

CURRICULUM VITAE

Dr. MOSAAD A. FODA

Professor

Mechanical Engineering Department,

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PERSONAL INFORMATION:

NAME: Mosaad Abdu Foda

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ACADEMIC RANK: Professor

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ACADEMIC QUALIFICATIONS:

- 1985 Ph. D. degree in Mechanical Engineering, The Georgia Institute of Technology, Atlanta, Georgia, U.S.A.
- 1984 M.S.M.E degree with emphasis on Dynamics and Control, The Georgia Institute of Technology, Atlanta, Georgia, U.S.A
- 1976 M. Sc. degree in Mechanical Engineering with emphasis on System Engineering, Optimization and Modeling, Cairo University, Cairo, Egypt.
- 1971 B. Sc. degree in Mechanical Engineering, Cairo University, Cairo, Egypt.

TEACHING EXPERIENCE

A-Undergraduate Courses

- | | |
|-----------------------------|-------------------------|
| - Statics | - Dynamics |
| - Strength of Materials | - Automatic Control |
| - System Dynamics | - Mechanical Vibrations |
| - Dynamics of Machinery | -Quality Control |
| - Engineering Mathematics I | - Linear Programming |

B-Graduate Courses

- | | |
|------------------------|------------------------------|
| - Advanced Vibrations | - Optimal Engineering Design |
| - Engineering Acoustic | - Noise Control |
| - Advanced Dynamics | |

C-SHORT COURSES EXPERIENCE

- Vibration Analysis and Diagnosis
- Noise Control

PUBLICATIONS:

- 1- [Foda, M. A.](#), "Application of Computer Simulation to Maintenance Problems",
M. Sc. Thesis, Cairo University, Cairo, Egypt, 1976.

- 2- Hassan, M. F. and Foda, M. A., "Assessment of maintenance policies by computer simulation", *The Thirteenth Annual Conference in Statistics, Computer Science and Operations Research I.S.S.R* 13, 1-13, 1977.
- 3- Foda, M. A. and Ginsberg, J. H., "Analysis of nonlinear harmonic generation for arbitrary dual frequency transducer excitation", *Journal of Acoust. Soc. Am.* 75, S 92, 1984.
- 4- Foda, M. A. and Ginsberg, J. H., "Finite amplitude acoustic waves generated by a baffled dual frequency transducer", *Journal of Acoust. Soc. Am.* 78, S 4, 1985.
- 5- Foda, M. A., "Propagation and interaction of finite amplitude waves generated by a dual frequency transducer", *Ph. D. Thesis*, Georgia Institute of Technology, Atlanta, Georgia, 1985.
- 6- Foda, M. A. and Ginsberg, J. H., "Relationship between near and far field effects in second harmonic generation in the piston beam", *Journal of Acoust. Soc. Am.* 79, S 31-32, 1986.
- 7- Ginsberg, J. H., Maio, H. C. and Foda, M. A., "Diffraction and nonlinear distortion in sound beam as inter-acting wave phenomena", *Journal of Acoust. Soc. Am.* 81, S 25, 1987.
- 8- Foda, M. A. and Ginsberg, J. H., "Finite amplitude effects in dual frequency acoustic beam", *Journal of Acoust. Soc. Am.* 85, 1857-1871, 1989.
- 9- Foda, M. A., "Analysis of nonlinear propagation of waves induced by a vibrating flat plate", *Acustica* 72, 118-130, 1990.
- 10- Foda, M. A. and Heckl, M., "Optimization techniques for noise control problems", *Fortschritte Der Akustik DAGA '90*, 485-488, 1990.
- 11- Foda, M. A., "Finite amplitude waves radiating from a non-resonant vibrating plate", *Physical Acoustics: Fundamentals and Applications*, Ed. by O. Leroy and M. Breazeals, Plenum Pub. Co., New York, 319-325, 1991.

