## WAEL MAMDOUH

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***Leader, Biomedical Polymer Nanocomposites, Hydrogels, and Tissue Engineering*** ***Group***
The American University in Cairo (AUC), AUC Avenue, P.O. Box 74, New Cairo 11835, Egypt

**Education**

**03/2002 – 12/2005**: **Ph.D. in Science - Chemistry**

(Katholieke Universiteit Leuven (KUL), Leuven, Belgium)

**10/2000 – 01/2002**: **M.Sc. - Chemistry *-"*Cum Laude"**

(Katholieke Universiteit Leuven (KUL), Leuven, Belgium)

**09/1993 – 06/1997**: **B.Sc. - Major chemistry - "Magna cum Laude"**

**(**Ain Shams University, Cairo, Egypt)

**Administrative posts at AUC:**

**02/2012-08/2012 Director of the Nanotechnology Graduate Program, AUC**

**05/2015-03/2016 Director of the Nanotechnology Graduate Program, AUC**

**Employment**

**09/2011- present: Assistant Professor (Tenure-track),** Graduate program in Nanotechnology

 (Department of Chemistry, School of Sciences and Engineering, AUC, Egypt)

**09/2009-08/2011: Assistant Professor (Adjunct Faculty)**

 (Department of Chemistry, School of Sciences and Engineering, AUC, Egypt)

**09/2006 – 02/2010**:  **Assistant Professor**

(The Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Denmark)

**09/2008 – 06/2009**: **Assistant Professor**

(Pharos University in Alexandria (PUA), Faculty of Pharmaceuticals and Drug Manufacturing, Egypt)

**09/2005 – 08/2006**: **Postdoctoral Research Associate**

(The Interdisciplinary Nanoscience Center (iNANO), Centre for DNA Nanotechnology, Aarhus University, Denmark)

**09/1998 – 09/2000**: **Assistant Manager and Sales Manager**

(STADCO “El-Safa Co.for Trade of Pharmaceutical Appliances”, Cairo, Egypt)

**09/1997 – 09/1998**: **Office Manager**

(Al-Obiayi Contracting Est., Al-Khobar, Kingdom of Saudi Arabia)

**Visiting appointments**

**09/2009-present: Guest Professor**

(Key Laboratory for Green Chemical technology of Ministry of Education, School of Chemical Engineering and Technology, Tianjin University (TU), Tianjin, China)

**05/2008 – present**: **Guest Professor**

(Institute of Photo-Biophysics, Physics and Electronics Department, Henan University, Kaifeng, China)

**Publications** (my *h* index =18) with a total citation of **2436** (Google Scholar) and my i10-index = **26**

* 37 Articles in peer-reviewed journals (1 *Nature*, 1 *Nature Nanotechnology*, 6 *JACS*; 2 *ACS NANO*; etc.)
* 2 Invited book reviews
* 2  Conference proceedings

**Patents Applications: 4 provisional patent applications** filed in the United States Patent and Trademark Office since 2014 and 2 of them are converted into an international Patent Corporation Treaty (PCT) application.

* Chitosan-Polyvinylpyrrolidone-Genipin-Silver nanoparticles hydrogel Nanocomposite (Application no. 62/181352, Provisional U.S. patent filled on June 18, 2015)
* Honey Nanofibers (Application no. 62/134950, Provisional U.S. patent filled on March 18, 2015)
* Inulin Nanofibers (Application no. 62/085395, Provisional U.S. patent filled on Nov. 28, 2014 Application No.: PCT/US2015/062839, filled on November 27, 2015), Publication number WO2016086225 A1, and publication date Jun 2, 2016
* Nanoparticle-based Combinatorial Therapy (Application no. 62/052841, Provisional U.S. patent filled on Sept. 19, 2014 Application No.: PCT/US2015/050926, September 15, 2015), Publication number WO2016044716 A1, and publication date March 24, 2016

**Research areas:**

**[1] Nanomaterials development, fabrication and physicochemical studies:**

* Designing novel functionalized and coated nanoparticles, Polymer and Nanocomposites
* Electrospun nanofibers from synthetic and natural remedies and their nanoforms (e.g. herbal extracts, chitosan, etc)
* Nano-fillers (e.g. graphene, fullerene, carbon Nanotubes, metal nanoparticles)
* Investigating the chemical, physical, mechanical, biomedical, environmental and industrial properties of these novel pre-designed nanomaterials.

**[2] Instrument development** (developed three in-house Electrospinning techniques in collaboration with the Physics Department and workshop at AUC. The new spinners were built by using green and recyclable products and local supplies, and are more compact in size, more reliable and cost only 1/10 of the price of any commercial instrument.)

**[3] Applications of nanomaterials include (but are not limited to)**

* Nanomedicine and Nanopharmaceutics: Targeted Drug delivery systems (Cancer, brain, lung, etc)
* Tissue Engineering and biomedical scaffolds
* Nanobiotics: Antimicrobial and anticancer applications of nanomaterials
* Surface nano-coatings
* Membranes (nanoporous membranes, films and hydrogels),
* NanoFood (membranes for packaging, nano-additives, etc)
* Nanocosmetics
* Nanoconstruction
* Solid-liquid interface at the Nanoscale

**Students & Postdoctoral fellow’s supervision:** Prior joining AUC, I Supervised and co-supervised 3 Bachelor students; 2 Ph.D. students; and 5 postdoctoral fellows.

