|  |  |
| --- | --- |
| **Antonios M. Douvas**Researcher of C’ grade (Assistant Researcher)Institute of Nanoscience & Nanotechnology National Centre for Scientific Research (NCSR) “Demokritos”15310 Aghia Paraskevi, Athens, Greece. P.O. Box 60228 Tel: +30 210 6503242. Fax: +30 210 6511723. E-mail: a.douvas@inn.demokritos.gr |  |

1. **Education**
* 2003: PhD in photocatalysis-photolithography, Department of Chemical Engineering, National Technical University of Athens, Greece
* 1996-1997 and 2003-2004: Attendance of 19 advanced postgraduate courses in physical chemistry and polymer synthesis at NCSR “Demokritos” and Department of Chemistry, National Kapodistrian University of Athens, Greece
* 1995: Diploma in chemical engineering, Department of Chemical Engineering, National Technical University of Athens, Greece
1. **Positions**
* 2017-today: Researcher of C’ grade (Assistant Researcher), Institute of Nanoscience & Nanotechnology, NCSR “Demokritos”, Athens, Greece.
* 2013-2017: Permanent Research Staff, Institute of Nanoscience & Nanotechnology, NCSR “Demokritos”, Athens, Greece.
* 2007-2013: Permanent Research Staff, Institute of Microelectronics, NCSR “Demokritos”, Athens, Greece.
1. **Fellowships - Awards**
* 2004-2007: Postdoctoral scholarship of Researcher of D’ grade, Institute of Microelectronics, NCSR “Demokritos”, Athens, Greece
* 2002: Praise from Greek Patent Office, Athens, Greece
1. **Supervision -** **Teaching - Reviewing**
* Supervision of 1 PhD student; contribution of great importance to experimental part –co-supervision of 7 PhD students; supervision of 1 Master student; contribution of great importance to experimental part – co-supervision of 4 Master students; co-supervision of 2 undergraduate students; NCSR “Demokritos”, Athens, Greece.
* Deputy teacher of 1 postgraduate course; teacher of 1 postgraduate laboratory course; NCSR “Demokritos”, Athens, Greece.
* Reviewing of 49 articles in 16 international scientific journals
1. **Research Project Participation**

He participated as member of research team in 16 funded research projects, from which:

* 9 projects funded by the European Union and International Organizations, and
* 7 projects funded by the Greek Ministry of Education and Religious Affairs, and the General Secretariat for Research and Technology (GSRT).

**a. Research Projects funded by** **European Union and International Organizations**

1. ***“Micro- and Nano- Systems Center of Excellence” (MiNaSys-CoE)***. EU*-*FP7-Capacities (REGPOT) Support for Institute of Microelectronics-NCSRD. Contract No 245040(2009-2012). Budget for IMEL-NCSRD: ~2,000,000 €. *Member of IMEL-NCSRD scientific staff.*
2. ***“Tools and Technology for the Analysis and Synthesis of Nanostructures” (TASNANO)***. EU-FP6-NMP-STREP. Contract No 516865 (2005-2007). Budget for IMEL-NCSRD: 400,000 €. *Member of research team.*
3. ***“Unidirectional Nanoscale Supramolecular Wires Assembled by Photo-and Electro-Active Metallocyclodextrine Cups” (ΝANO2LIFE)***. EU-FP6-NMP-NoE, on NanoBiotechnology. Contract No 500057 (2004-2008). Budget for IMEL-NCSRD: ~80,000 €. *Member of research team.*
4. ***“Novel Molecules for EUV Lithography: A new approach to photoresist design, coupled with fractal description and molecular simulation of roughness” (MolEUV)***. Contract with INTEL Company, USA (2003-2006). Coordinator: IMEL-NCSRD. Total budget: 450,000 $. Budget for IMEL-NCSRD: ~300,000 $. *Member of research team.*
5. ***“Micrometer Scale Patterning of Protein and DNA Chips” (MICROPROTEIN)***. EU-FP5-GROWTH. Contract No G5RD-CT-00744 (2002-2005). Coordinator: IMEL-NCSRD.

 Total budget: 3,332,000 €. Budget for IMEL-NCSRD: ~350,000 €. *Member of research team.*

1. ***“Critical resist and process issues for 157 nm lithography”* (*CRISPIES)***. EU-FP5-IST. Contract No 30143 (2001-2004). Budget for IMEL-NCSRD: ~500,000 €. *Member of IMEL-NCSRD research team.*
2. ***“A Bioanalytical Microsystem Based on Optical Microchip”* (*BIOMIC)***. EU-FP5-IST. Contract No 28214 (2001-2004). Coordinator: IMEL-NCSRD. Budget for IMEL-NCSRD: ~377,000 €. *PhD student.*
3. ***“Biologically and optically engineered materials for immunosensors” (BOEMIS)***. EU-BRITE-EURAM (DGXII). Contract No BRPR CT970393 (1997-2000). Coordinator: IMEL-NCSRD. Total budget: 1,500,000 ECU. Budget for IMEL-NCSRD: 150,000 ECU. *PhD student.*
4. ***“Nanolithography using chemically amplified resists” (NANCAR)***. FP4-ESPRIT 4. Contract No 20084 (1996-1998). Coordinator: CCLRC Rutherford Appleton Laboratory (RAL), UK. Total budget: 1,730,200 €. Budget for IMEL-NCSRD: … *PhD student.*