- 12- Foda, M. A., "Nonlinear propagation of waves induced by a vibrating planar boundary", *Acustica* 73, 254-263, 1991.
- 13- Foda, M. A., "Uniformly accurate expressions for sound waves induced by a vibrating planar boundary", *Acustica* 74, 129-233, 1991.
- 14- Abduljabbar, Z., Foda, M., A. and El-Madany, M. M., "Isolation quality versus attitude control in the design of intelligent electronic suspensions", *Proceedings of the Eighth International Conference for Mechanical Power Engineering*, Alexandria University, Egypt, 251-272, 1993.
- 15- Foda, M. A., "Sum and difference frequency generation in sound radiation from a vibrating strip source", *Journal of Acoust. Soc. Japan (E)* 15, 219-231, 1994.
- 16- Foda, M. A., "On nonlinear vibrations of a beam with pinned ends", *The King Saud University Journal* Vol. 7, Eng. Sci. (1), 93-107, 1995.
- 17- Foda, M. A., "Analysis of large amplitude free vibrations of beams using the KBM method", *Journal of Eng. and Appl. Sci.*, Faculty of Eng., Cairo Univ., Vol. 42, 125-138, 1995.
- 18- Foda, M. A., "Nonlinear propagation and distortion of two plane waves interacting at arbitrary angles", *Acustica*, 81, 213-219, 1995.
- 19- Foda, M. A., "Distortion and dispersion of nonlinear waves in a rectangular duct due to a bi-frequency excitation", *Acustica*, 82, 411-422, 1996.
- 20- Foda, M. A., "Harmonic components of finite amplitude sound waves reflected at a surface", *Archives of Acoustics*, 21, 29-36, 1996.
- 21- Foda, M. A., "Axial nonlinear field of a vibrating circular transducer", *Archives of Acoustics*, 22, 59-75, 1997.
- 22- Foda, M. A., "Noise pollution - how it affects us", The Ajman University College of Science and Technology, U. A. E.

- 23- Foda, M. A., "Analysis of nonlinear propagation and interactions of higher order modes in a circular waveguide", *ACTA Acustica*, 84, 66-77, 1998.
- 24- Foda, M. A. and Abduljabbar, Z., "Dynamic Green function formulation of the response of a beam structure to a moving mass", *Journal of Sound and Vibration*, 210, 295-306, 1998.
- 25- Foda, M. A., "Influence of shear deformation and rotary inertia on nonlinear free vibration of a beam with pinned ends", *Computer and Structure*, 71, 663-670, 1999.
- 26- Abduljabbar, Z. and Foda, M. A., "Response of a Timoshenko beam with general boundary conditions to a moving mass", *Current Advances in Mechanical and Production Seventh Cairo University International MDP Conference*, Cairo, Feb.15-17, 59-67, 2000.
- 27- Alsaif, K. and Foda, M. A., "Vibration suppression of a beam structure by intermediate masses and springs", *Journal of Sound and Vibration*, 254, 629-654, 2002.
- 28- El-Madany, M. M., Abduljabbar, Z, and Foda, M. A., "Optimal preview control of active vehicle suspension system", *Journal of Vibration and Control*, 9, 1377-1400, 2003.
- 29- Foda, M. A., "Optimization in the context of quieting punch press noise", *Proceeding of the 2nd IIEC-2004*, December 19-21, Riyadh, Kingdom of Saudi Arabia, 2004.
- 30- Foda, M. A. and Albassam, B. A., "Vibration confinement in a general beam structure during harmonic excitations", *Journal of Sound and Vibration*, 295, 491-517, 2006.
- 31- Foda, M. A. and Alsaif, K. A., "Control of lateral and angular vibrations at desired locations along vibrating beams", *Journal of Vibration and control*, 15(11),1649-1678, 2009.
- 32- Alsaif, K.A., Aldakkan, K. and Foda, M. A., "Vibration suppression of a structure using a liquid column ball damper ", *Canadian Journal on Environment, Construction and Civil Engineering* Vol. 1(2), 2010.