**Students’ Thesis supervision at AUC:**

**Students Supervision**

Total number of supervised students at AUC since 2011: **36 students** (NANO, BIOT, BIOL, CHEM, MENG, PHARM)

* 8 PhD students
* 20 M.Sc. Students
* 8 Undergraduate students

**Students graduated:** I have graduated **13 students** in 2012, and from Spring 2014 - Fall 2015

* 4 undergraduate students (CHEM, BIOL)
* 8 M.Sc. students (CHEM, NANO, BIOT)
* 1 Ph.D. student (MENG)

**Thesis Collaboration**

* **Internal** **at AUC**: Biology and Mechanical Engineering departments
* **External (in Egypt and International)**:
* Faculty of Pharmacy, Ain Sham University
* Faculty of Oral and Dental Medicine, Cairo University
* Pharmaceutics and Industrial pharmacy department, Faculty of pharmacy, Cairo University
* Analytical Chemistry department, Faculty of Pharmacy, Cairo University
* Egyptian Atomic Energy Authority
* Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Denmark
* Institute of Tropical Forestry & Forest Product (INTROP), University Putra Malaysia

**Teaching Record**

**List of courses Taught Prior joining AUC**

- **Nanoscience and Nanotechnology courses**:

* Introduction to Scanning Probe Microscopy (SPM) and self-assembled systems
* Introduction to Nanoscience and Nanotechnology
* Bio-Nano-tools and Protein Structure: Biological Applications of SPM techniques: Understanding Nano-Biosystems and their behavior
* Biointerfaces and Biocompatibility at the Nanoscale: Fundamental Aspects of SPM techniques and their Applications in Biology
* Experimental Nano-project: Scanning Tunneling Microscope investigations of organic/biomolecules on solid surfaces (STM)

- **Chemistry courses**:

* Basic Inorganic Analysis

**List of Courses Taught at AUC:** I have taught a total of **15 classes** prior 2011 and **70 classes** since 2011 of different multi-sections undergraduate and graduate courses as listed below with **an average mean** of **4.5 out of 5**.

* **Undergraduate Chemistry courses:**
* General Chemistry (CHEM 105/1005)
* Man and the Environment (CHEM 104/1004)
* General Science Laboratory (SCI-150/SCI 1015)
* General Chemistry Laboratory (CHEM 115/1015)
* **Graduate courses:**
* Chemistry of Nanostructures (NANO 541/5241)
* Nanomaterials: Synthesis, properties and applications (NANO 531/5200)
* Advanced testing and Characterization instruments (NANO 503/5203)
* Biomaterials (NANO 630/6230)
* Graduate thesis Seminar II (NANO 591/5491)
* Graduate thesis Seminar I (CHEM 590/5490)
* Graduate thesis Seminar I (CHEM 591/5491)
* Independent Study in Chemistry (CHEM 552 31)

**Course Coordination at AUC:** I have coordinated **three courses** (2 multi-sections undergraduate & 1 graduate)

* CHEM 1005: General Chemistry
* SCI 1015: General Science Laboratory
* NANO 5200: Nanomaterials: Synthesis, properties and applications

**Teaching Enhancement Activities at AUC (Continuing Education Program):** I obtained "Teaching Enhancement Certificate I," CLT in Nov. 2015. I had also participated in a total of **22** teaching development activities to enrich my teaching skills at the School of Continuing Education at AUC.

**Funding for Research Projects at AUC** since 2011

* **Internal:** AUC Faculty Support Grants (**total received** **$ 27,452)**
* **Internal:** AUC Student Support Grants (**total received** **$ 43,650)**
* **External:** ***Academy of Scientific Research & Technology (ASRT)*** **(total received** **EGP 250,000)**

(1 M.Sc. student in NANO and 2 Ph.D. students in MENG)

* **External:** **One proposal** (**accepted, with the total amount of EGP 600,000**)

In collaboration with Cairo University, the National Institute of tumors and SEDICO (Pharmaceutical Company) submitted to ***Science and Technology development Fund (STDF)*** (*Formulation and Evaluation of Surface Functionalized Liver-targeted Nanoparticles Enclosing proteins for Treatment of Tuberculosis)*

* **External: One proposal: (funded, with the total amount of EGP150,000), *Academy of Scientific Research & Technology (ASRT)***

This proposal was intended to start a Spinoff Company (NANO-Fib-TECH) funded by the Academy of Scientific Research & Technology (ASRT) in collaboration with Bedaya Center for Entrepreneurship & SMEs Development (GAFI), Ministry of Investments, Egypt

In November 2015, I participated in a national competition (National program for Specialized Incubator technology - Intilac) organized by ***the Academy of Scientific Research & Technology (ASRT)*** involving more than 70 participants from national universities, research centers, companies and individuals and I was among the first 10 teams who won the funding of EGP 150,000 to help me **starting a new Spinnoff company (NANO-Fib-TECH)** for producing nanofibers sprays for wound healing, antibacterial and prebiotic applications. (*Developing Nanofibers from Natural Polysaccharides like Inulin and Honey and their antibacterial and prebiotic activities for improving digestive disorder)*

**Record of extramural funding prior joining AUC**

**Funding for Research Projects**

2008-2012 **€ 422,000** ***Inducing orientation and local chemical reactivity in molecular nanostructures***

Competitive **Steno grant for independent Researchers**

P.I. (individual), the Danish Natural Science Research Council (FNU)

2008-2013 **€ 1,325,000** ***Video-rate Scanning Probe Microscopy Imaging of Nanostructures on Surfaces***

***(VIN)***

Assisted, European Research Council (ERC) Advanced Research Grant

**Funding for Research Equipments**

2008-present **€ 132,000** ***Scanning Ion Conductance Microscopy (SICM) for Biological Studies***

Coordinated, the Danish Natural Science Research Council (FNU)

**Funding for Centers of Excellence**

2007-2012 **€ 5,270,000** ***Centre for DNA Nanotechnology (CDNA)***

*In collaboration with iNANO, Arizona State University (U.S.A.) and Duke University (U.S.A.)*

Assisted, the Danish National Research Foundation (DNRF)

2009-2012 **€ 2,000,000** ***Sino-Danish Research Center for Molecular Nanostructures on Surfaces***

*In collaboration with iNANO, the National Center for Nanoscience and Technology (NCNST) (Beijing, China) and Universities of Beijing and Tsinghua in China*

Assisted, the Danish National Research Foundation (DNRF) and the National Natural Science Foundation of China (NSFC)

**Conferences & Academic visits**

**Organizing International conferences (prior joining AUC)**

* January 2009 Organized international workshop between the iNANO center, Denmark, the National Research Center

(NRC) in Cairo and Pharos University in Alexandria (PUA), Alexandria, Egypt

* May 2007 Organized joint symposium between the iNANO center, Denmark and the MESA+ Institute, the

Netherlands,

**Attended conferences, workshops and seminar series:** (*Keynote, invited speaker* and as *a Chair of a session*).

* 2 keynote speaker at international conferences
* 1 Chair of a session at international conference
* 46 Invited speaker at national, international conferences, workshops, seminars, universities and research centers
* 41 Speaker and poster presenter at international conferences, workshops, seminars, universities and research centers

**Participation in National and International Competitions/Innovation Summit**

* ***Workshop on Applied Research prototypes to serve the Industry*** organized by Arab academy for Scientific Research and Development (ASRT) and Science and Technology Center of Excellence (STCE) – Ministry of Military Production, Cairo. (Feb. 2013).
* ***"Cairo Innovates", The 2nd Cairo International Exhibition of Innovation;*** National Academy for Scientific Research & Technology (ASRT), Baron Palace, Cairo, Egypt. (Nov. 2015).

