



Fayoum University
Faculty of Engineering
Industrial Engineering Department

CURRICULUM VITAE
OF

Dr. MOHAMMAD ABDEL-KARIM
Associate Professor

Industrial Engineering Department
Faculty of Engineering,
Fayoum University,
Egypt

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(1) PERSONAL DATA

FULL NAME: Mohammad Abdel-Karim Abdel-Hamid Aly
PROFESSIONAL NAME: Mohammad Abdel-Karim
DATE OF BIRTH: November 24th, 1965, Maadi, Cairo, Egypt
MARITAL STATUS: Married with three Children
PHONE No.: (02)37316168
E-mail: karim12004@yahoo.com

ACADEMIC QUALIFICATIONS:

- B. Sc. Degree in Mechanical Engineering, 1988,
Cairo University, EGYPT.
General Grade: **DISTINCTION** (87.2 %)
Senior Project Grade: **DISTINCTION**

- M. Sc. Degree in Mechanical Engineering, 1992,
Solid Mechanics Group, Cairo University, **EGYPT**.
Thesis Title: "Prediction of Inelastic Behaviour Under Non-
Proportional Loading Histories Using Various Plastic or
Viscoplastic Theories"

- The Degree of Doctor of Engineering, March 25, 1999,
Department of Mechanical Engineering,
Nagoya University, **JAPAN**.
Thesis Title: "Constitutive Modeling of Cyclic Plasticity with
Emphasis on Ratchetting"

EMPLOYMENT

1988-1992	Research Assistant, Egyptian Petroleum Research Institute
1992-April, 1999	Assistant Researcher, Egyptian Petroleum Research Institute
April, 99-June, 99	Researcher, Egyptian Petroleum Research Institute
July, 1999 –Nov. 2005	Assistant Professor, Industrial Engineering Department, Cairo University, Fayoum Branch, EGYPT
Nov., 2005 up to Now	Associate Professor, Industrial Engineering Department, Fayoum University, Fayoum, Egypt
Jan., 2007 up to Now	Department Chair, Industrial Engineering Department, Fayoum University, Fayoum, Egypt

PRACTICAL EXPERIENCES:

- Member of investigation team for Evaluation and Improvement of Production Lines of Military Factory No. 360.
- Member of Investigation team for calculating the Analysis of Thermal Stresses in Cathodic Cells for Misr Aluminum Company, Naga Hammadi, Egypt. CAPSCU, Faculty of Engineering, Cairo University
- Member of Investigation team for preparing a Technical Report in Stress Analysis of a Circular Cast Iron Cover for El-Nasr Casting Company, Tanash, Giza. CAPSCU, Faculty of Engineering, Cairo University, June 2000
- Member of Investigation team for Design of Packing Machine for El-Sharkia Company for Tobacco (EASTERN COMPANY). Tribology and Spare Parts Center, Faculty of Engineering, Cairo University, Egypt

- Member of Investigation team for Design and Calculation of Dust Suction System for El-Sharkia Company for Tobacco (EASTERN COMPANY). Tribology and Spare Parts Center, Faculty of Engineering, Cairo University, Egypt

ADMINISTRATIVE EXPERIENCES:

- Member of Faculty Committee, Faculty of Engineering, Fayoum University
- Member of committee for Education and Students affairs, Faculty of Engineering, Fayoum University
- Member of committee for Post-Graduate Studies and Research, Faculty of Engineering, Fayoum University
- Helping in the preparation of the constitution of Industrial Engineering Department , Fayoum University
- Helping in preparation of Undergraduate and Post Graduate Courses, Industrial Engineering Department , Fayoum University
- Helping in preparation of different laboratories in Industrial Engineering Department
- Member of various technical committees from Faculty of Engineering for the preparation of all Technical Characteristics for equipment of laboratories of Solid Mechanics, Material Science, Work Shop, Welding Shop and Computer Labs.
- General supervisor for the laboratories of the Industrial Engineering Department
- Head, Solid Mechanics and Material Science Laboratory
- Preparation of Academic Subject Study Table for each term

GENERAL EXPERIENCES

- Dealing with Mechanical Test Machines.
- Good experience with MTS Tension-Torsion M/c
- Ability of using various soft-wares for Word Processing and Graphics and Internet Facilities in Teaching and Research.