- 33- Foda, M. A., Almajid, A. A. and ElMadany, M. M., "Vibration suppression of composite laminated beams using distributed piezoelectric patches", *Journal of Smart Materials and Structures* 19 (11), 115018-115026, 2010.
- 34- Foda, M. A., ElMadany, M., Alsaif, K. A. and Aguib, A., "Noise mapping of Riyadh city using measured noise and GPS data", *Internoise* 2010, 13-16 June , Lisbon, Portugal, 2010.
- 35- Almajid, A. A., Foda, M. A., ElMadany, M. M., "Vibration confinement in flexible structures using piezoelectric patches", *Fourth International Conference on advanced Computational Engineering and experimenting*, 8-9 July , Paris, France, 2010.
- 36- Alsaif, K. A. and Foda, M. A., "Suppression of steady state vibration in plates using attachments", *The tenth international Conference on Computational Structure Technology*, 14-17 September, Valencia, Spain, 2010.
- 37- Foda, M. A. and khdeir A. A., "Vibration suppression of symmetric cross-ply laminated composite beam", *Mechanics of Advanced Materials and Structures Journal*, 18, 301-318, 2011.
- 38- Alsaif, K. A. and Foda, M. A., "Suppression of plate vibration using attachments ", *International Journal of Stability and Dynamics* , 11 (3) 535-562, 2011
- 39- Foda, M. A., "Vibration control and suppression of an axially moving string", *Journal of Vibration and control*, 18(1), 58-75, 2011.
- 40- Foda, M. A., "Vibration control of an axially moving double-string system", *International Conference on Innovative Technologies*, (IN-TECH 2011) Bratislava, Slovak Republic, 1-5 September, 2011.
- 41- Alsaif, K. A., Foda, M. A., "Micro-vibrations control for remote sensing leo satellite with flexible appendages", *Design modeling and experiments of advanced structures and systems*, DeMEASS IV, Urspelt, Luxembourg , 27-30 March 2011, P7.
- 42-Al-Saif, K.A., Aldakkan, K.A. and Foda, M. A., "Modified liquid column damper for vibration control of structures", *International Journal of Mechanical Sciences* 53, 505- 512, 2011.
- 43- Alsaif, K. A., Foda, M. A. and Khalid Aldakkan, "Suppression of micro-vibrations of Low-Earth-Orbit satellites with flexible appendages", *Journal of Aerospace Engineering* 25, 117-124, 2012.
- 44- Foda, M. A. and Alsaif, K. A., "Vibration mitigation of composite laminated satellite solar panels using distributed piezoelectric patches", *Smart Structures and Systems*, Vol. 10, 111-130, 2012.

- 45- ElMadany, M., Alsaif, K., Albedah, A., and Foda, M. A, "Active control of micro-vibration of a satellite with flexible appendages" , IRONIX Conference, 2012
- 46-Alsaif, K.A., Albedah, A., BenYahia, F. and Foda, M. A., "Suppression of flutter of an airfoil-flap wing using active control", *International Conference on Innovative Technologies*, (IN-TECH 2012) Rijeka, Croatia, 26-29 September, 2012.
- 47-Foda, M., "Steady State Vibration analysis and mitigation of single-walled carbon nanotubes based on nonlocal Timoshenko beam theory", *Journal of Computational Materials Science* 71-38-46, 2013.
- 48-Foda, M. A., "Transverse vibration control of translating visco-elastically connected double-string-like continua", *Journal of Vibration and control*, 19(4),1316-1331, 2013.
- 49- Foda, M. A., Alsaif, K. A., ElMadany, M. M., and Aguib, A. S., "The use of real measurements and GPS data for noise mapping of Riyadh city", *World Academy of Science, Engineering and Technology* 78 2013, 20-21 June, Toronto, Canada, pp.2034-2038.
- 50 Foda, M. A, Alsaif, K.A. and Albedah, A., "Vibration quenching of nanostructures carrying nanomasses based on non-local continuum mechanics", *World Academy of Science, Engineering and Technology* 84 2013, 16-17 December, Melbourne, Australia, pp.1243-1246.
- 51-Alsiaf, K.A., Foda, M., Fellouh, H. "analytical and experimental aeroelastic wing flutter analysis and suppression" , *International Journal of Stability and Dynamics* (sent for publication).
- 52-Foda, M. A., "Steady state vibration analysis and mitigation of elastically connected double-carbon nanotube system based on nonlocal Timoshenko beam theory", *Journal of Computational Materials Science* (sent for publication).
- 53-Foda, M. A., "Nonlocal steady state vibration analysis and suppression of embedded double-carbon nanotube system", *Physica E: Low-dimensional Systems and Nanostructures* (sent for publication).
- 54- Foda. M. A., " Steady state vibration analysis and suppression of double-carbon nanotube system embedded in Winkler-Pasternak matrix", (in preparation).
- 55- Foda. M. A., "Therrmo-mechanical vibration analysis and mitigation of a single carbon nanotube embedded in an elastic foundation", (in preparation).