**b. Research Projects funded by** **Greek Ministry of Education and Religious Affairs, and General Secretariat for Research and Technology**

1. ***“Advanced Materials and Devices for Energy Collection and Management”***, Project: KRIPIS, Ministry of Education (2013-2015). Coordinator: INN-NCSRD. Budget for INN-NCSRD: 883,200 €. *Member INN-NCSRD research team.*
2. ***“Implementing advanced interfacial engineering strategies for highly efficient hybrid solar cells” (IMAGINE-HYSOL)***, Research Grants ARISTEIA II, Ministry of Education (2013-2015). Coordinator: University of Patras. Budget for INN-NCSRD: 150,000 €. *Member of research team*.
3. ***“Polymeric photonic systems for application in information technologies” (PHOTOPOLIS)***, Research Grants THALES, Ministry of Education, Project code: MIS 377358 (2012-2015). Coordinator: University of Patras. Total Bubget: ~520,000 €. Budget for INN-NCSRD: 150,000 €. *Member of research team.*
4. ***“Novel and highly efficient Hybrid organic photovoltaic cells” (NHyOPV)***, Research Grants ARCHIMEDES ΙΙΙ, Ministry of Education, Project code: MIS383575-Υ06 (2012-2015). Coordinator: Technological Educational Institute of Piraeus. Total Budget: 100,000 €. Budget for INN-NCSRD: 50,000 €. *Member of research team.*
5. ***“Novel low power consumption Hybrid OLEDs with improved operational characteristics” (NHyOLED)***, Research Grants ARCHIMEDES ΙΙΙ, Ministry of Education, Project code: MIS383575-Υ05 (2012-2015). Coordinator: Technological Educational Institute of Piraeus. Total Budget: 100,000 €. Budget for INN-NCSRD: 50,000 €. *Member of research team.*
6. ***“Organic electronic device for determining ionizing radiation using sensors based on polymer layers incorporating photoacid generator” (OEDDIR)***, Research Grants ARCHIMEDES ΙΙΙ, Ministry of Education, Sub-project 30 (2012-2015). Coordinator: Technological Educational Institute of Crete. Total Budget: 82,000 €. Budget for ΙΝΝ-NCSRD: 41,000 €. *Member of research team.*
7. ***“Polymeric Materials for Nanostructure Fabrication with UV Lithography and Self-Assembling” (POLY-NANO)***, Research Grants PENED, General Secretariat for Research and Technology, (2000-2001). Coordinator: IMEL-NCSRD. Total Budget: ~50,000,000 GRD. Budget for IMEL-NCSRD: ~20,000,000 GRD. *Member of research team.*
8. **Research Profile**

**a. Research Team – Research Field – Research Interests**

He is member of the Research Team: “Materials for Nanolithography and Organic Electronics” (which is part of the Research Program: “Nanoelectronics, Photonics and Microsystems”) at the Institute of Nanoscience and Nanotechnology of NCSR “Demokritos”, Athens, Greece.

His research field is the development of nanostructured materials, with emphasis on hybrid materials and metal oxides/polyoxometalates, for applications in electronic devices and photocatalysis.

His main research interests are the following:

* homogeneous/heterogeneous photocatalysis with polyoxometalates (POMs, and their analogues transition metal oxides, TMOs) for solar energy conversion and storage applications (e.g. photocatalytic production of hydrogen),
* physicochemical investigation of POMs (and TMOs) in solid state interfaces for nanotechnology and organic optoelectronics applications (e.g. molecular electronic devices, organic photovoltaics (OPVs), organic light emitting diodes (OLEDs)),
* synthesis/characterization of POMs compounds, TMOs and complexes,
* nanostructure fabrication technologies and physicochemical investigation of photopolymeric materials based on POMs (or TMOs) for nanotechnology and art conservation applications.

**b. Research Scholarship**

* + 64 publications: 58 publications in international scientific (peer-reviewed) journals and 6 publications in international scientific conference proceedings,
	+ 3 patents: 2 international (peer-reviewed) patents and 1 Greek patent
* 1344 citations, (1226 hetero-citations), h=19
* 5 publications in national scientific conferences
* 70 presentations-abstract publications in international scientific conferences
1. **Ten Selected Journal Publications**

1. “Multi-Electron Reduction of Wells-Dawson Polyoxometalate Films onto Metallic, Semiconducting and Dielectric Substrates”, **A. M. Douvas**, D. Tsikritzis, C. Tselios, A. Haider, A. S. Mougharbel, U. Kortz, A. Hiskia, A. G. Coutsolelos, L. C. Palilis, M. Vasilopoulou, S. Kennou, P. Argitis, *Physical Chemistry Chemical Physics*, 21, 427-437, 2019.

2. “Porphyrin Sensitized Evolution of Hydrogen using Dawson and Keplerate Polyoxometalate Photocatalysts”, A. Panagiotopoulos, **A. M. Douvas**, P. Argitis, A. G. Coutsolelos, *ChemSusChem*, 9, 3213-3219, 2016.

3. “Old Metal Oxide Clusters in New Applications: Spontaneous Reduction of Keggin and Dawson Polyoxometalate Layers by a Metallic Electrode for Improving Efficiency in Organic Optoelectronics”, M. Vasilopoulou, **A. M. Douvas**, L. Palilis, S. Kennou, P. Argitis, *Journal of the American Chemical Society*, 137, 6844-6856, 2015.