Presenting two of the latest research work that were filled for two USA patent applications

* Nanoparticles-based combinatorial therapy for breast cancer
* Electrospun Inulin Nano-fibers with Prebiotic and Antibacterial activity
* ***National program of Incubator Specialized Technology - Intilac***, Academy for Scientific Research and Technology (ASRT), Cairo. (Nov. 15, 2015 - Present).

I won a prize with the total amount of L.E. 150,000, to establish a startup company (NANO-Fib-TECH)

* ***Show Case Booth, at TechConnect World Innovation Summit & Expo***, the National Innovation Summit and National SBIR/STTR Conference, Washington D.C., USA, (June, 2015).

TechConnect received hundreds of Submissions into that year's program, with 48% accepted for a Showcase opportunity at the conference. The presented work involved:

* Nanoparticles-based combinatorial therapy for breast cancer
* Inulin Nanofiber with Prebiotic and Antibacterial Activity

In addition, during that conference, I was invited for a personal meeting with one of the top leading companies in Health care worldwide who showed significant interest in our work related to nanofibers with wound healing and prebiotic activities

**Referee for journals: I referee research manuscripts submitted to a wide variety of international peer-review journals**

**• Nominated to be a Member in Royal Society of Chemistry (RSC) Advances Reviewer Panel (London, UK)**

**• Reviewer: “RSC Advances”, “Nature”, “The American Chemical Society” journals (JACS, ACS NANO, Langmuir, J. Phys. Chem., Nanoletters), and also to Wiley journals (Small and Angew. Chem.) Chem. Mater., ChemPhysChem, J. Mater. Chem., Chem. Commun., “Current Opinion in Colloid and Interface Science”, “ISRN Nanotechnology** journals”**, “Environmental Progress & Sustainable Energy”, “Polymer Composites”, “Science PG”, “Ultramicroscopy”, and “Colloids and Surfaces”.**

**Outreach activities**

July 2012- present Organizer of “Young Scientist Camp for children” (School grades: First Primary – Third Secondary)”, in collaboration between the School of Continuing Education and School of Sciences and Engineering, AUC New Cairo, Egypt

**Media Contributions**

2 MIT Briefs (Arabic Edition), AUC News, "Nile Education," TV, Nile News TV, Nile TV, Qatar TV, Al-Ahram Newspaper, Radio station (North Upper Egypt), and Suez Canal University TV

**The Binational Fulbright Commission in Egypt (Member in the selection committee)**

I participated in the selection process of AY2015-2016 Fulbright Egyptian Scholar Program by reviewing 2 applications in the field of Chemistry, November 2014

**Managerial skills and capabilities**

* Experienced team leader and team player
* Outstanding analytical, presentation and communication skills
* Practical problem solving and research design
* Ability to work collaboratively and constructively with colleagues
* A strong sense of initiative and flexibility
* Hard worker, hands-on and love working in a fast-developing and energetic environment
* Familiar with diverse cultures and enthusiastic personalities
* Confident, accurate, and eager to learn

**Computer skills**

* Dos and Microsoft office 97 and 2000 (MS Word, MS Excel, MS PowerPoint and MS Microcale Origin 6.0) in Windows 95, 98, 2000, XP, Vesta, 7 and 10.
* Analysis and modeling programs: Scanning Probe Image Processor (SPIPTM) software (Image Metrology ApS), TRFA Global Analysis program, Hypersnap-DX, Topometrix SPMlab, Picoscan 5.0, Picoview 1.6; Adobe illustrator, Adobe Photoshop, ChemWin 6.0, ChemDraw Ultra 7.0, Chem. Sketch and Hyper Chem. 502

**Instrumentation skills**

* Intensive experience with a wide variety of spectroscopic techniques: Spectrophotometer (λ40), Spectrofluorometer (spex) and Single photon counting (spc); scanning probe microscopes (STM and AFM), and familiar with SEM, TEM: Topometrix Discoverer STM, Veeco-Multimode Nanoscopes (IIIa, IV and V), Agilent-AFM series 5100 and 5500, JPK-AFM Nanowizard II combined with Ziess inverted optical microscope, JPK-ForceRobot, Park Systems-XE-Bio Scanning Ion Conductance Microscope-AFM combined with Nikon inverted optical microscope; and Electrospinner, E-Spin Nanotech, India

**Languages**

Arabic (Fluent), English (Fluent), Danish (basic Knowledge), French (basic Knowledge) and Dutch (fair knowledge)

**Links:**

Profile: <http://www.aucegypt.edu/fac/Profiles/Pages/WaelMamdouh.aspx>
Research group: [http://www.aucegypt.edu/research/jameel/research/Pages/Biomedical%20Polymer%20Nanocomposite,%20Hydrogels%20and%20Tissue%20Engineering%20Group.aspx](http://www.aucegypt.edu/research/jameel/research/Pages/Biomedical%20Polymer%20Nanocomposite%2C%20Hydrogels%20and%20Tissue%20Engineering%20Group.aspx)
Nanotechnology program: <http://www.aucegypt.edu/sse/nt/Pages/default.aspx>

**Publications list *(in peer-reviewed journals) (\*corresponding author)***

[1] ElBaz, M. Nancy, Ziko, Laila, Siam, Rania, Mamdouh,\* Wael. “Core-Shell Silver/Polymeric Nanoparticles-Based Combinatorial Therapy against Breast Cancer In-vitro”. Scientific Reports (Nature Publishing Group), Vol. 6, No. 30729, (Aug. 2016), pp.1-9. (referred)

[2] Fahim, S. Irene, Mamdouh, Wael, Salem, G. Hanadi. “Effect of Processing Technique on LDPE Thin Films and sheets”. International Journal of Engineering Inventions, Vol. 4, No. 12, (Aug. 2015), pp. 01-05. (referred)