GRANTS (FUNDED PROJECTS)

A- Completed Projects (with Colleagues)

- 1- Dynamic interaction of Timoshenko beams and moving mass. Project No. 10/421 KSU, College of Engineering Research Center, (with Dr. Z. Abduljabbar).
- 2- Vibration suppression of Timoshenko beam structure by intermediate masses and springs, Project No. 2/424, KSU, College of Engineering Research Center.
- 3- Control approach for imposing nodes at desired locations of a vibrating structure, Project No 9/426, KSU, College of Engineering Research Center, (with Dr. B. A. Albassam).
- 4- Inducing nodes with zero slopes at arbitrary locations of a harmonically vibrating beam, Project No 65/427, KSU, College of Engineering Research Center
- 5- Noise mapping of Riyadh City-Area enclosed by Ring Roads, KACST Project No. AR 26-17 (amount of Funds: **SR 814,000**), (Principal investigator).
- 6- Vibration suppression of symmetric cross-ply laminated beams, Project No 30/428 SABIC, College of Engineering Research Center, (with Dr. A. Khdeir).
- 7- Suppression of plate vibration using attachments, Project No 65/428, SABIC, College of Engineering Research Center, (with Dr. K. Alsaif).
- 8- Dynamic analysis and vibration suppression of axially moving string supported by eyelets, Project No 15/429, SABIC, College of Engineering Research Center.
- 9- Modeling and control of smart composite laminates structures with distributed PZT sensors and actuators, Project#21 funded by the Center of Excellence for Research in Engineering Materials CEREM (amount of Funds: **SR 187,000**),(with Dr. M. ElMadany).
- 10 - Noise mapping of Riyadh City-Area outside Ring Roads, KACST Project No. AR 29-39 (amount of Funds: **SR 877,000**), (Principal Investigator).

- 11- Impact of Micro vibrations on remote sensing satellites and mitigation techniques, KACST Project No. 08-SPA 237-2 (amount of Funds: **SR 1,379,400**), (Co-Investigator).
- 12-Vibration localization of multi-span Timoshenko beam carrying multiple translational and rotational oscillators, College of Engineering Research Center, Project No 15016, (Principal Investigator).
- 13 - Noise mapping of Riyadh City-Area outside Ring Roads, KACST Project No. AR 29-39 (amount of Funds: **SR 877,000**), (Principal Investigator).
- 14- Design guidelines for the flutter performance of High Altitude Long Endurance Aircraft (HALE) Wings, NPST: 08-SPA322-02 (amount of funds: **SR 1,592,00**) (with Colleagues)

B- Current on going Projects (with Colleagues)

- 15- Development of dynamic computerized noise pollution maps for Riyadh City, NPST: 10-ENV 1182-2 (amount of funds: **SR 1,873,000**) (Principal Investigator).
- 16- Advanced Thermal Control of Micro-satellites using Components with Variable Thermal Properties (amount of funds: **SR 1,904,600**) (with Dr. K.Alsaif)

D- National Research and KASCT Projects under Reviewing

- 1- Noise mapping of King Khaled International Airport (amount of requested funds: **SR 1,800,000**).
- 2- Steady state analysis vibration analysis and mitigation of nanostructures based on nonlocal elasticity theory (amount of requested funds: **SR 404,000**).
- 3- Experimental and analytical investigation of unsteady three dimensional flow interactions with high aspect ratio airfoils (amount of requested funds: **SR 1,793,000**).
- 4- Development of continuous monitoring system for noise pollution for Riyadh City (This project was submitted to Riyadh Development Authority, amount of requested funds: **SR 6,397,000**).

POSTIONS HELD:

11/97- present	Professor, Mechanical Engineering Department, King Saud University, Riyadh.
11/91-11/97	Associate Professor, Mechanical Engineering Department, King Saud University, Riyadh.
9/86-11/91	Assistant Professor, Department of Industrial Production Engineering, Mansoura University, Mansoura, Egypt. Courses Taught: Theory of Machines and Mechanisms, Machine Vibrations, Advanced Dynamics, Computer Applications and Automatic Control.
9/85- 9/86	Post doctoral and Instructor, School of Mechanical Engineering, The Georgia Institute of Technology, Atlanta, Georgia, U.S.A. Courses Taught: ME 7122 Advanced Vibrations, ME 3144 Dynamic Modeling and Analysis ME 3113 Kinematics and Dynamics of Linkages.
9/81-9/85	Research Assistant, School of Mechanical Engineering, The Georgia Institute of Technology, Atlanta, Georgia, U.S.A. (including six months for preparation of the solution manual to the Statics and Dynamics text book by J. H. Ginsberg and J. Genin; Weily-Interscience, 1984.
10/79-9/80	Teaching Assistant, Department of Systems Engineering, The George Washington University, Washington, D. C., U.S.A.
10/77-10/79	Assistant Lecturer, Mansoura University, College of Engineering. Specialized Area: Automatic Control, Theory of Machines and Mechanisms, Vibrations and Machine Design
10/76-10/77	Teaching Assistant in the area of Engineering Mechanics, The Technical Military College, Cairo, Egypt.