OTHER EXPERIENCES

Reviewed many papers for International Journals such as:

- International Journal of Plasticity
- International Journal of Pressure Vessels and Piping
- International Journal of Fatigue

LANGUAGES

Language	Excellent	V. Good	Good
Arabic	X		
English		X	
Japanese			X

SUPERVISED THESIS

"Numerical and Experimental Investigations of Shakedown Loads for Structures with Severe Geometrical Discontinuities" By Mohammad S. Attia, M aster Thesis, Cairo University, June 2000

(2) PROFESSIONAL HISTORY

1988-1992	Research Assistant, Egyptian Petroleum Research Institute
1989-1992	Graduate Student, Department of Mechanical Design and Production, Cairo University, Egypt
1992-1994	Assistant Researcher, Egyptian Petroleum Research Institute
1993-1994	Graduate Student, Department of Mechanical Design and Production, Cairo University, Egypt
1993-1994	Teaching Machine Drawing, Department of Mechanical Design and Production, Cairo University, Egypt
Summer 1993	Worked on the Analysis of Thermal Stresses in Cathodic Cells for Misr Aluminum Company, Naga Hammadi, Egypt
April, 95-March, 96	Research Student, Department of Mechanical Engineering, Nagoya University, JAPAN
April, 96-March, 99	Doctor Course Student, Department of Mechanical Engineering, Nagoya University, JAPAN
April, 99-June, 99	Researcher, Egyptian Petroleum Research Institute
July, 1999 up to Now	Assistant Professor, Industrial Engineering Department, Cairo University, Fayoum Branch, EGYPT
2002-2003	Teaching Machine Drawing, Department of Mechanical Design and Production, Cairo University, Egypt
2002-2003	Teaching Machine Design, Department of Mechanical Design and Production, Cairo University, Egypt
Nov. 2004 – Oct. 2005	Visiting Research Assistant Professor, University of Maryland-Baltimore County (UMBC), USA

Spring, 2005	Teaching Applied Elasticity, University of Maryland-Baltimore County (UMBC), USA
Summer, 2005	Teaching Mechanics, University of Maryland-Baltimore County (UMBC), USA
Nov. 2005 up to Now	Associate Professor, Industrial Engineering Department, Fayoum University, Fayoum, Egypt
Jan., 2007 up to Now	Department Chair, Industrial Engineering Department, Fayoum University, Fayoum, Egypt

(3) TEACHING AND RESEARCH

- Teaching the following Courses

Solid Mechanics, Mechanics of Deformable Solids, Stress Analysis, Structure, Elasticity, Plasticity, Fracture Mechanics, Failure Analysis, Metal Forming, Material Science, Strength of Materials, Machine Drawing, Computer Aided Drawing, Machine Design, Computer Aided Design, Workshop Technology, Mechanics (Statics and Dynamics), and Some of Industrial Engineering Subjects.

- Conducting Research in the Following Areas

Constitutive Modeling, Ratchetting, Inelasticity, Visco-plasticity, Shakedown, Pressure Vessels, Fatigue, Creep, Finite Elements, and Fracture Mechanics.

TEACHING EXPERIENCES

Course	University
Production Technology	Fayoum University, Egypt
Material and its Tests	Fayoum University, Egypt
Material Science	Fayoum University, Egypt
Mechanics	Fayoum University, Egypt
Machine Drawing	Fayoum University, Egypt
Machine Design (A&B)	Fayoum University, Egypt
Stress Analysis	Fayoum University, Egypt
Computer Aided Drawing	Fayoum University, Egypt
Machine Drawing	Cairo University, Egypt
Machine Design	Cairo University, Egypt
Applied Elasticity (Post Graduate)	University of Maryland-Baltimore County (UMBC), USA
Mechanics (Dynamics)	University of Maryland-Baltimore County (UMBC), USA