[3] Fahim, S. Irene, Mamdouh, Wael, Salem, G. Hanadi. “Chitosan Nanocomposite Mesoporous Membranes: Mechanical and Barrier Properties as a Function of Temperature”. Journal of Materials Science Research, Vol. 4, No. 4, (June 2015), pp.1-18. (referred)

[4] Fahim, S. Irene, Marei, Narguess, Salem, G. Hanadi, Mamdouh, Wael. “Effect of Graphene and Fullerene Nanofillers on Controlling the Pore size and Physicochemical Properties of Chitosan Nanocomposite Mesoporous Membranes”. Journal of Nanomaterials, Vol. 25. (Jan. 2015), pp. 1-10. (referred)

[5] Lin, Lin, Cui, Haiying, He, Ronghai, Liu, Lei, Zhou, Cunshan, Mamdouh, Wael, Ma, Haile.“Effect of Ultrasonic Treatment on the Morphology of Casein Particles”. Ultrasonics Sonochemistry, Vol. 21, No. 2, (March 2014), pp. 513–519. (referred)

[6] Lin, Lin, Cuia, Haiying, Vittayapadung, Saritporn, Xiao, Zhihong, Wu, Wenyu, Zhang, Aihua, Mamdouh, Wael, Li, Changzhu. “Synthesis of Recyclable Hollow Fe/C-SO3H Fiber as a Catalyst for the Production of Biodiesel”. Environmental Progress & Sustainable Energy, Vol. 33, No. 4, (Dec. 2014), pp. 1432-1437. (referred)

[7] Fahim, S. Irene, Mamdouh,\* Wael, Salem, G. Hanadi. “A Nanoscale Investigation of Mechanical, Thermal Stability and Electrical Conductivity Properties of Reinforced Thermoplastic Polyurethane/Graphene Nanocomposites”. American Journal of Nanoscience and Nanotechnology, Vol. 1, No. 1, (June 2013), pp. 31-40. (referred)

[8] Madkour, M.Tarek, Hagag,M. Fatma, Mamdouh, Wael, Azzam A. Rasha. “Molecular-level modeling and experimental investigation into the high performance nature and low hysteresis of thermoplastic polyurethane/multi-walled carbon nanotube nanocomposites”. Polymer, Vol. 53, (Oct. 2012), pp. 5788-5797. (referred)

[9] Mamdouh, Wael,\* Li, Yingzhi, M. Shawky, Sherif, M. E. Azzazy, Hassan, Liu, Chang-jun. “The Influence of “Glow Discharge Plasma” as an External Stimulus on the Self-Assembly, Morphology and Binding Affinity of Gold Nanoparticles - Streptavidin Conjugates”. International Journal of Molecular Sciences, Vol. 13, (May 2012), pp. 6534-6547. (referred)

[10] Li, Yinli, Zhang, Shuai, Guo, Lijun, Dong, Mingdong, Liu, Bo, Mamdouh, Wael. “Collagen coated tantalum substrate for cell proliferation”. Colloids and Surfaces B: Biointerfaces, Vol. 95, (Jan. 2012), pp. 1-15. (referred)

[11] Kudernac, Tibor, Shabelina, Natalia, Mamdouh, Wael, Höger, Sigurd, De Feyter, Steven. “STM visualisation of counterions and the effect of charges on self-assembled monolayers of macrocycles”. Beilstein Journal of Nanotechnology, Vol 2, (Oct. 2011), pp. 674–680. (referred)

[12] Li, Yinli, Liu, Lei, Subramani, Ramesh, Pan, Yunxiang, Liu, Bo, Yang, Yanlian, Wang, Chen, Mamdouh, Wael, Besenbacher, Flemming, Dong, Mingdong. “Building layer-by-layer 3D supramolecular nanostructures at the terephthalic acid/stearic acid interface”. Chemical Communications, Vol. 47, No. 32, (July 2011), pp. 9155-9157. (referred)

[13] Subramani, Ramesh, Juul, Sissel, Andersen, F. Felicie, Rotaru, Alexandru, V. Gothelf, Kurt, Mamdouh, Wael, Besenbacher, Flemming, Dong, Mingdong, R. Knudsen, Birgitta. “A Novel Secondary DNA Binding Site in Human Topoisomerase I Unravelled by using a 2D DNA Origami Platform”. ACS NANO, Vol. 4, No. 10, (Sept. 2010), pp. 5969–5977. (referred)

[14] Weigelt, Sigrid, Bald, Ilko, Ma, Xiaojing, Xie, Pengyang, Subramani, Ramesh, Dong, Mingdong, Wang, Chen, Mamdouh, Wael, Wang, Jianguo, Besenbacher, Flemming. “Two-dimensional network stability of nucleobases and amino acids on graphite under ambient conditions: Adenine, L-Serine and L-Tyrosine”. Physical Chemistry Chemical Physics, Vol. 12, (March 2010), pp. 3616 – 3621. (referred)

[15] V. Voigt, Niels, Tørring, Thomas, Rotaru, Alexandru, F. Jacobsen, Mikkel, B. Ravnsbæk, Jens, Subramani, Ramesh, Mamdouh, Wael, Kjems, Jørgen, Mokhir, Andriy, Besenbacher, Flemming, Vesterager Gothelf, Kurt. “Single-molecule chemical reactions on DNA origami”. Nature Nanotechnology, Vol. 5, (Feb. 2010), pp. 200-203. (referred)

[16] S. Andersen, Ebbe, Dong, Mingdong, M. Nielsen, Morten, Jahn, Kasper, Subramani, Ramesh, Mamdouh, Wael, M. Golas, Monika, Sander, Bjoern, Stark, Holger, L. P. Oliveira, Cristiano, Skov Pedersen, Jan, Birkedal, Victoria, Besenbacher, Flemming, V. Gothelf, Kurt, Kjems, Jørgen. “Self-assembly of a nano-scale DNA box with a controllable lid”. Nature, Vol. 459, (May 2009), pp. 73-77. (referred)

[17] Mamdouh, Wael,\* E.A. Kelly, Ross, Dong, Mingdong, F. Jacobsen, Mikkel, Ferapontova, Elena, Kantorovich, Lev, Gothelf, Kurt, Besenbacher, Flemming. “Self-assembly of artificial nucleobase 1H-benzoimidazole-4,7-dione at the liquid/Solid interface”. Journal of Physical Chemistry B, Vol. 113, No. 25, (June 2009), pp. 8675–8681. (referred)

[18] Li, Yinli, Dong, Mingdong, E. Otzen, Daniel, Yao, Yuhen, Liu, Bo, Besenbacher, Flemming, Mamdouh, Wael\*. “Influence of Tunable External Stimuli on the Self-Assembly of Guanosine Supramolecular Nanostructures Studied By Atomic Force Microscope”. Langmuir, Vol. 25, No. 23, (June 2009), pp. 13432 – 13437. (referred)

[19] Dong, Mingdong, Bruun Hovgaard, Mads, Mamdouh, Wael, Xu, Sailong, Erik Otzen, Daniel, Besenbacher, Flemming. “AFM-Based Force Spectroscopy Measurements On Mature Amyloid Fibrils Of The Peptide Glucagon”.