10/72-10/76 Demonstrator for more than ten courses in the various fields of Mechanical Engineering, Mechanical Engineering Department, College of Engineering, Menofia University, Shebin El-Kom, Egypt.

SCHOLARSHIPS AND AWARDS:

Alexander von Humboldt Scholarship: The Institute für Technische Akustik, Technische Universität Berlin, West Germany (1/1/1989-1/9/1990), (1/7/1991-1/9/1991), (1/7/1993-1/9/1993).

Fulbright Scholarship: Department of Systems Engineering, The George Washington University, Washington, D. C. (1/10/1979 - 1/10/1980).

Teaching and research Assistantships in the School of Mechanical Engineering and the School of Mathematics, The Georgia Institute of Technology, Atlanta, Georgia during the Ph. D. study period (1981-1985).

The award and Scholarship of Cairo University for outstanding students during the five-years of the B.Sc. Study period (1/9/1966 - 30/6/1971).

PARTICIPATION IN CONFERENCES AND SYMPOSIA:

- 1- The Thirteenth Annual Conference in Statistics, Computer Science, and Operation Research, I.S.S.R Cairo University, Giza, December 1977.
- 2- 107th Meeting of the Acoustical Society of America, Norfolk, Virginia, May 1984.
- 3- 110th Meeting of the Acoustical Society of America, Nashville, Tennessee, November 1985.
- 4- 111th Meeting of the Acoustical Society of America, Cleveland, Ohio, November 1986.
- 5- A workshop on Rolling Noise Generation, Der Technische Universität Berlin, Germany, October 1989.

- 6- *Fortschritte Der Akustik DAGA '90*, Vienna, Austria, April 1990.
- 7- International Symposium on Physical Acoustics, Katholieke Universiteit Leuven Campus Kortrijk, Belgium, June 1990.
- 8- 2nd IIEC-2004, December 19-21, Riyadh, Kingdom of Saudi Arabia.
- 9- *Inter-noise* 2010, 13-16 June 2010, Lisbon, Portugal .
- 10- *The tenth international Conference on Computational Structure Technology*, 14-17 September 2010, Valencia, Spain.
- 11-*The International Conference on Innovative Technologies*, (IN-TECH 2011) Bratislava, Slovak Republic, 1-5 September, 2011.
- 12-*The International Conference on Innovative Technologies*, (IN-TECH 2012) Rijeka, Croatia, 26-29 September, 2012.
- 13- *Inter-noise* 2012, 19-22 August 2012, New York , USA.
14. WAST, Toronto, Canada, June 20-21, 2013.

INSTITUTIONAL SERVICE ACTIVITIES:

1. Member, Mechanical Engineering Department Council (1990 – Present)
2. Member of the Committee for writing a number of Saudi Standards on Various.
3. Coordinator of B.Sc. Project and Graduation students Committee (1990-Present).
4. Referee for several research proposals and Final Reports for King Abdulaziz University Research Council, Jeddah and King Abdulaziz City for science and Technology, Riyadh.
5. Academic Committee for Mechanical Engineering Department.
6. Coordinator of student's absence committee
7. Editor of Journal of vibration and wave Propagation (Columbia International Publishing).

PROFESSIONAL AFFILIATIONS:

1. Member of the Acoustical Society of America.

2. Member of the Engineering Chamber of Egypt, Mechanical Engineering Section.

3. Former member of the American Society of Mechanical Engineers.

Dr. Foda is broadly interested in Mechanical Engineering Sciences; research (theoretical and experimental) and teaching in the area of Engineering Acoustics, Wave Propagation (both Linear and Nonlinear), Noise Control, Composite Materials, Theory of Machines, Machine Vibrations, Modeling of Physical Systems, Satellite Dynamics, Dynamics and Control and Nanoscience.