

Doc. Eng. Mohamed Eldessouki, PhD

Technical University of Liberec,
Liberec, Czech Republic

*"It is **not** what you **say** or what you **think** that matters; it is **ONLY**
what you **DO** that **makes the difference**"*

EDUCATION

- 2013-2015 Associate Professor (Docent) in Textile Technology and Material Engineering, Technical University of Liberec, Liberec, Czech Republic.**
(Dec. 2015) HABILITATION TOPIC Soft Computing and Computer Vision for the Characterization and Evaluation of Fibrous Structures
- 2006-2011 PhD in Polymer and Fiber Engineering, Auburn University, Auburn, AL, USA.**
(May 2011) RESEARCH TOPIC Synthesis and Modeling of Poly(L-lysine) Based Biomaterials for Regenerative Medicine
- 2006-2009 Master in Polymer and Fiber Engineering, Auburn University, Auburn, AL, USA.**
(Dec. 2009) RESEARCH TOPIC Modeling the Coupled Heat and Moisture Transfer Through Hygroscopic Fibrous Materials
- 2006-2009 Master in Chemical Engineering, Auburn University, Auburn, AL, USA.**
(May 2009) RESEARCH TOPIC Effect of Secondary Structure of Polypeptides on Properties of Their Nanocomposites
- 1997-2002 Bachelor of Engineering, Mansoura University, Mansoura, Egypt.**
(May 2002) RESEARCH TOPIC Computer Aided in Spinning Mill Organizing

SPECIAL TRAINING

- February 9-13, 2015 Tutorial Workshop, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland.**
WORKSHOP ON Hybrid Quantum Mechanics / Molecular Mechanics (QM/MM) Approaches to Biochemistry and Beyond
SPONSORED BY the Centre Européen de Calcul Atomique et Moléculaire (CECAM) headquarter at EPFL
- February 7-10, 2010 Fellowship Award, Global Congress on NanoEngineering for Medicine and Biology (NEMB2010), Huoston, TX, USA.**
FELLOWSHIP IN Nano-Engineered Therapeutics I & II
SPONSORED BY the National Science Foundation (NSF) Summer Institute on Nanomechanics, Nanomaterials and Micro/Nanomanufacturing

SELECTED COURSEWORK

Important courses to be highlighted:

- Advanced and Smart (functional) Textiles
- Polymer physics
- Polymer thermodynamics
- Polymer chemistry
- Polymer rheology
- Advanced analysis for transport phenomena
- Biomedical Engineering
- Advanced polymer processing
- Advanced methods in polymer characterization
- Structure and properties of polymers
- Nanoscale science and technology

WORK EXPERIENCE

- December 2015–Present** **Associate Professor**, *Technical University of Liberec*, Liberec, Czech Republic.
DESCRIPTION:
 - Supervise scientific research of undergraduate and graduate (Master and PhD) students
 - Teach classes at the undergraduate and the graduate levels
 - Conduct research on the development of smart fibrous structures
 - Conduct research on the modeling and simulation of fibrous structures
 - Apply for research funding to the Ministry of Youth and Education in the Czech Republic
- November 2016** **Visiting Professor**, *Faculty of Exact and Natural Sciences, Université de Reims Champagne-Ardenne*, Reims, France.
DESCRIPTION:
 - Conduct research on the use of smart thermochromic materials for cancer prognosis
- March 2013 – December 2015** **Assistant Professor**, *Technical University of Liberec*, Liberec, Czech Republic.
DESCRIPTION:
 - Conduct research on the development of flexible aerogel materials with super-critical fluids
 - Conduct research in the fields of scientific computations and artificial intelligence
 - Conduct research on computer vision and image analysis algorithms
 - Teach classes on programming and molecular modeling of polymeric materials
 - Apply for research funding to the Grant Agency of the Czech Republic (GAČR)
 - Supervise two PhD students, and co-supervise other students in the research group
- May-June 2015** **Visiting Professor**, *Department of Materials Science and Engineering, McCormick School of Engineering and Applied Science, Northwestern University*, Evanston, Illinois, USA.
DESCRIPTION:
 - Conduct research on the multi-scale modeling of polymeric systems
- February 2015** **Visiting Professor**, *Department of Civil Engineering, Ecole polytechnique fédérale de Lausanne (EPFL)*, Lausanne, Switzerland.
DESCRIPTION:
 - Conduct research on the CO₂ capture and sequestration (CCS) through geological storage
 - Conduct research on the simulation of supercritical fluid's permeability across porous structures
- October 2011 – April 2017** **Assistant Professor**, *Mansoura University*, Mansoura, Egypt.
DESCRIPTION:
 - Developed the curriculum of three new engineering classes
 - Conducted research on artificial intelligence and image processing for fault detection in textile materials
 - Supervised graduation projects
 - Initiated and organized the Textile Engineering Seminar Series (TESS)
 - Coordinated the department work for the Accreditation by the National Board
- August 2006–August 2011** **Research Assistant**, *Department of Polymer and Fiber Engineering, Auburn University*, Auburn, Alabama, USA.
DESCRIPTION:
 - Conducted research in different projects (described below)
 - Supervised the operation of some lab equipments
- May 2004 – July 2006** **Teaching Assistant**, *Mansoura University*, Mansoura, Egypt.
DESCRIPTION:
 - Prepared the materials for practical assignments
 - Tutored the recitation sessions
 - Graded students assignments
 - Held regular conferences with students and coaching their senior projects
- October 2003–April 2004** **Production Engineer**, *Oriental Weavers International Group*, The Tenth of Ramadan City, Egypt.
DESCRIPTION:
 - Boosted the production of the department under my supervision by about 40
 - Designed the production plans for the spinning mill
 - Supervised plans operation on the plant's floor (supervised four technicians and sixteen labors)
- August 2002–May 2003** **Planning Engineer**, *Aljazzar Co. for knitting and garments*, Mansoura, Egypt.
DESCRIPTION:
 - Planned and managed the material flow in the plant