Nanotechnology, Vol. 19, (Aug. 2008), pp. 384013-1-7. (referred)

[20] S. Andersen, Ebbe, Dong, Mingdong, M. Nielsen, Morten, Jahn, Kasper, Lind-Thomsen, Allan, Mamdouh, Wael, V. Gothelf, Kurt, Besenbacher, Flemming, Kjems, Jørgen. “DNA Origami Design of Dolphin-Shaped Structures with Flexible Tails”. ACS NANO, Vol. 2, No. 6, (June 2008), pp. 1213-1218. (referred)

[21] Mamdouh, Wael\*, E.A. Kelly, Ross, Dong, Mingdong, N. Kantorovich, Lev, Besenbacher, Flemming.

 “Two-Dimensional Supramolecular Nanopatterns Formed by the Co-adsorption of Guanine-Uracil at the Liquid/Solid Interface”. Journal of the American Chemical Society, Vol. 130, No. 2, (Jan. 2008), pp. 695-702. (referred)

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[25] Cheng, Xiaohong, Ver Heyen, An, Mamdouh, Wael, Uji-i, Hiroshi, C. De Schryver, Frans, Höger, Sigurd, De Feyter, Steven. “Synthesis and Adsorption of Shape-Persistent Macrocycles Containing Polycyclic Aromatic Hydrocarbons in the Rigid Framework”. Langmuir, Vol. 23, No. 3, (Jan. 2007), pp.1281-1286. (referred)

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 “Expression of Molecular Chirality and Two-Dimensional Supramolecular Self-Assembly of Chiral, Racemic, and Achiral Monodendrons at the liquid-Solid Interface”. Langmuir, Vol. 20, No. 18, (May 2004), pp. 7678-7685. (referred)

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**List of manuscripts in progress for submission**

[38] Fabrication of Polyvinyl alcohol / Chitosan / Bidens Pilosa Composite Electrospun Nanofibers and their Enhanced Antibacterial Activities

James Kegere, Rania Siam, **Wael Mamdouh\***

[39] *Chitosan/Polyvinlypyrrolidine hydrogel silver nanocomposites with enhanced antimicrobial activity for wound dressings applications*

Marwa Moro, Amgad Ouf, Rania Siam, **Wael Mamdouh\***

[40] *Investigating the Efficiency of Chitosan on the Purification of Euthynnus affinis (Kawakawa) Fish Oil caught from the Red Sea*

Alia A. F. Hetta, and **Wael Mamdouh\***

[41] *Improved Antimicrobial Activity of Electrospun Graphene-Chitosan/Gelatin Nanofibrous Nanocomposite Scaffolds*

Isra H. Ali, Amgad Ouf, Mehmet Berat Taskin, Jie Song, Mingdong Dong, Menglin Chen, Rania Siam, **Wael Mamdouh\***

[42] *Fabrication of Electrospun Polyvinyl Alcohol / Inulin Composite Nanofibers and their Prebiotic and Antibacterial Activities*

Walaa Wahbi, Rania Siam, **Wael Mamdouh,\***

[43] Enhanced *Prebiotic and Antibacterial Activities of Electrospun Polyvinyl Alcohol / Honey Composite Nanofibers*

Walaa Wahbi, Rania Siam, **Wael Mamdouh,\***

[44] *Formulation and Antibacterial Activities of Garlic Oil Nanoparticles*

Sherif Fahmy, **Wael Mamdouh\***

***Invited book reviews***

[B.2] *Science at the Nanoscale:* *An Introductory Textbook, by Chin Wee Shong, Sow Chorng Haur & Andrew T S Wee,**Pan Stanford Publishing Pte. Ltd. 5 Toh Tuck Link, SINGAPORE 596224, 2008, ISBN: 978-981-4241-03-8 / 981-4241-03-2*

**Wael Mamdouh** and Flemming Besenbacher

[B.1]  *Scanning Probe Microscopies Beyond Imaging: Manipulation of Molecules and Nanostructures,* edited by Paolo Samorì, *Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, 2006; 570 pp., hard cover* € *157.00 - ISBN 3-527-31269-2*

*Small* **2007**,*3*, 512-513. (DOI: 10.1002/smll.200600532)

**Wael Mamdouh** and Flemming Besenbacher

***Conference proceedings***

[C.2] *Supramolecular Nanostructures Formed by DNA/RNA Nucleobases at the Liquid/Solid Interface*

**Wael Mamdouh\***, Mingdong Dong, Ross Kelly, Eva Rauls, Sailong Xu, Lev Kantorovich, Flemming Besenbacher\*,The X. Annual Linz Winter Workshop, “Advances in Single-Molecule Research for Biology & Nanoscience”, Linz, Austria, Feb. 15-19, 2008

[C.1] *STM at the Liquid/Solid and Air/Solid interface: Exploring 2D Phase-Behavior, Templating, and Tip-Induced Reactivity*

S. De Feyter, M. M. Abdel-Mottaleb, A. Miura, H. Uji-i, **W. Mamdouh**, M. Zdanowska, F. C. De Schryver, *(American Institute of Physics, AIP Conference Proceedings)* **2003**, *Vol 696,* p602.