4. “Annealing-free highly crystalline solution-processed molecular metal oxides for efficient single-junction and tandem polymer solar cells”, M. Vasilopoulou, E. Polydorou, **A. M. Douvas**, L. Palilis, S. Kennou, P. Argitis, *Energy & Environmental Science*, 8, 2448-2463, 2015.

5. “Sol-gel synthesized, low-temperature processed, reduced molybdenum peroxides for optoelectronics applications”, **A. M. Douvas**, M. Vasilopoulou, D. G. Georgiadou, A. Soultati, D. Davazoglou, N. Vourdas, K. Giannakopoulos, A. Kontos, S. Kennou, P. Argitis, *Journal of Materials Chemistry C*, 2, 6290-6300, 2014.

6. “Solution-processed hydrogen molybdenum bronzes as highly conductive anode interlayers in efficient organic photovoltaics”, A. Soultati, **A. M. Douvas**, D. G. Georgiadou, L. C. Palilis, T. Bein, J. M. Feckl, S. Gardelis, M. Fakis, S. Kennou, P. Falaras, T. Stergiopoulos, N. A. Stathopoulos, D. Davazoglou, P. Argitis, M. Vasilopoulou, *Advanced Energy Materials*, 4, 1300896, 2014.

7. “Solution processable tungsten polyoxometalate as highly effective cathode interlayer for improved efficiency and stability polymer solar cells”, L. C. Palilis, M. Vasilopoulou, **A. M. Douvas**, D. G. Georgiadou, S. Kennou, N. A. Stathopoulos, V. Constantoudis, P. Argitis, *Solar Energy Materials & Solar Cells*, 114, 205-213, 2013.

8. “The influence of hydrogenation and oxygen vacancies on molybdenum oxides work function and gap states for application in organic optoelectronics”, M. Vasilopoulou, **A. M. Douvas**, D. G. Georgiadou, L. C. Palilis, S. Kennou, L. Sygellou, I. Kostis, A. Soultati, G. Papadimitropoulos, D. Davazoglou, P. Argitis, *Journal of the American Chemical Society*, 134, 16178-16187, 2012.

9. “Thermally-induced acid generation from 18-molybdodiphosphate and 18-tungstodiphosphate within poly(2-hydroxyethyl methacrylate) films”, **A. M. Douvas**, K. Yannakopoulou, P. Argitis, *Chemistry of Materials*, 22, 2730-2740, 2010.

10. “Polyoxometalate-based layered structures for charge transport control in molecular devices”, **A. M. Douvas**, E. Makarona, N. Glezos, P. Argitis, J. A. Mielczarski, E. Mielczarski, *ACS Nano*, 2, 733-742, 2008.

1. **Publications**

**a.** **Journal Publications**

58. “The role of Dawson Polyoxometalates as interfacial layers on the energy band alignment between indium tin oxide and poly(3-hexylthiophene) films”, D. Tsikritzis, C. Tselios, **A. M. Douvas**, S. Kennou, *Thin Solid Films* (2019) 676, 92–99.

57. “A self-assembly study of PNA–porphyrin and PNA–BODIPY hybrids in mixed solvent systems”, E. Nikoloudakis, K. Karikis, J. Han, C. Kokotidou, A. Charisiadis, F. Folias, **A. M. Douvas**, A. Mitraki, G. Charalambidis, X. Yan, A. G. Coutsolelos, *Nanoscale* (2019) 11, 3557–3566. **Cover of *Nanoscale*, Issue 18, 2019.**

56. “Multi-Electron Reduction of Wells-Dawson Polyoxometalate Films onto Metallic, Semiconducting and Dielectric Substrates”, **A. M. Douvas,** D. Tsikritzis, C. Tselios, A. Haider, A. S. Mougharbel, U. Kortz, A. Hiskia, A. G. Coutsolelos, L. C. Palilis, M. Vasilopoulou, S. Kennou, P. Argitis, *Physical Chemistry Chemical Physics* (2019) 21, 427-437.

55. “Guided cell adhesion, orientation, morphology and differentiation on silicon substrates photolithographically micropatterned with a cell-repellent cross-linked poly(vinyl alcohol) film”, A. Bourkoula, E. Mavrogonatou, P. Pavli, P. Petrou, **A. Douvas**, P. Argitis, D. Kletsas, S. Kakabakos, *Biomedical Materials* (2019) 14, 014101-014118.

54. “Self-assembling study of nanometric spheres from polyoxometalate-phenylalanine hybrids, an experimental and theoretical approach”, E. Nikoloudakis, K. Karikis, M. Laurans, C. Kokotidou, A. Solé-Daura, J. J. Carbó, A. Charisiadis, G. Charalambidis, G. Izzet, A. Mitraki, **A. M. Douvas**, J. M. Poblet, A. Proust, A. G. Coutsolelos, *Dalton Transactions* (2018) 47, 6304–6313. **Cover of *Dalton Transactions*, Issue 18, 2018.**

53. “Size-dependent Single Electron Transfer and Semimetal-to-Insulator Transitions in Molecular Metal Oxide Electronics”, A. Balliou, M. Bouroushian, **A. M. Douvas**, G. Skoulatakis, S. Kennou, N. Glezos, *Nanotechnology* (2018) 29, 275204-275217.