TECHNICAL SKILLS

Characterization Hands-on training and practical use of materials characterization techniques that include:

- X-rays micro-Computed Tomography (μ -CT)
- Microscopic techniques: OM, SEM, AFM
- Thermal analysis: DSC, TGA, DMA, Rheometry
- Chromatographic techniques: GC/MS, GPC
- Spectroscopic techniques: FTIR, RAMAN, UV-Vis, NMR
- Surface chemistry techniques: AES, EDX, WDX, XPS, AP
- Other physical testing techniques: XRD, DLS, Viscometry, End group analysis, Zeta-potential, Particle size distribution
- Film and Membrane testing: Gas permeability, Pore size distribution
- Mechanical testing for fibers, yarns, fabrics, and composites

Laboratory Practiced polymer synthesis and processing, with:

- Polymerization methods (Ring opening living polymerization)
- Functionalization of single-walled and multi-walled carbon nanotubes
- Tissue engineered scaffold fabrication (e.g. freeze-drying)
- Polymers extrusion, Injection Molding, Compression Molding
- Electrospinning
- Melt and wet spinning

Computer Master and professional levels in:

- Linux operating system
- LaTeX for scientific writing and document processing (*This CV is produced in L^AT_EX*)
- Programming using Visual Basic and C languages
- Matlab with a comprehensive understanding for many of its tool boxes
- Gaussian for ab initio and molecular mechanics simulations
- NAMD and VMD with their Tcl programming language for molecular dynamics simulation
- Materials Studio with its Perl programming language for molecular modeling
- COMSOL Multiphysics for modeling and simulation
- AutoCAD with its AutoLISP programming language for computer aided design
- Statistics and Quality Control software packages such as JMP and SPSS
- Multimedia (photo, audio, and video) editing and processing software
- Blender for 3D drawing and animation
- Computer Aided Design (CAD) and its application in pattern & fashion design and apparel production (e.g. Gerber, Optitex,...etc)

Soft-Skills development and training Participated in the following training courses offered by the "Faculty and Leadership Development Program (FLDP)" at Mansoura University, Egypt:





- Thinking skills
- Methods of scientific research
- Communication skills
- Time management
- Ethics of the scientific research
- Code of professionalism
- Effective presentation
- Strategic planning
- Methods of examination and student's assessment
- Application methodology of Academic Standards for study programs
- Scientific search engines, and classification methodologies of universities
- Skills of statistical analysis for scientific data

Participated in the training programs provided by the "German Academic Exchange Service"(DAAD) at the DAAD Kairo Akademie, Cairo, Egypt:

- Scientific Thinking and Argumentation Skills for Problem Solving
- How To Present Scientific Data

RESEARCH

Research reference data:

- ORCID ID:  0000-0002-7658-6154,
- Scopus ID:  24823759500,
- Researcher ID:  B-5577-2013
- Google Scholar:  Y78SvasAAAAJ

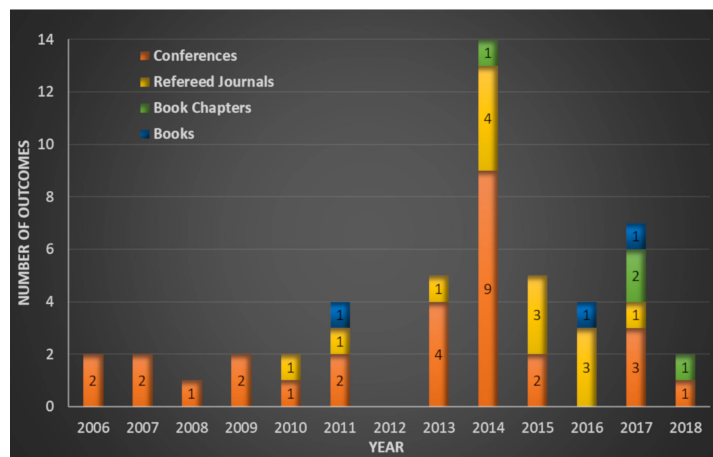
MAIN RESEARCH INTEREST

Research work and interests utilize the following tools:

- Smart and functional polymeric materials
- X-rays Computed Tomography
- Multi-Scale Modeling of Materials
- Artificial Intelligence and Soft-Computing
- Computer Simulation
- Computer Vision and Image Analysis
- Scientific Computation
- Self-sensing Polymer composites
- Polymer Physics and Thermodynamics

PUBLICATIONS

Books	Three (3) books
Book Chapters	Four (4) book chapters
Peer Reviewed Journals	Fourteen (14) papers
Conference	Twenty nine (29) contributions in international conference proceedings



SCHOLARY EXPERIENCE IN RESEARCH PROJECTS

Primary Investigator **micro-structural imaging as a Tool for modelinG fibrOUs materiALS (μ -CT GOALS), a project funded by the Czech Ministry of of Education, Youth and Sports (MŠMT), Technical University of Liberec, Liberec, Czech Republic, 2019-2022 (Budget of \approx 400,000 EUR).**

ACHIEVEMENTS

- The Primary Invistigator (PI) for the project and leading its team of four researchers, two PhD students and one lab engineer.
- Project coordinator with our partner: The Nonwovens Institute (NWI), NC State University, Raleigh, NC, USA.

- Researcher Alliance for Advanced Manufacturing in Central Europe (AMiCE, CE1064)**, a project funded by the European Regional Development Fund (ERDF), Technical University of Liberec, Liberec, Czech Republic, 2017-2020 (Budget of \approx 2,500,000 EUR).
- ACHIEVEMENTS
- Leading activities of the work package for "Innovation 4.0 cooperation hotspot" at the Technical University of Liberec (TUL), which is a member in a consortium of 11 partners from six European countries that include: Czech Republic, Germany, Italy, Poland, Slovakia, and Spain
- Researcher Support of the creation of excellent research and development teams at the Technical University of Liberec (CZ.1.07/2.3.00/30.0065)**, a project funded by the European Social Fund (ESF), Technical University of Liberec, Liberec, Czech Republic, 2013-2015 (Budget of \approx 1,600,000 EUR).
- ACHIEVEMENTS
- Acted as an Assistant Professor and performed activities of: research, teaching, mentoring, and group leadership that are detailed in the relevant sections of this CV
- Primary Investigator An Automated System for Fabric Faults Inspection to Enhance Textile Handicrafts**, a project funded by the Egyptian Academy of Scientific Research., Mansoura University, Mansoura, Egypt, 2012-2013 (Budget of \approx 25,000 USD).
- ACHIEVEMENTS
- Developed an artificially intelligent automated system based on a computer vision system of image and video processing and artificial neural networks for detecting fabric faults and classifying the defects. The system records the faults in a database for quality control purposes and has the ability to find the source(s) of the faults and notify the maintenance personal for fixation
 - Constructed a prototype for a new inspection machine equipped with the developed artificially intelligent inspection system
- Researcher Stress mapping around SWNT and MWNT in polymer-matrix nano-composites**, a project funded by U.S. Department of Commerce., Auburn University, Auburn, AL, USA, 2008-2009 (Budget of \approx 50,000 USD).
- ACHIEVEMENTS
- Functionalized the surface of single-walled (SWNT) and multi-walled (MWNT) carbon nanotubes by introducing functional groups to the surface that consequently covalently bind to the groups of the composite matrix
 - Prepared the composite samples for the project and conducted the physical and mechanical testing on them
- Researcher Efficient biological-chemical protective materials**, a project funded by U.S. Department of Homeland Security and National Textile Center (NTC)., Auburn University, Auburn, AL, USA, 2006-2008 (Budget of \approx 1,000,000 USD).
- ACHIEVEMENTS
- Conducted experimental testing for porosity of micro-porous membranes and their gas permeability using both manometric and volumetric methods
 - Developed a new model for predicting the coupled heat and mass transfer through hygroscopic fibrous materials that studied, for the first time (to the best of my knowledge), the effect of fibers swelling during moisture absorption
 - Conducted ASTM standard measurements for water vapor transmission rate (WVTR) through membranes of different materials and porosities
- Researcher Studying the interaction relations between fibers and yarns**, a project funded by the Egyptian Scientific Research Academy., Mansoura University, Mansoura, Egypt, 2004-2006 (Budget of \approx 200,000 USD).
- ACHIEVEMENTS
- Developed a model to correlate the properties of the yarn to its structural fibers and to study the effect of processing conditions on the product qualities
 - Developed "Spinning Mill Simulator (SMS)" software during this project that utilizes soft computing and artificial intelligence techniques, such as artificial neural networks (ANN), fuzzy logic (FL) simulators and genetic algorithm (GA) optimizer, to predict yarn properties from fiber attributes and to optimize the fiber characteristics to fit the desired yarn properties