The12th International Conference on Scanning Tunneling Microscopy/Spectroscopy and Related Techniques (STM'03), Eindhoven University of Technology, July 21-25,2003Eindhoven, the Netherlands

**Participation in Conferences and Workshops**

* **Invited Speaker at AUC**: **15 lectures** delivered in different courses (CHEM 3940, CHEM 5940, BIOT 5940 & NANO 5940)

[15] “**Nanocomposite and Nano-fibrous Antibacterial Scaffolds, Hydrogels and Drug Delivery Nanocarriers”,** Nov. 2015

[14] “**Nanotechnology applications in Targeted drug delivery, membranes, antibacterial coatings and wound dressings at BioMED PNC group at AUC”,** Oct. 2015

[13] “**Nanoscience and Nanotechnology Impact on the Society: Pro's & Con's",** Oct. 2015

[12] “**Hybrid Nanosystems and Their Biomedical And Industrial Applications”** Nov. 2014

[11] **“Nanotechnology Applications in Food Industry”**,Nov. 2014

[10] **“Nanotechnology: The New Era of Revolution” ,** Sept. 2013

[9] **“Nanotechnology Applications in Food Industry”**,Nov. 2012

[8] **“Nanotechnology: Small Science, Big Deal”**,Nov. 2012

[7] **“Nanotechnology: Small Science, Big Deal”**,Oct. 2012

[6] **“Nanotechnology: A New Science Era with Unlimited Applications”**, Cairo Science and Engineering Festival, Outreach and Informal Learning Programs,School of Science and Engineering, AUC, May 2012

[5] **“Designing and Imaging DNA Nanostructures: From 1D to 3D”** Yousef Jameel Science and Technology Center, (YJ-STRC),AUC, Egypt, Feb. 2012

[4] **“Molecular Self-assembly of DNA Nanostructures: From 1D to 3D”**, Nov. 2011

[3] **“Nanotechnology Applications in Food Industry”**, Nov. 2011

[2] **“Nanotechnology- Small Science, Big Deal”**, Nov. 2010

[1] **“Designing and Imaging DNA Nanostructures”**, The Yousef Jameel Science and Technology Research Center (STRC), American University in Cairo (AUC), Cairo, Egypt, March 2008

* **Keynote speaker outside AUC (**National, International workshops, conferences and research centers **in Egypt)**

[2] **“Developing Novel Nanocomposites Nanoscaffolds, Membranes and Nanocarriers for Prebiotic, Antibacterial and Targeted Drug Delivery Applications”,** 1st Egyptian Society for Science and Technology of Biomaterials (ESSTB) Conference - Transfer of Biomaterials’ Knowledge Into Technology, The National Research Center (NRC), Cairo, Egypt, March 2015

[1] “**Nanotechnology – A Revolutionary Approach in Pharmaceutics and NanoMedicine”.** Applied Pharmacology for Pharmacy and Clinical Practice (APPCP)’s. “PHARMACOLOGY’S PRINTS ON THE MEDICAL LIFE", organized by Suez Canal University and held in Sharm El-Sheikh, Egypt, Feb. 2016

* **Chairing a session outside AUC (International conference)**

[1] International conference on Advances in Functional Materials (AFM), Stony Brook University, Long Island, NY, USA, June 2015.

* **Invited Speaker outside AUC (National, International workshops, conferences and research centers in Egypt)**

[18] “**Nanotechnology – A Revolutionary Approach in Pharmacy and NanoMedicine”.** Seventh International Scientific Conference of Faculty of Pharmacy- Cairo University. Translational Research in Pharmacy: From Bench to Market, April 2016

[17] “**Drug Delivery Nanocarriers for Breast Cancer Therapy & Nanoscaffolds for antimicrobial and Prebiotic Applications”.** The First National Conference: University& Industry - "The Role of the University in Economic Development", Mansoura University, March 2015

[16] **"Nanotechnology: The New Era of Revolution,"** Workshop on Production of Radioisotopes”, Atomic Energy Authority in collaboration with the Egyptian Atomic Energy Authority, Cairo, Egypt, Dec. 2014.

[15] **"Developing Nanocomposites Membranes, Targeted Drug Delivery Systems, and Novel Nanoscaffolds for Antibacterial and Tissue Regeneration Applications,"** 4th International Conference on Nanomaterials and Nanodevices, The National Research Center (NRC), Cairo, Egypt, Dec. 2014.

[14] **Nanotechnology: The New Era of Revolution in Medicine and Pharma,** TEDMED Live Talks, School of Medicine, Kasr Al Ainy, Cairo, Egypt, April 2013

[13] **“Nanotechnology Application in Pharmacy & 21 Century”,** BioFans, Faculty of Pharmacy, Cairo University, July 2012

[12] **“Nanotechnology Applications in Quality Assurance”, Workshop on Quality Assurance in Pharmaceutical Radioisotopes Laboratories”,** Atomic Energy Authority in collaboration with the Egyptian Atomic Energy Authority, Cairo, Egypt, April 2012

[11] **“Nanotechnology: Small Science, Big Deal”**, **Workshop on Quality Assurance in Pharmaceutical Radioisotopes Laboratories”,** Atomic Energy Authority in collaboration with the Egyptian Atomic Energy Authority, Cairo, Egypt, April 2012

[10] **“Nanotechnology: Small Science, Big Deal”**, The Children Cancer Hospital 57357, Cairo, Egypt, Feb. 2012

[9] **“Nanotechnology: Small Science, Big Deal”**, "Workshop for Young Researchers in Fields of Nano Technology", Egyptian National Commission for UNESCO, Cairo, Egypt, Feb. 2012

[8] **“Designing and Imaging DNA Nanostructures: From 1D to 3D”**, Workshop on "Applications of Nanotechnology in Industry: Opportunity of Integration among IDB Member States", The National Research Center (NRC), Cairo, Egypt, Jan. 2012

[7] “**Design and Imaging DNA Nanostructures”,** 15th Conference “3rd international”, Advances in Medical Research-From molecular medicine to clinical applications, Medical Research Institute, Alexandria University, Egypt, Oct. 2009

[6] **“Two-Dimensional Supramolecular Nanopatterns Formed by DNA/RNA Nucleobase Molecules at the Liquid/Solid Interface”,** China-Denmark Joint Symposium on Molecular Self-assembly Processes, Beijing, China, September 2009

[5] **“Impact of developments in Biotechnology on Pharmacy Profession”**, The 3rd Annual Pharmacy Day, Pharos University in Alexandria (PUA), Alexandria, Egypt, June 2009