52. “Plasma Induced Degradation and Surface Electronic Structure Modification of Poly(3-hexylthiophene) Films”, M. Tountas, D. G. Georgiadou, A. Zeniou, K. Seintis, A. Soultati, E. Polydorou, S. Gardelis, **A. M. Douvas**, T. Speliotis, D. Tsikritzis, S. Kennou, M. Fakis, E. Gogolides, D. Tsoukalas, P. Argitis, M. Vasilopoulou, *Polymer Degradation and Stability* (2018) 149, 162-172.

51. “The effect of TiO2 component on the properties of acrylic and urea-aldehyde resins under accelerated ageing conditions”, H. V. Farmakalidis, S. Boyatzis, **A. M. Douvas**, I. Karatasios, S. Sotiropoulou, P. Argitis, Y. Chryssoulakis, V. Kilikoglou, *Pure and Applied Chemistry* (2017) 89, 1659-1671.

50. “Surface Modification of ZnO Layers via Hydrogen Plasma Treatment for Efficient Inverted Polymer Solar Cells”, V. Papamakarios, E. Polydorou, A. Soultati, N. Droseros, D. Tsikritzis, **A. M. Douvas**, L. Palilis, M. Fakis, S. Kennou, P. Argitis, M. Vasilopoulou, *ACS Applied Materials & Interfaces* (2016) 8, 1194-1205.

49. “Porphyrin Sensitized Evolution of Hydrogen using Dawson and Keplerate Polyoxometalate Photocatalysts”, A. Panagiotopoulos, **A. M. Douvas**, P. Argitis, A. G. Coutsolelos, *ChemSusChem* (2016) 9, 3213-3219.

48. “Direct Current Conductivity of Thin-Film Ionic Conductors from Analysis of Dielectric Spectroscopic Measurements in Time and Frequency Domains”, E. Kapetanakis, P. Gkoupidenis, V. Saltas, **A. M. Douvas**, P. Dimitrakis, P. Argitis, K. Beltsios, S. Kennou, C. Pandis, A. Kyritsis, P. Pissis, P. Normand, *Journal of Physical Chemistry C* (2016) 120, 21254-21262.

47. “Impact of microwave post-deposition annealing on the crystallization of amorphous hydrogenated perovskites. The case of the three-dimensional tungsten and of the two-dimensional molybdenum oxide films”, A. Soultati, M. Vasilopoulou, G. Papadimitropoulos, **A. Douvas**, I. Kostis, I. Karystinos, S. Kennou, G. Skoulatakis, D. Davazoglou, *Thin Solid Films* (2016) 615, 329–337.

46. “Accelerated Thermal Ageing of Acrylic Copolymers, Cyclohexanone-Based and Urea-Aldehyde Resins Used in Paintings Conservation”, H. V. Farmakalidis, **A. M. Douvas**, I. Karatasios, S. Sotiropoulou, S. Boyatzis, P. Argitis, Y. Cryssoulakis, V. Kilikoglou, *Mediterranean Archaeology and Archaeometry* (2016) 16, 213-228.

45. “Annealing-free highly crystalline solution-processed molecular metal oxides for efficient single-junction and tandem polymer solar cells”, M. Vasilopoulou, E. Polydorou, **A. M. Douvas**, L. Palilis, S. Kennou, P. Argitis, *Energy & Environmental Science* (2015)8, 2448-2463.

44. “Old Metal Oxide Clusters in New Applications: Spontaneous Reduction of Keggin and Dawson Polyoxometalate Layers by a Metallic Electrode for Improving Efficiency in Organic Optoelectronics”, M. Vasilopoulou, **A. M. Douvas**, L. Palilis, S. Kennou, P. Argitis, *Journal of the American Chemical Society* (2015) 137, 6844-6856.

43. “Solution processed multi-color organic light emitting diodes for application in telecommunications”, M. Vasilopoulou, D.G. Georgiadou, A. Soultati, **A.M. Douvas**, G. Papadimitropoulos, D. Davazoglou, G. Pistolis, N. A. Stathopoulos, T. Kamalakis, D. Alexandropoulos, N. Vainos, C. T. Politi, L. C. Palilis, S. Couris, A. G. Coutsolelos, P. Argitis, *Microelectronic Engineering* (2015) 145, 21-28.

42. “Sol-gel synthesized, low-temperature processed, reduced molybdenum peroxides for optoelectronics applications”, [**A. M. Douvas**](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20M.%20Douvas), [M. Vasilopoulou](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Vasilopoulou), [D. G. Georgiadou](http://pubs.rsc.org/en/results?searchtext=Author%3AD.%20G.%20Georgiadou), A. Soultati, D. Davazoglou, N. Vourdas, K. Giannakopoulos, A. Kontos, S. Kennou, P. Argitis, *Journal of Materials Chemistry C* (2014) 2, 6290-6300.

41. “Influence of the oxygen substoichiometry and of the hydrogen incorporation on the electronic band structure of amorphous tungsten oxide films”, [M. Vasilopoulou](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Vasilopoulou), I. Kostis, N. Vourdas, G. Papadimitropoulos, [**A. Douvas**](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20M.%20Douvas), N. Boukos, S. Kennou, D. Davazoglou, *Journal of Physical Chemistry C* (2014) 118, 12632-12641.