Researcher Campaign for developing Egyptian Textile Industry, an initiative funded by the Egyptian Ministry of Trade and Industry., Mansoura University, Mansoura, Egypt, 2004-2005 (Budget of ≈ 700,000 USD).

ACHIEVEMENTS

- Trained engineers and technicians at selected companies (from the public sector as well as some participants from the private sector) on the new techniques in spinning and proper understanding and organizing of the spinning mill
- Implemented my previously (2002) developed software of “Spinning Mill Planning and Organizing (SMPO)” during the training courses. The software constructs spinning and production plans for spinning plants

PROFESSIONAL AFFILIATION

- 2014 - present** World Academy of Science, Engineering and Technology (Scientific and Technical Committee & Editorial Review Board on Materials Science and Engineering)
- 2009 - present** American Chemical Society, Division of Polymeric Materials Science & Engineering
- 2002 - present** Egyptian Engineering Syndicate

REVIEWING ACTIVITIES

Reviewed manuscripts for the following international journals:

- Journal of Polymer Composites
- Journal of Expert Systems With Applications
- Sensors
- Journal of Composite Materials
- Journal of Infrared Physics and Technology
- Textile Research Journal
- Journal of Industrial Textiles
- Journal of Sport Rehabilitation
- Journal of Medical Hypotheses
- ASTM's Journal of Testing and Evaluation
- International Journal of Fuzzy System Applications (IJFSA)
- International Journal of Geo-Information
- Journal of Engineered Fibers and Fabrics
- Vlákna a textil (Journal of Fibres and Textiles, Slovakia)
- Journal of Textile Science & Engineering
- Alexandria Engineering Journal
- ACC Journal (journal of the Academic Coordination Centre, Nisa, Czech Republic)
- Tekstil ve Konfeksiyon (Journal of Textile and Apparel, Turkey)
- Tekstilec (Urednistvo Tekstilec, Slovenia)

CHAIRING SESSIONS

Nanofibers Applications and Related Technologies (NART 2017), Liberec, Czech Republic, September 26, 2017

International Conference on Composites and Nanoengineering (ICCN 2014), Paris, France, April 28, 2014

TEACHING ACTIVITIES

- Course Main Coordinator and Guarantor**
- Mansoura University, Mansoura, Egypt:**
- TXE6114 Textile Materials (undergraduate level)
 - TXE6215 Computer Applications II (undergraduate level)
 - TXE6324 Computer Applications III (undergraduate level)
 - TXE6126 Technical Writing (undergraduate level)
 - TXE6425 Standards and Specifications (undergraduate level)
 - TXE6427 Graduation Project (undergraduate level)
- Technical University of Liberec, Liberec, Czech Republic:**
- TEX Textile Engineering (graduate level)
 - TTE Textile Technology (undergraduate level)
 - Introduction to the multi-scale modeling of polymeric materials (graduate level)
 - Computer programming and applications (graduate level)