[4] **“Nanotechnology- Small Science, Big Deal”**, Pharos University in Alexandria (PUA), Alexandria, Egypt, May 2009

[3] **“Designing and Imaging DNA Nanostructures”**, The Egyptian Materials Research Society (Eg-MRS), The XXVII Conference on Solid State Physics and Materials Science & Workshop on Nanostructure Science in Solids and Biological Systems, Red Sea, Ain Soukhna, Egypt, March 2008

 [2] **“Nanoscience and Nanotechnology in a Glance: Designing and Imaging DNA Nanostructures”** Pharos University in Alexandria (PUA), Alexandria, Egypt, June 2008

[1] **“Designing and Imaging DNA Nanostructures”**, National Research Centre (NRC), Cairo, Egypt, March 2008

* **Invited Speaker outside AUC (International workshops, seminars conferences and research centers outside Egypt)**

[13] **“Design and Self-assembly of DNA Nanostructures: From 2D To 3D”**, Tianjin University, China, July 2010

[12] **“Self-assembly of DNA/RNA Nucleobase Molecules at the Liquid-Solid Interface**”, Tianjin University, China, July 2010

[11] **“Design and Imaging DNA Nanostructures: From 2D to 3D”,** University of Manchester, School of Chemistry, Manchester, UK, November 2009

[10] **“Design and Imaging DNA Nanostructures”,** Tianjin University, China, Sept. 2009

[9] **“Two-Dimensional Supramolecular Nanopatterns Formed by DNA/RNA Nucleobase Molecules at the Liquid/Solid Interface”,** Henan University, Kaifeng, China, Sept. 2009

[8] **“Designing and Imaging DNA Nanostructures”**, E-seminar, Agilent Technologies, USA, April 2009

[7] **“Self-assembly of organic molecules on surfaces studies by STM: dynamics, chirality and self-organization”**, The X. Annual Linz Winter Workshop, “Advances in Single-Molecule Research for Biology & Nanoscience”, Linz, Austria Feb. 2008

[6] **“DNA Building Blocks at the Ångström Scale”**, Scandinavian Conference and Users Meeting, Royal Institute of Technology (KTH), Stockholm, Sweden, Oct. 2007

[5] **“Designing and Imaging DNA Nanostructures”**, Nucleic Acid Center, University of Southern Denmark, Odense, Denmark, Nov. 2007

[4] **“Vision of Self-assembling DNA Nanostructures on Boron Nitride Nanomesh”**, Physik-Institut, Universität, Zürich, Switzerland, Aug. 2007

[3] **“Supramolecular Architectures of Organic and Biomolecules on Surfaces”**, Veeco Instruments, Mannheim, Germany, Nov. 2006

[2] **“Creating Supramolecular Nanopatterns Constructed by DNA Bases at the Liquid-Solid Interface”**, University of Cambridge, Department of Physics, Optoelectronics group, Cavendish Laboratory, Cambridge, UK, Sept. 2006

[1] **“Two-Dimensional Cyclic Structures as Templates at the Nanoscale”**, iNANO Center, Aarhus University, Aarhus, Denmark, May 2005

* **Speaker outside AUC (International workshops, conferences and research centers in Egypt)**

[3] **“Two-Dimensional Supramolecular Nanopatterns Formed by DNA/RNA Nucleobase Molecules on Graphite under Ambient Conditions”,** Nanotech Insight, Egypt, Feb. 2010

[2] **“Designing and Imaging DNA Nanostructures”**, International Egypt-Denmark Workshop: Nanoscience and Nanotechnology at a Glance, Cairo-Alexandria, Egypt, Jan. 2009

[1] **"Chemical studies on the use of inorganic ion-exchange materials for the treatment of liquid waste"**, Ain Shams University, Cairo, Egypt, May 1997

* **Speaker outside AUC (International workshops, conferences, seminars and research centers outside Egypt)**

[23] **“Developing Nanocomposites Membranes, Targeted Drug Delivery Systems, and Novel Nanoscaffolds for Antibacterial and Tissue Regeneration Applications”** International conference on Advances in Functional Materials (AFM), Stony Brook University, NY, USA, June 29 - July 3, 2015, Stony Brook University, Long Island, NY, USA, NY, USA. June 2015

[22] **"Chitosan Nanocomposite Membranes: Investing the effect of Chemical Cross-linking, Filler Nanomaterials’ Type, and wt%, on the properties of Polymer Nanocomposites Membranes,"** The 2nd International Conference on Bioinspired and Biobased Chemistry and Materials, Nice, France. Oct. 2014.

[21] **“Two-Dimensional Supramolecular Nanopatterns Formed by DNA/RNA Nucleobase Molecules at the Liquid/Solid Interface”,** China NANO 2009 - International Conference on Nanoscience & Technology, Beijing, China, Sept. 2009

[20] “**Two-Dimensional Supramolecular Nanopatterns Self-assembled by Amino Acids and Nucleic Acid Bases on Solid Surfaces”**, The 237Th ACS National Meeting & Exposition, Salt Lake City, UT, USA, March 2009

[19] **“2-D Supramolecular Nanopatterns formed by DNA/RNA Nucleobase Molecules at the Liquid-Solid Interface”**, The 237Th ACS National Meeting & Exposition, Salt Lake City, UT, USA, March 2009

[18] **“Two-Dimensional Supramolecular Nanopatterns Formed by DNA/RNA Nucleobase Molecules at the Liquid/Solid Interface”,** China –Denmark Joint Symposium on Molecular Self-Assembly Processes, Beijing, China, Sept. 2009

[17] **“Designing and Imaging DNA Nanostructures”**, The Annual meeting of the Centre for DNA Nanotechnology (CDNA), Aarhus C, Denmark, Feb. 2009

[16] **“Fundamental Aspects of Scanning Probe Microscopy (SPM) and their Applications in Biology”**, Interdisciplinary Focus Meeting on Biophysical Methods Applied to RNA, EURASNET Workshop, Aarhus University, Denmark, Dec. 2008

[15] **“Designing and Imaging DNA Nanostructures: Combined AFM and STM Approaches”**, Seeing at the Nanoscale V, University of California, Santa Barbara, USA, June 2007

