/courses/ETY391/

-Participation (until 2018) in the post-graduate course METY-504, "Biomaterials-Biomolecules", http://www.materials.uoc.gr/el/grad/courses/METY504/

-Biomaterial experiments (until 2018) in the Soft Matter Laboratory course,
http://www.materials.uoc.gr/el/undergrad/courses/ETY343/

SYNERGISTIC ACTIVITIES

- Organizing Committee of the International Conference "Protein assembly in Materials, Biology and Medicine", Crete, Greece, July 2007
- Co-chair of the 3rd International Conference "From Nanoparticles and Nanomaterials to Nanodevices and Nanosystems" (IC4N 2011), Crete, Greece, June 2011,
- Co–chair of the Engineering Conferences International (ECI) conference "Fibrous protein nanocomposites for tailored hybrid biostructures and devices", Crete, Greece, October 2012,
- Organizing committee of the first Israel-Greece Joint meeting of Nanotechnology and Nanoscience, Rehovot, Israel, October 2014,
- Organizing committee of the 11th annual event of the European Technology Platform for Nanomedicine, Heraklion, Crete, October 2016,
- Organizing committee of the second Israel-Greece Joint meeting of Nanotechnology and BioNanoscience, Heraklion, Crete, October 2016

SERVICE

-Board of Academic Editors of the Journal *PLoS ONE*, *http://www.plosone.org (2009-2014)*
-Editorial Board of the Journal "Biomolecules" https://www.mdpi.com/journal/biomolecules *(2019-)*

-Editor, along with colleagues C. Kokotidou, Anastassia Rissanou, and Vagelis Harmandaris, of a Topic issue among the Journals "Biomolecules", "International journal of Molecular Sciences", "Nanomaterials" and "Viruses", entitled " Fibrous proteins and self-assembling peptides: from structure and assembly to applications" (https://www.mdpi.com/topics/Fibrous_Proteins_SAPs).
-Chair, Department of Materials Science and Technology, September 2018 - present
-Expert for the «Observatoire des Micro- et Nano-Technologies", www.omnt.fr and the EON, (European Observatory for Nanobiotechnology), in charge of collecting and commenting on the latest developments in the field of biomaterials/ bionanotechnology (2002-2004).
-Rapporteur for the PhD thesis of Christophe Tarabout, Universite de Rennes, France, December 2010
-Rapporteur of the PhD thesis of Gurunatha Kargal Laxminarayana, Universite Paul Sabatier, Toulouse, France, July 2012
-Rapporteur of the Habilitation thesis of Arianna Filoramo, Universite Paris-Sud, Orsay, France, February 2012
-Three-member PhD thesis committee of Maria Amprazi, Department of Biology, UoC, PhD awarded on October 2012
-Three-member PhD thesis committee of Chrystalleni Chatziharalambous, Department of Materials Science and Technology, UoC, PhD awarded on June 2015
-Seven member PhD thesis committee of Maria Gianneli, Department of Materials Science and Technology, UoC, 2008
-Seven member PhD thesis committee of Anca Mateescu, Department of Chemistry, UoC, 2009
-Seven member PhD thesis committee of: George Papadakis, (2007), Konstantinos Mitsakakis (2008), Michael Saitakis (2010), all in the Department of Biology, UoC
-Seven member PhD thesis committee of Galateia Zervaki (2015) and Christina-Epistimi Stangel, (2015), Department of Chemistry, UoC
-Seven member PhD thesis committee of Orestis Falireas (2015), Department of Materials Science and Technology, UoC
-Seven member PhD thesis committee of Konstantinos Karikis (2017), Department of Chemistry, UoC
-Seven member PhD thesis committee of Vassilis Nikolaou (2017), Department of Chemistry, UoC
-Seven member PhD thesis committee of Anthie Georgopoulou (2018) Department of Materials Science and Technology, UoC
-Seven member PhD thesis committee of Aristea Grammoustianou (2018) Department of Biology, UoC
-Seven member PhD thesis committee of Georgia Kaprou (2018) Department of Biology, UoC
-Seven member PhD thesis committee of Emmanouil Nikoloudakis (2022), Department of Chemistry, UoC
-Three member PhD thesis committee of Marcos Gil Garcia (2022), Universitat Autonoma de Barcelona, Barcelona, Spain
-Three member PhD thesis committee of Salwa Alshehri (2022), KAUST, Kingdom of Saudi Arabia