- Teaching Assistant**
- Teaching Assistant for the following undergraduate classes at Mansoura University, Mansoura, Egypt:**
- Machine design
 - Engineering statistics
 - Engineering drawing
 - Quality control
 - Computer programming applications
 - Mill planning and organizing
 - Modern methods of yarn spinning
 - Short-staple yarn spinning

QUALITY OF EDUCATION

Curricula and Programs:

- Developed a new postgraduate program on the "*Technical Textiles*" at the Department of Textile Engineering, Faculty of Engineering, Mansoura University (2012-2013).
- Developed the program for the undergraduate studies at the Faculty of Engineering (Mansoura University) to conform with the "Quality of Education Initiative" by the Engineering Sector of the Egyptian Supreme Council of Universities (2016-2017).
- Restructured and enhanced the curricula for the following engineering courses: Textile Materials, Computer Applications, Technical Writing, Standards and Specifications at the Department of Textile Engineering, Mansoura University (2011-2013).
- Tripled the enrollment in two courses (Textile Engineering, and Textile Technology) after restructuring and improving their curricula at the Department of Textile Technologies, Technical University of Liberec (2015-2017).
- Integrated the technology and the new "*online course management system*" to all my taught classes, which followed by my colleagues and had a positive feedback from students.
- Converted most of the students assessment in my courses to the *computer-based online tests* with questions of different difficulty levels that are customized for each student.

Accreditation:

- Coordinated the Textile Engineering program's filing for the Accreditation by the National Board.
- Participated as a member of the Faculty of Engineering (Mansoura University) committee for the Accreditation and Quality Assurance.
- Participated as a member of the Faculty of Engineering (Mansoura University) management team in the: Continuous Improvement and Qualifying for Accreditation Project (CIQAP).

SUPERVISING ACTIVITIES

Undergraduate Supervised the graduation project for the following undergraduate students:

- Hadir Eldeeb
- Mahmoud Mohy
- Tamer Elbagoury
- Khaled Aboseda

UNIVERSITY SERVICE

Participated in the following activities during the work at the Department of Textile Engineering, Faculty of Engineering, Mansoura University, Mansoura, Egypt:

- A member of the Textile Engineering Department Council
- A member of the faculty's committee for the Accreditation and Quality Assurance
- A member of the faculty's management team in the Continuous Improvement and Qualifying for Accreditation Project (CIQAP)
- A member of the examination control committee at the department
- A member of the faculty's library management committee
- Organizing the weekly Textile Series Seminars at our department
- Supervising the department's computer lab
- Supervising students activities at the department's "Scientific Club" and the department's scientific trips

OUTREACH AND COMMUNITY SERVICE

Actively participate in public work and community service, for example:

- Active contributor to workshops on developing the quality of Egyptian higher education
- Member of the organization committee for "The Annual Conference on Supporting the Small/Medium Businesses and Enterprises", Mansoura University, Gamasa/MitGhamer, Egypt, 2005
- Organizer of food-for-hunger campaigns in Egypt and in Auburn, AL
- Community organizer to provide medical services to those in need at Egypt

LIST OF PUBLICATIONS

BOOKS:

- H. Eldeeb, E. Shady, M. Eldessouki, *An Automated System for Fabric Faults Inspection*: Noor Publishing, Germany, 2017, ISBN: 978-3330842625
- M. Eldessouki, *Soft Computing and Computer Vision For Evaluating Fibrous Structures*: LAP LAMBERT Academic Publishing, Germany, 2016, ISBN: 978-3659853548
- M. Eldessouki, *Synthesis and Modeling of Poly(L-lysine) Based Biomaterials*: LAP LAMBERT Academic Publishing, Germany, 2011, ISBN: 978-3846535455

BOOK CHAPTER:

- M. Eldessouki, R. Taiar, T. Ahram, and S. Petrik, "Smart Textiles and Their Role in Monitoring the Body's Fitness and Medical Conditions," in *Human Systems Engineering and Design*, T. Ahram, W. Karwowski, and R. Taiar, Eds. Cham: Springer International Publishing, 2019, pp. 484–490, ISBN: 978-3-030-02053-8, DOI: 10.1007/978-3-030-02053-8_74
- M. Eldessouki, "Computer vision and its application in detecting fabric defects," in *Applications of Computer Vision in Fashion and Textiles*, C. Wong, Ed. Elsevier - Woodhead Publishing, 2017, pp. 61-101, ISBN: 9780081012178, DOI: 10.1016/B978-0-08-101217-8.00004-X
- M. Eldessouki, "Evaluation of fabric pilling as an end use quality and performance measure of the fabric," in *Applications of Computer Vision in Fashion and Textiles*, C. Wong, Ed. Elsevier - Woodhead Publishing, 2017, pp. 147-187, ISBN: 9780081012178, DOI: 10.1016/B978-0-08-101217-8.00007-5
- M. Eldessouki, "Nanomaterials and Textiles," in *Progress in Fibrous Material Science*, 1st ed., D. Kremenakova, J. Militky, and R. Mishra, Eds. Liberec, Czech Republic: Technical University of Liberec, 2014, pp. 57–80, ISBN: 978-8087269404, DOI: 10.13140/2.1.1687.3769

REFEREED JOURNALS:

- M. Eldessouki, T. Aysha, M. Ratičáková, J. Šašková, V. V. T. Padil, M. Ibrahim, and M. Černík, "Structural Parameters of Functional Membranes For Integration in Smart Wearable Materials," *FIBERS & TEXTILES in Eastern Europe*, vol. 25, no. 5(125), pp. 73-78, 2017, DOI: 10.5604/01.3001.0010.4631
- N. Gardan, S. Lignon, A. Schneider, D. Sifaki-Pistolla, M. Eldessouki, and R. Taiar, "Computational simulation and validation of textiles for the high level sport performance: a new numerical methodological approach," *Series on Biomechanics*, vol. 30, no. 2, pp. 17–23, 2016

- M. Eldessouki, Y. Gowayed, and G. Buschle-Diller, "Solution-Based Synthesis of a Four-Arm Star-Shaped Poly(L-lactide)," *Designed Monomers and Polymers*, vol. 19, no. 2, pp. 180–192, 2016, DOI: 10.1080/15685551.2015.1136532
- M. Eldessouki, S. Ibrahim, "Chan-Vese Segmentation Model For Faster And Accurate Evaluation of Yarn Packing Density," *Textile Research Journal*, vol. 86, no. 2, pp. 167–177, 2016, DOI: 10.1177/0040517514557314
- M. Eldessouki and S. Ibrahim, "Computed Tomography Application For investigating The Internal Structure Of Air-Jet Yarns," *Vlakna a Textil*, vol. 2015, no. 1, pp. 9–12, 2015
- M. Eldessouki, S. Ibrahim, and R. Farag, "Dynamic properties of air-jet yarns compared to rotor spinning," *Textile Research Journal*, vol. 85, no. 17, pp. 1827–1837, 2015, DOI: 10.1177/0040517514563726
- M. Eldessouki and M. Hassan, "Adaptive Neuro-Fuzzy System For Quantitative Evaluation of Woven Fabrics' Pilling Resistance," *Expert Systems with Applications*, vol. 42, no. 4, pp. 2098-2113, 2015, DOI:10.1016/j.eswa.2014.10.013
- M. Eldessouki, E. Shady, and Y. Gowayed, "Surface Activation of Carbon Nanotubes Generating a Chemical Interaction in Epoxy Nanocomposite," *International Journal of Chemical, Molecular, Nuclear, Materials and Metallurgical Engineering*, vol. 8, no. 4, pp. 370–374, 2014
- M. Eldessouki, M. Hassan, H. A. Bukhari, and K. Qashqari, "Integrated Computer Vision and Soft Computing System For Classifying The Pilling Resistance of Knitted Fabrics," *FIBERS & TEXTILES in Eastern Europe*, vol. 22, no. 6(108), pp. 106–112, 2014
- M. Eldessouki, S. Ibrahim, and J. Militky, "A Dynamic and Robust Image Processing Based Method for Measuring Yarn Diameter and Its Variation," *Textile Research Journal*, vol. 84, no. 18, pp.1948-1960, 2014, DOI: 10.1177/0040517514530032
- M. Eldessouki, M. Hassan, K. Qashqary, and E. Shady, "The Application of Principal Component Analysis to Boost The Performance of The Automated Fabric Fault Detector And Classifier," *FIBERS & TEXTILES in Eastern Europe*, vol. 22, no. 4(106), pp. 51–57, 2014
- H. Eldeeb, M. Mohy, T. Elbagoury, K. Aboseda, E. Shady, and M. Eldessouki, "An Automated Fabric Fault Detection and Classification System Based on Computer Vision and Soft Computing," *ACC JOURNAL*, vol. XIX, issue A, pp. 16-24, 2013
- M. Eldessouki, G. Buschle-Diller, and Y. Gowayed, "Poly(L-lysine) / microcrystalline cellulose biocomposites for porous scaffolds," *Polymer Composites*, pp. 1937-1944, 2011