(4) PUBLICATIONS

- 1- Eleich, A.M., Megahed, M.M., Abdel-Kader, M.S., Ali-Eldin, S.S. and **Abdel-Karim, M.**, “On the Initial and Deformation-Induced Anisotropic, Multiaxial Ratchetting and Supplementary Hardening of AISI 316 Stainless Steel at Room Temperature”. The International Seminar on Multiaxial Plasticity, France, 1-4 September, 1992.
- 2- Kobayashi, M., **Abdel-Karim, M.** and Ohno, N., “Interpretation of the OW Model As a Multi-Linear Model and Numerical Integration Method”. Proceedings of the 34th Symposium on Strength of Materials at High Temperatures, Kawasaki, Japan, pp. 114-118, 1996.
- 3- Ohno, N., **Abdel-Karim, M.**, Kobayashi, M. and Igari, T., “Characteristics in Strain-Controlled Ratchetting Deformation of 316FR Steel”. International Symposium on Plasticity and its Current Applications, Juneau, Alaska, 1997.
- 4- Ohno, N., **Abdel-Karim, M.**, Kobayashi, M. and Igari, T., “Strain Hardening of 316FR Steel in Strain-Controlled Ratchetting Deformation”. Transaction on the 14th International Conference on Structural Mechanics in Reactor Technology SMiRT, (Ed. Bu. M. Livolant), Lyon, France, Vol. 9, pp. 237-244, 1997.
- 5- Ohno, N., **Abdel-Karim, M.**, Kobayashi, M. and Igari, T., “Ratchetting Characteristics of 316FR Steel in Strain-Controlled Ratchetting Deformation”. Transaction of the Japan Society of Mechanical Engineers, Series A, Vol., 63, No. 609, pp. 945-953, 1997 (In Japanese).
- 6- Ohno, N., **Abdel-Karim, M.**, Kobayashi, M. and Igari, T., “Ratchetting Characteristics of 316FR Steel at High Temperature, Part I: Strain-Controlled Ratchetting Experiments and Simulations”. International Journal of Plasticity, Vol. 14, Nos. 4-5, pp. 355-372, 1998.
- 7- **Abdel-Karim, M.**, Ohno, N. and Mizuno, M., “Experiments and Simulations of Uniaxial Ratchetting of 316FR Steel at Room Temperature”. Pressure Vessel and Piping Codes and Standard, ASME/JSME, San Diego, pp. 283-289, 1998.
- 8- Mizuno, M. Mima, Y., **Abdel-Karim, M.**, and Ohno, N., “Uniaxial Ratchetting Characteristics of 316FR Steel at Room Temperature

- (1st Report, Experiments)”. Transaction of the Japan Society of Mechanical Engineers, Series A, Vol. 64, No. 627, pp. 139-144, 1998 (In Japanese).
- 9- **Abdel-Karim, M.**, and Ohno, N., “Uniaxial Ratchetting characteristics of 316FR Steel at Room Temperature (2nd Report, Simulation Based on Constitutive Models)”. Transaction of the Japan Society of Mechanical Engineers, Series A, Vol. 64, No. 628, pp. 101-107, 1998 (In Japanese).
 - 10- **Abdel-Karim, M.**, Mizuno, M. and Ohno, N., “Simulation of Cyclic Nonproportional Experiments of IN738 at 850 °C”. Proceedings of Third Sino-Japan Bilateral Symposium on High Temperature Strength of Materials, Nanjing, China, pp. 180-187, 1998.
 - 11- **Abdel-Karim, M.**, Mizuno, M. and Ohno, N., “Simulation of Nonproportional Cyclic Experiments of IN738 at 850 °C”. Acta Metallurgica Sinica (English Letters), Vol. 12, No. 1, pp. 1-8, 1999.
 - 12- **Abdel-Karim, M.**, Mizuno, M. and Ohno, N., “Simulation of Nonproportional Cyclic Experiments of IN738 at High Temperature”. Journal of Materials Science, Japan, Vol. 48, No. 2, pp. 104-109, 1999.
 - 13- Ohno, N., **Abdel-Karim, M.**, and Mizuno, M., “Experiments and Constitutive Modeling For Uniaxial Ratchetting of 316FR Steel at Room Temperature”. Transaction on the 15th International Conference on Structural Mechanics in Reactor Technology SMiRT, Soul, Korea, 1999.
 - 14- Mizuno, M. Mima, Y., **Abdel-Karim, M.**, Ohno, N., “Uniaxial Ratchetting of 316FR Steel at Room Temperature, Part I-Experiments”. ASME, Journal of Engineering Materials and Technology, Vol. 122, No. 1, PP 29-34, 2000.
 - 15- Ohno, N., and **Abdel-Karim, M.**, “Uniaxial Ratchetting of 316FR Steel at Room Temperature, Part II-Constitutive Modeling and Simulations”. ASME, Journal of Engineering Materials and Technology, Vol. 122, No. 1, PP 35-41, 2000.
 - 16- **Abdel-Karim, M.** and Ohno, N., “Kinematic Hardening Model Suitable for Ratchetting with Steady State”. International Journal of Plasticity, Vol. 16, pp. 225-240, 2000.