40. “The role of metal/metal oxide/organic anode interfaces in efficiency and stability of bulk heterojunction organic photodetectors”, [A. Soultati](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20Soultati), [D. G. Georgiadou](http://pubs.rsc.org/en/results?searchtext=Author%3AD.%20G.%20Georgiadou), [**A. Douvas**](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20M.%20Douvas), [P. Argitis](http://pubs.rsc.org/en/results?searchtext=Author%3AP.%20Argitis), D. Alexandropoulos, N. A. Vainos, N. A. Stathopoulos, G. Papadimitropoulos, D. Davazoglou, [M. Vasilopoulou](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Vasilopoulou), *Microelectronic Engineering* (2014) 117, 13-17.

39. “Solution-processed hydrogen molybdenum bronzes as highly conductive anode interlayers in efficient organic photovoltaics”, A. Soultati, **A. M. Douvas**, D. G. Georgiadou, L. C. Palilis, T. Bein, J. M. Feckl, S. Gardelis, M. Fakis, S. Kennou, P. Falaras, T. Stergiopoulos, N. A. Stathopoulos, D. Davazoglou, P. Argitis, M. Vasilopoulou, *Advanced Energy Materials* (2014) 4, 1300896.

38. “Porphyrin oriented self-assembled nanostructures for efficient exciton dissociation in high-performing organic photovoltaics”, [M. Vasilopoulou](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Vasilopoulou), [D. G. Georgiadou](http://pubs.rsc.org/en/results?searchtext=Author%3AD.%20G.%20Georgiadou), [**A. M. Douvas**](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20M.%20Douvas), [A. Soultati](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20Soultati), [V. Constantoudis](http://pubs.rsc.org/en/results?searchtext=Author%3AV.%20Constantoudis), [D. Davazoglou](http://pubs.rsc.org/en/results?searchtext=Author%3AD.%20Davazoglou), [S. Gardelis](http://pubs.rsc.org/en/results?searchtext=Author%3AS.%20Gardelis), [L. C. Palilis](http://pubs.rsc.org/en/results?searchtext=Author%3AL.%20C.%20Palilis), [M. Fakis](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Fakis), [S. Kennou](http://pubs.rsc.org/en/results?searchtext=Author%3AS.%20Kennou), [T. Lazarides](http://pubs.rsc.org/en/results?searchtext=Author%3AT.%20Lazarides), [A. G. Coutsolelos](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20G.%20Coutsolelos), [P. Argitis](http://pubs.rsc.org/en/results?searchtext=Author%3AP.%20Argitis), *Journal of Materials Chemistry A* (2014) 2, 182-192.

37. “Tungstate polyoxometalate molecules as active nodes for dynamic carrier exchange in hybrid molecular/semiconductor capacitors”, [A.](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Vasilopoulou) Balliou,[**A. M. Douvas**](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20M.%20Douvas), P. Normand, D. Tsikritzis, S. Kennou, P. Argitis, N. Glezos, *Journal of Applied Physics* (2014) 116, 143703.

36. “Protein-resistant cross-linked poly(vinyl alcohol) micropatterns via photolithography using removable polyoxometalate photocatalyst”, [P.](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Vasilopoulou) Pavli, P. S. Petrou,[**A. M. Douvas**](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20M.%20Douvas), D. Dimotikali, S. E. Kakabakos, P. Argitis, *ACS Applied Materials & Interfaces* (2014) 6, 17463-17473.

35. “Large work function shift of organic semiconductors including enhanced interfacial electron transfer in organic optoelectronics enabled by porphyrin aggregated nanostructures”, [M. Vasilopoulou](http://pubs.rsc.org/en/results?searchtext=Author%3AM.%20Vasilopoulou),[**A. M. Douvas**](http://pubs.rsc.org/en/results?searchtext=Author%3AA.%20M.%20Douvas), [D. G. Georgiadou](http://pubs.rsc.org/en/results?searchtext=Author%3AD.%20G.%20Georgiadou), V. Constantoudis, D. Davazoglou, [S. Kennou](http://pubs.rsc.org/en/results?searchtext=Author%3AS.%20Kennou), [L. C. Palilis](http://pubs.rsc.org/en/results?searchtext=Author%3AL.%20C.%20Palilis), D. Daphnomili, A. G. Coutsolelos, [P. Argitis](http://pubs.rsc.org/en/results?searchtext=Author%3AP.%20Argitis), *Nano Research* (2014) 7, 679-693.

34. “Vapor-deposited hydrogenated and oxygen-deficient molybdenum oxide thin films for application in organic optoelectronics”, M. Vasilopoulou,I. Kostis, **A. M. Douvas**, D. G. Georgiadou, A. Soultati, G. Papadimitropoulos, N. A. Stathopoulos, S. S. Savaidis, P. Argitis, D. Davazoglou, *Surface & Coatings Technology* (2013) 230, 202-207.

33. “Effect of the oxygen sub-stoichiometry and of hydrogen insertion on the formation of intermediate bands within the gap of disordered molybdenum oxide films”, I. Kostis, N. Vourdas, G. Papadimitropoulos, **A. Douvas**, M. Vasilopoulou,N. Boukos, D. Davazoglou, *Journal of Physical Chemistry C* (2013) 117, 18013-18020.

32. “Formation of stoichiometric, sub-stoichiometric undoped and hydrogen doped oxide films, enabled by pulsed introduction of O2 or H2 during hot-wire vapor deposition”, I. Kostis, N. Vourdas, M. Vasilopoulou, **A. Douvas**, G. Papadimitropoulos, N. Konofaos, A. Iliadis, D. Davazoglou, *Thin Solid Films* (2013) 537, 124-130.