- T. Turel, E. Shady, R. Farag, M. Eldessouki, Y. Gowayed, O. Burtovyy, and I. Luzinov, "A probabilistic model for the permeation of gases through microporous membranes," *Journal of the Textile Institute*, vol. 101, pp. 583-594, 2010

PAPERS PUBLISHED IN INTERNATIONAL CONFERENCE PROCEEDINGS:

- M. Eldessouki, R. Taiar, T. Ahram, and S. Petrik, "Smart Textiles and Their Role in Monitoring the Body's Fitness and Medical Conditions", in *the International Conference on Human Systems Engineering and Design (IHSED)*, Remis, France, 25-27th October 2018.
- M. Eldessouki, "Deep Learning Algorithms With an Application in Garments Quality Control," in *the International Engineering Conference and Exhibition*, Riyadh, Saudia Arabia, 4-7th December, 2017
- M. Eldessouki, Stanislav Petrik, "Optical Sensors Based on Structural Fibers," in *the 9th International Conference, NanoCon 2017*, Brno, Czech Republic, 2017
- M. Eldessouki, T. Aysha, V. V. T. Padil, M. Ibrahim, and M. Černík, "Chemosensing Polyacrylonitrile (PAN) Nano-Fibrous Membranes," in *the Nanofibers Applications and Related Technologies – NART*, Liberec, Czech Republic, 2017
- M. Eldessouki, E. Shady, and Y. Gowayed, "Mechanical Properties of Epoxy Nanocomposites," in *the 7th International Conference, NanoCon 2015*, Brno, Czech Republic, 2015
- M. Eldessouki and S. Ibrahim, "The Internal Structure Of Air-Jet Yarns As Observed By Computed Tomography," in *the 4th International Conference of Applied Arts*, Damietta, Egypt, 2015
- M. Eldessouki and S. Ibrahim, "Computed Tomography Application For investigating The Internal Structure Of Air-Jet Yarns," in *the 20th International Conference: Structure and Structural Mechanics of Textiles*, Liberec, Czech Republic, 2014
- M. Eldessouki, E. Shady, and Y. Gowayed, "Effect of Functionalized Carbon Nanotubes Proportions on Mechanical Properties of Epoxy Nanocomposites," in *the 8th Aachen-Dresden International Textile Conference*, Dresden, Germany, 2014
- M. Eldessouki, Y. Gowayed, and O. Acevedo, "Ab-Initio and Density Functional Theory Simulation For Lactide Monomer," in *the 6th International Conference, NanoCon 2014*, Brno, Czech Republic, 2014
- M. Eldessouki and M. Hassan, "A Computer Vision With Soft-Computing Classifier As Integrated System For Fabric Pilling Quantitative Analysis," presented at *the 14th AUTEX World Textile Conference*, Bursa, Turkey, 2014
- M. Eldessouki, S. Ibrahim, and B. Neckář, "A Method For More Accurate Evaluation Of Yarn Packing Density," presented at *the 14th AUTEX World Textile Conference*, Bursa, Turkey, 2014