[14] **“Nucleobases as Building Blocks to Create Supramolecular Nanopatterned Surfaces”**, The IX-Annual Linz Winter Workshop, “Advances in Single-Molecule Research for Biology & Nanoscience”, Linz, Austria, Feb. 2007

[13] **“Supramolecular Nanopatterns Constructed by DNA Bases at the Liquid-Solid Interface”**, International Conference on Nanoscience and Nanotechnology (ICN&T), Basel, Switzerland, July 2006

[12] **“Nanoscale Imaging of Adenine-Thymine DNA Bases at the Liquid-Solid Interface Revealed by STM”**, E-MRS IUMRS ICEM 2006 Spring Meeting, Nice, France, May 2006

[11] **“How to Create Supramolecular Nanopatterned Surfaces By DNA Bases?”**, Frontiers Annual Meeting, Sicily, Italy, Oct. 2006

[10] **“Veeco’s Multimode AFM/STM: A Reliable Tool for Multipurpose Science”**, iNANO Center, Aarhus University, Aarhus, Denmark, March 2006

[9] **“Probing Molecular Chirality and Two-dimensional Supramolecular Architectures at the Nanoscale”**, Katholieke Universiteit Leuven (KUL), Leuven, Belgium, Dec. 2005

[8] **“Adenine-Thymine DNA Base-pairing at the Liquid-Solid Interface Revealed by STM”**, iNANO Center, Aarhus University, Aarhus, Denmark, Nov. 2005

[7] **“Two-Dimensional Cyclic Structures As Templates at the Nanoscale”**, Katholieke Universiteit Leuven (KUL), Leuven, Belgium, Feb. 2005

[6] **“Chirality at the Nanoscale: Chiral, Racemic, and Non-chiral Monodendrons at the Liquid-Solid Interface”**, Katholieke Universiteit Leuven (KUL), Leuven, Belgium, May 2004

[5] **"Expression of molecular chirality and 2D supramolecular self-assembly of monodendrons at the liquid-solid interface"**, Katholieke Universiteit Leuven (KUL), Leuven, Belgium, Dec. 2003

[4] **"Scanning tunneling microscopy as a unique tool for studying 2D chirality on graphite surface"**, ILT- Katholieke Universiteit Leuven (KUL), Leuven, Belgium, May 2003

[3] **"Stabilization effect of alkane buffer layer on formation of nano-meter sized metal phthalocyanine domains"**, Katholieke Universiteit Leuven (KUL), Leuven, Belgium, May 2003

[2] **"Scanning tunneling microscopy as a unique tool for studying two-dimensional chirality and self-assembly of disklike systems on graphite surface"**, Katholieke Universiteit Leuven (KUL), Leuven, Belgium, April 2003

[1] **"Optical spectroscopy and scanning tunneling microscopy of associating systems"**, Katholieke Universiteit Leuven (KUL), Leuven, Belgium, Jan. 2002

* **National & International Presentations (posters)**

[15] **“Designing and Imaging DNA Nanostructures**”, The 7th iNANO Annual meeting 2009, iNANO Center, Aarhus C, Denmark, Jan. 2009

[14]  **“Supramolecular Nanopatterns Self-Assembled by Adenine - Thymine Quartets at the Liquid-Solid Interface”**, The X. Annual Linz Winter Workshop, “Advances in Single-Molecule Research for Biology & Nanoscience”, Linz, Austria, Feb. 2008

[13]  **“Two-Dimensional Supramolecular Nanopatterns Formed by the Coadsorption of Guanine and Uracil at the Liquid/Solid Interface”**, The X. Annual Linz Winter Workshop, “Advances in Single-Molecule Research for Biology & Nanoscience”, Linz, Austria, Feb. 2008

[12] **“Supramolecular Nanopatterns Self-Assembled by Adenine - Thymine Quartets at the Liquid-Solid Interface”**, The 6th iNANO Annual meeting 2008, iNANO Center, Aarhus C, Denmark, Jan. 2008

[11] **“Two-Dimensional Supramolecular Nanopatterns Formed by the Coadsorption of Guanine and Uracil at the Liquid/Solid Interface”**, The 6th iNANO Annual meeting 2008, iNANO Center, Aarhus C, Denmark, Jan. 2008

[10] **“Construction and Imaging of DNA Nanostructures: Combined AFM and STM Approaches”**, AFM BioMed Conference, Barcelona, Spain, April 2007

[9] **“Inducing Molecular Chirality by Flipping Hydrogen Bonded Adenine Dimers inside a Supramolecular Network”**, The 5th iNANO Annual meeting 2007, iNANO Center, Aarhus C, Denmark, Jan. 2007

[8] **“Creating Supramolecular Nanopatterns Constructed by DNA Bases at the Liquid-Solid Interface”**, European Conference On Surface Science (ECOSS 24), Paris, France, Sept. 2006

[7] **“DNA Bases as precursors for Creating Supramolecular Nanopatterns at the Liquid-Solid Interface”**, “Seeing at the Nanoscale IV”, University of Pennsylvania, Philadelphia, USA, July 2006

[6] **"Adenine and Thymine DNA Bases at the Liquid-Solid Interface"**, The VIII. Annual Linz Winter workshop, “Advances in Single-Molecule Research for Biology & Nanoscience”, Linz, Austria, Feb. 2006

[5] **"Adenine and Thymine DNA Bases at the Liquid-Solid Interface"**, The 4th iNANO Annual meeting 2006, iNANO center, Aarhus C, Denmark, Jan. 2006

[4]  **"Submolecular chirality and two-dimensional supramolecular self-assembly of chiral, racemic and achiral monodendrons at the liquid-solid interface"**, “Nanotech Insight 2005”, International Conference on Nanotechnology: Science and Application, Luxor, Egypt, Feb. 2005

[3] **"Submolecular chirality and two-dimensional supramolecular self-assembly of monodendrons at the liquid-solid interface"**, “E-MRS-2004 Spring Meeting”, European Materials Research Society, Strasbourg, France, May 2004

[2]  **"Submolecular chirality and two-dimensional supramolecular self-assembly of monodendrons at the liquid-solid interface"**, “Chemistry and Self-assembly for Nanotechnology 2004 – FUNDP”, Namur, Belgium, Feb. 2004

[1] **"Scanning tunneling microscopy as a unique tool for studying** **two-dimensional chirality"**, “STM'03”, Eindhoven University of Technology – the Netherlands, July 2003