31. “Radiation sensors based on the generation of mobile protons in organic dielectrics”, E. Kapetanakis, **A. M. Douvas**, P. Argitis, P. Normand, *ACS Applied Materials & Interfaces* (2013) 5, 5667-5674.

30. “Solution processable tungsten polyoxometalate as highly effective cathode interlayer for improved efficiency and stability polymer solar cells”, L. C. Palilis, M. Vasilopoulou, **A. M. Douvas**, D. G. Georgiadou, S. Kennou, N. A. Stathopoulos, V. Constantoudis, P. Argitis, *Solar Energy Materials & Solar Cells* (2013) 114, 205-213.

29. “Highly porous tungsten oxides for electrochromic applications”, I. Kostis, M. Vasilopoulou, A. Soustati, P. Argitis, N. Konofaos, **A. M. Douvas**, N. Vourdas, G. Papadimitropoulos, D. Davazoglou, *Microelectronic Engineering* (2013) 111, 149-153.

28. “The influence of hydrogenation and oxygen vacancies on molybdenum oxides work function and gap states for application in organic optoelectronics”, M. Vasilopoulou, **A. M. Douvas**, D. G. Georgiadou, L. C. Palilis, S. Kennou, L. Sygellou, I. Kostis, A. Soultati, G. Papadimitropoulos, D. Davazoglou, P. Argitis, *Journal of the American Chemical Society* (2012) 134, 16178-16187.

27. “Conduction mechanisms in tungsten-polyoxometalate self-assembled molecular junctions”, D. Velessiotis, **A. M. Douvas**, P. Dimitrakis, P. Argitis, N. Glezos, *Microelectronic Engineering* (2012) 97, 150-153.

26. “Photo-patternable fluorinated polyhedral oligomeric silsequioxane-functionalized (POSS-F) polymeric materials with ultra low dielectric constants”, M. Vasilopoulou, **A. M. Douvas**, P. Argitis, *Materials Chemistry & Physics* (2012) 135, 880-883.

25. “Characterization of a water-dispersible metal protective coating with fourier transform infrared spectroscopy, modulated scanning calorimetry, and ellipsometry”, S. C. Boyatzis, **A. M. Douvas**, V. Argyropoulos, A. Siatou, M. Vlachopoulou, *Applied Spectroscopy* (2012) 66, 580-590.

24. “Molecular junctions made of tungsten-polyoxometalate self-assembled monolayers: towards polyoxometalate-based molecular electronic devices”, D. Velessiotis, **A. M. Douvas**, S. Athanasiou, B. Nilsson, G. Petersson, U. Södervall, G. Alestig, P. Argitis, N. Glezos, *Microelectronic Engineering* (2011) 88, 2775-2777.

23. “Reduction of tungsten oxide: a path towards dual functionality utilization as efficient anode and cathode interfacial layers in organic light emitting diodes”, M. Vasilopoulou, L. C. Palilis, D. G. Georgiadou, **A. M. Douvas**, P. Argitis, S. Kennou, L. Syggelou, G. Papadimitrakopoulos, I. Kostis, N. A. Stathopoulos, D. Davazoglou, *Advanced Functional Materials* (2011) 21, 1489-1497.

22. “Thermally-induced acid generation from 18-molybdodiphosphate and 18-tungstodiphosphate within poly(2-hydroxyethyl methacrylate) films”, **A. M. Douvas**, K. Yannakopoulou, P. Argitis,

 *Chemistry of Materials* (2010) 22, 2730-2740.

21. “Hybrid organic-inorganic materials for molecular proton memory devices”, E. Kapetanakis, **A. M. Douvas**, D. Velessiotis, E. Makarona, P. Argitis, N. Glezos, P. Normand, *Organic Electronics* (2009) 10, 711-718.

20. “Photochemically-induced acid generation from 18-molybdodiphosphate and 18-tungstodiphosphate within poly(2-hydroxyethyl methacrylate) films”, **A. M. Douvas**, A. Kapella, D. Dimotikali, P. Argitis, *Inorganic Chemistry* (2009) 48, 4896-4907.

19. “Chemical binding of biomolecules to micropatterned epoxy modified surfaces for biosensing applications”, P. Pavli, P. S. Petrou, D. Niakoula, **A. M. Douvas**, M. Chatzichristidi, S. E. Kakabakos, D. Dimotikali, P. Argitis, *Microelectronic Engineering* (2009) 86, 1473-1476.

18. “Highly transparent partially fluorinated methacrylate polymers for optical waveguides”, M. Vasilopoulou, **A. M. Douvas**, L. C. Palilis, P. Bayiati, D. Alexandropoulos, N. A. Stathopoulos, P. Argitis, *Microelectronic Engineering* (2009) 86, 1142-1145.

17. “Materials for lithography in the nanoscale”, P. Argitis, D. Niakoula, **A. M. Douvas**, E. Gogolides, I. Raptis, V. P. Vidali, E. A. Couladouros, *International Journal of Nanotechnology* (2009) 6, 71-87. Inderscience Publishers, invited.

16. “Molecular storage elements for proton memory devices”, E. Kapetanakis, **A. M. Douvas**, D. Velessiotis, E. Makarona, P. Argitis, N. Glezos, P. Normand, *Advanced Materials* (2008) 20, 4568-4574.