- M. Eldessouki, G. Buschle-Diller, and Y. Gowayed, "A New Solution-Based Method to Synthesize Branched poly(L-lactide)," in *The Fiber Society, Fibers for Progress*, Liberec, Czech Republic, 2014
- M. Eldessouki, E. Shady, and Y. Gowayed, "Surface Activation of Carbon Nanotubes Generating a Chemical Interaction in Epoxy Nanocomposite," in *ICCN 2014: International Conference on Composites and Nanoengineering*, Paris, France, 2014
- M. Eldessouki, S. Ibrahim, and R. Farag, "Mechanical Properties of Air-Jet Yarns Spun on Different Systems," presented at *the 2014 Beltwide Cotton Conferences*, New Orleans, LA, USA, 2014
- M. Eldessouki, S. Ibrahim, and J. Militky, "Video Processing for Dynamic Evaluation of Yarn Diameter," presented at *the 2014 Beltwide Cotton Conferences*, New Orleans, LA, USA, 2014
- S. Ibrahim, M. Eldessouki, J. Militky, and D. Kremenakova, "Analysis of Air jet yarn diameter," in *12th Asian Textile Conference*, Shanghai, China, 2013
- M. Eldessouki, S. Ibrahim, and J. Militky, "A Robust Image Processing Algorithm for Measuring Yarn Diameter," in *8th International Conference Textile Science*, Liberec, Czech Republic, 2013
- S. Ibrahim, M. Eldessouki, J. Militky, D. Kremenakova, and E. Moučková, "Comparative Study of Yarn Diameter Measured by Means of a High Speed Camera, Uster Evenness Tester, CTT, and QQM," in *8th International Conference Textile Science*, Liberec, Czech Republic, 2013
- H. Eldeeb, M. Mohy, T. Elbagoury, K. Aboseda, E. Shady, and M. Eldessouki, "An Automated Fabric Fault Detection and Classification System Based on Computer Vision and Soft Computing " in *8th International Conference Textile Science*, Liberec, Czech Republic, 2013
- M. Eldessouki, G. Buschle-Diller, and Y. Gowayed, "Polypeptide/cellulose biocomposite for tissue engineering," in *The 241st ACS National Meeting & Exposition*, Anaheim, CA - USA, 2011
- M. Eldessouki, Y. Gowayed, and G. Buschle-Diller, "Biodegradable Interpenetrating Network Structures," in *the 239th ACS National Meeting & Exposition*, San Francisco, CA - USA, 2010
- T. Turel, Y. Gowayed, M. Eldessouki, E. Shady, G. Buschle-Diller, I. Luzinov, and O. Burtovyy, "Modeling of Gas Permeability Through Microporous Membranes," in *the 17th Annual National Textiles Center Forum*, Hilton Head, SC - USA, 2009
- M. Eldessouki, Y. Gowayed, and G. Buschle-Diller, "Effect of Secondary Structure of Polypeptides on Properties of Their Nanocomposites," in *the 237th ACS National Meeting & Exposition*, Salt Lake City, UT - USA, 2009
- T. Turel, E. Shady, M. Eldessouki, G. Buschle-Diller, Y. Gowayed, A. Karaaslan, R. Farag, P. Livant, I. Luzinov, and O. Burtovyy, "Surface Modification of PET Microporous Membranes for Toxins Blocking," in *the 16th Annual National*

Textiles Center Forum, Greenville, SC - USA, 2008 (the Director's Award)

- T. Turel, Y. Gowayed, M. Eldessouki, E. Shady, G. Buschle-Diller, I. Luzinov, and O. Burtovyy, "Gas Transmission Rate Through Microporous Membranes," in *the Fiber Society Annual Meeting and Technical Conference*, Davis, CA - USA, 2007
- T. Turel, E. Shady, Y. Gowayed, G. Buschle-Diller, A. Karaaslan, I. Luzinov, M. Eldessouki, O. Burtovyy, and R. Farag, "Efficient Biological-Chemical Protective Materials," in *the 15th Annual National Textiles Center Forum*, Hilton Head, SC - USA, 2007
- M. Hassan and M. Eldessouki, "Image Analysis Method for Pilling Evaluation," *the 2nd International Material Conference TEXCO*, Ružomberok, Slovak Republic, 2006
- R. A. El-Bealy, F. F. El-Habiby, and M. Eldessouki, "Adopting a Model to Investigate Yarn Evenness and Imperfections Through Raw Material Qualities," *the 5th International Engineering Conference*, Sharm ElSheikh, Egypt, 2006

INVITED SPEAKER:

- M. Eldessouki, "Elements of a Successful Writing for Scientific Research," *Workshop for Ph.D. students of the Faculty of Textile Engineering and the Faculty of Mechanical Engineering, Technical University of Liberec, Pension Bílá voda in Harrachov, Czech Republic, 20-23rd September 2016*
- M. Eldessouki, "A Glance at The Applications of Nanotechnology in Textiles," *The Arab Forum 2011 entitled "Industrial Applications of Nanotechnology", Hilton Dream - Dreamland, 6th of October City – Egypt, 27-29th December 2011*