15. “Vertical devices of self-assembled hybrid organic/inorganic monolayers based on tungsten polyoxometalates: a step towards molecular electronic devices”, E. Makarona, E. Kapetanakis, D. M. Velessiotis, **A. Douvas**, P. Argitis, P. Normand, T. Gotszalk, M. Woszczyna, N. Glezos, *Microelectronic Engineering* (2008) 85, 1399-1402.

14. “Polyoxometalate-based layered structures for charge transport control in molecular devices”,

 **A. M. Douvas**, E. Makarona, N. Glezos, P. Argitis, J. A. Mielczarski, E. Mielczarski, *ACS Nano* (2008) 2, 733-742.

13. “Dynamics and laser processing of functional fluoride organic surfaces at VUV wavelengths”, E. Sarantopoulou, Z. Kollia, M. Chatzichristidi, **A. Douvas**, P. Argitis, S. Kobe, A. C. Cefalas, *Journal of Laser Micro/Nanoengineering* (2008) 3, 24-29.

12. “Nano-scale spatial control over surface morphology of biocompatible fluoropolymers at 157 nm”, E. Sarantopoulou, Z. Kollia, A. C. Cefalas, **A. M. Douvas**, M. Chatzichristidi, P. Argitis, S. Kobe, *Materials Science and Engineering C* (2007) 27, 1191-1196.

11. “Polymer self-assembled nano-structures and surface relief gratings induced with laser at 157 nm”, E. Sarantopoulou, Z. Kollia, A. C. Cefalas, **A. M. Douvas**, M. Chatzichristidi, P. Argitis, S. Kobe, *Applied Surface Science* (2007) 253, 7884-7889.

10. “A biomolecule friendly photolithographic process for fabrication of protein microarrays on polymeric films coated on silicon chips”, P. S. Petrou, M. Chatzichristidi, **A. M. Douvas**, P. Argitis, K. Misiakos, S. E. Kakabakos, *Biosensors and Bioelectronics* (2007) 22, 1994-2002.

9. “Photochemically induced ligand exchange reactions of ethoxy-oxo-molybdenum(V) tetraphenylporphyrin in chlorinated solvents”, **A. M. Douvas**, P. Argitis, A. Maldotti, A. G. Coutsolelos, *Polyhedron* (2006) 25, 3427-3434.

8. “Partially fluorinated, Polyhedral Oligomeric Silsesquioxane-functionalized (meth)acrylate resists for 193nm-bilayer lithography”, **A. M. Douvas**, F. Van Roey, M. Goethals, K. G. Papadokostaki, K. Yannakopoulou, D. Niakoula, E. Gogolides, P. Argitis, *Chemistry of Materials* (2006) 18, 4040-4048.

7. “Electrical characterization of molecular monolayers containing tungsten polyoxometalates”, N. Glezos, **A. M. Douvas**, P. Argitis, F. Saurenbach, J. Chrost, C. Livitsanos, *Microelectronic Engineering* (2006) 83, 1757-1760.

6. “Characterization of various insulators for possible use as low-k dielectrics deposited at temperatures below 200oC”, M. Vasilopoulou, **A. M. Douvas**, D. Kouvatsos, P. Argitis, D. Davazoglou, *Microelectronics Reliability* (2005) 45, 990-993.

5. “157-nm Laser ablation of polymeric layers for fabrication of biomolecule microarrays”,  **A. M. Douvas**, P. S. Petrou, S. E. Kakabakos, K. Misiakos, P. Argitis, E. Sarantopolou, Z. Kollia, A. C. Cefalas, *Analytical and Bioanalytical Chemistry* (2005) 381, 1027-1032.

4. “Dilute aqueous base developable resists for environmentally friendly and biocompatible processes”, C. D. Diakoumakos, **A. Douvas**, I. Raptis, S. E. Kakabakos, D. Dimotikali, G. Terzoudi, P.Argitis, *Microelectronic Engineering* (2002) 61-62, 819-827.

3. “Biocompatible photolithographic process for the patterning of biomolecules”, **A. Douvas,** P. Argitis, K. Misiakos, D. Dimotikali, P. S. Petrou, S. E. Kakabakos, *Biosensors and Bioelectronics* (2002) 17, 269-278.

2. “Application of a novel aqueous base developable resist in micromachining”, I. Raptis, M. Chatzichristidi, C. Diakoumakos, **A. Douvas**, D. Niakoula, P. Argitis, *Journal of Photopolymer Science and Technology* (2001) 14, 445-448.

1. “Photolithographic patterning of proteins with photoresists processable under biocompatible conditions”, **A. Douvas**, P. Argitis, C. D. Diakoumakos, K. Misiakos, D. Dimotikali, S. E. Kakabakos, *Journal of Vacuum Science and Technology B* (2001) 19, 2820-2824.Also,published at: *Virtual Journal of Nanoscience & Technology*, AIP, 5(1), January 7 (2002).

**b. Publications in Conference Proceedings**

6. “Selective immobilization of proteins guided by photopatterned poly(vinyl alcohol) structures”, P. Pavli, P. S. Petrou, **A. M. Douvas**, E. Makarona, S. Kakabakos, D. Dimotikali, P. Argitis, *Proceedia Engineering* (2011) 25, 292-295. *Proc. Eurosensors XXV,* Athens, Greece,September 4–7, 2011.

5. “Photolithographic process, based on high contrast acrylate photoresist, for multi-protein patterning”, M. Chatzichristidi, P. S. Petrou, **A. Douvas**, C. D. Diakoumakos, I. Raptis, K. Misiakos, S. E. Kakabakos, P. Argitis, *Materials Research Society Symposium Proceedings* (2006) 950, 205-210. *Materials Research Society (MRS) Fall Meeting*, Boston, MA, USA,November 27 – December 1, 2006.

4. “Characterization of various low-k dielectrics for possible use in applications at temperatures below 160oC”, M. Vasilopoulou, S. Tsevas, **A. M. Douvas**, P. Argitis, D. Davazoglou, D. Kouvatsos, *Journal of Physics: Conference Series* (2005)10, 218-221. *2nd Conference on Microelectronics, Microsystems and Nanotechnology (MMN)*, Athens, Greece, 2005.

3. “Patterning of biomolecules with a new photolithographic methodology”, P. Argitis, **A. Douvas**, K. Misiakos, S. E. Kakabakos, *China-EU Forum on Nanosized Technology (Nanomaterial, MEMs, Biochip) Proceedings* (2002), 245-250. *China-EU Forum on Nanosized Technology (Nanomaterial, MEMs, Biochip)*,Beijing, P. R. China, December 17-18, 2002.

2. “Monolithic silicon optoelectronic biochips”, K. Misiakos, S. E. Kakabakos, **A. Douvas**, P. Argitis, *Technical Digest - International Electron Devices Meeting* (2001) 359-362. *International Electron Devices Meeting* (*IEDM)*, Washington DC, USA, December 2-5, 2001.

1. “Photolithographic materials for novel biocompatible lift off processes”, **A. Douvas**, C. D. Diakoumakos, P. Argitis, K. Misiakos, D. Dimotikali, C. Mastihiadis, S. Kakabakos, *World Scientific* (2000), 103-106. *1st Conference on Microelectronics, Microsystems and Nanotechnology (MMN)*, Athens, Greece, November 20-22, 2000.

1. **Patents**

3. “Memory devices using proton-conducting polymeric materials”, E. Kapetanakis, **Α. M. Douvas**, D. Velessiotis, E. Makarona, P. Argitis, N. Glezos, P. Normand, Greek Patent Office, Grant Number GR 20080100269, Grant Date 18/04/2008. International Publication Nο. WO 2009/127884 A1, International Publication Date 22/10/2009.

2. “Photoresists processable under biocompatible conditions for multi-biomolecule patterning”, P. Argitis, **Α. Douvas**, C. D. Diakoumakos, Κ. Misiakos, S. E. Kakabakos, Greek Patent Office, Grant Number GR 1004058, Grant Date 15/11/2002. International Patent PCT/GR02/00033, 30/05/2002, International Publication Number WO 02/097533 A1, International Publication Date 05/12/2002. European Patent Number 1395878. US Patent Number 7,608,389 B2 (US20050037276), 27/10/2009.

1. “Biocompatible lithographic processes and materials for patterning of biomolecules”, P. Argitis, **Α. Douvas**, Κ. Misiakos, S. E. Kakabakos, Greek Patent Office, Grant Number GR 1003421, Grant Date 01/09/2000. **Praise from Greek Patent Office in 2002.**

**10. Invited Presentations to International Conferences**

1.“Incorporation of polyoxometalates in polymeric films for device microfabrication and use of polyoxometalate layers in organic optoelectronic devices”, *(invited)*,**A. M. Douvas**, COST Action CM1203, *Polyoxometalate Chemistry for Molecular Nanoscience* (*PoCheMoN)*, Workshop WG2&3, *Toward Polyoxometalate based molecular devices*, October 30-31, 2015, University Pierre et Marie Curie, Paris, France.

2. “Spontaneous reduction of solution-processed polyoxometalate layers by a metal electrode: an intelligent interfacial engineering strategy to improve efficiency in organic optoelectronic devices”, *(invited),* L. C. Palilis, M. Vasilopoulou, **A. M. Douvas**, S. Kennou, P. Argitis, *11th International Conference on Organic Electronics (ICOE)*, June 15-17, 2015, Erlangen, Germany.

3. “Efficient organic solar cells by using polyoxometalate-based cathode interfacial layers”, *(invited)*, M. Vasilopoulou, **A. M. Douvas**, D. G. Georgiadou, L. C. Palilis, A, Soultati, D. Davazoglou, P. Argitis, *European Materials Research Society (E-MRS), Spring Meeting, Symposium B: Organic and hybrid interfaces in excitonic solar cells: from fundamental science to applications*, May 27–31, 2013, Strasbourg, France.

4. “Interface engineering in organic optoelectronic devices using polyoxometalate transport layers”, *(invited)*, M. Vasilopoulou, **A. M. Douvas**, D. G. Georgiadou, L. Sygellou, S. Kennou, L. C. Palilis, P. Argitis, *(oral, invited)*, *1st International Conference on Bioinspired Materials for Solar Energy Utilization (BIOSOL)*, September 12-17, 2011, Chania, Crete, Greece.

5. “Proton transport in polyoxometalate-embedded polymeric films: towards the development of novel proton memory devices”, *(invited)*, **A. M. Douvas**, E. Kapetanakis, P. Goupidenis, K. Beltsios, D. Velessiotis, E. Makarona, N. Glezos, P. Normand, P. Argitis, *International Polyoxometalate Symposium*, July 28 – August 1, 2009, Bremen, Germany.