- 17- Attia, M.S., **Abdel-Karim, M.** and Megahed, M., “Shakedown Analysis of an Infinite Plate with a Central Hole under Biaxial Tension”. Proceedings of the Seventh Cairo University International Conference MDP-7 (Ed. Hassan M.F. and Megahed, S.M.) Cairo, Egypt, pp. 185-191, Feb. 15-17, 2000.
- 18- Attia, M.S., **Abdel-Karim, M.** and Megahed, M., “Shakedown Analysis of a Finite Plate with Single Edge Notch Under Uniaxial Tension”. ASME, Reliability, Stress Analysis and Failure Prevention Conference (RSAFP), Maryland, Sept. 9-11, 2000.
- 19- Megahed, M. **Abdel-Karim, M.** and Attia, M.S., “Numerical & Experimental Investigations on Shakedown Loads for Structures with Severe Geometrical Discontinuities. PVP-Vol. 430, Pressure Vessel and Piping Design and Analysis (Ed. D.H. Martens), Atlanta, July 22-36, pp. 59-66, 2001.
- 20- **Abdel-Karim, M.**, “Theoretical Investigation on Non-Isothermal Cyclic Plasticity”. Journal of Engineering and Applied Science, Faculty of Engineering, Cairo University, Vol. 50 No. 6, pp. 1145-1163, 2003.
- 21- **Abdel-Karim, M.**, “Verification of a Numerical Integration Method Based On Multiaxial Loading”. Proceedings of the Eights Cairo University International Conference MDP-8 (Ed. Metwalli, S. Mokhtar, M.O.A and El-Danaf, I.) Cairo, Egypt, Jan. 4-6, 2004.
- 22- **Abdel-Karim, M.**, “Evaluation of the Armstrong Frederick Type Plasticity Theories under Non-Proportional Loading”. Proceedings of the Eights Cairo University International Conference MDP-8 (Ed. Metwalli, S. Mokhtar, M.O.A and El-Danaf, I.) Cairo, Egypt, Jan, 4-6, 2004.
- 23- **Abdel-Karim, M.**, “Influence of Yield Surface Distortion on Prediction of Multiaxial Loading Conditions”. Journal of Engineering and Applied Science, Faculty of Engineering, Cairo University, Vol. 51, No. 3, pp. 593-612, June, 2004.
- 24- **Abdel-Karim, M.**, “Numerical Integration Method for Kinematic Hardening Rules with Partial Activation of Dynamic Recovery Term”. International Journal of Plasticity, Vol. 21, No. 7, pp. 1303-1321-2005.
- 25- **Abdel-Karim, M.**, “Theoretical Study on Creep-Ratchetting Interaction of SUS304 Stainless Steel”. Journal of Engineering

and Applied Science, Faculty of Engineering, Cairo University, Vol. 52, No. 3, pp. 593-608, Jun 2005.

- 26- **Abdel-Karim, M.**, "Shakedown of Complex Structures According to Various Hardening Rules". International Journal of Pressure Vessels and Structures, Vol. 82, pp. 427-458, 2005.
- 27- **Abdel-Karim, M.**, "On Creep Ratchetting Interaction: Assessment of Unified Theories". Proceedings of PLASTICITY 05: The Eleventh International Symposiums on Plasticity and its Current Applications, Kauai, Hawaii, Jan 3-8, 2005.
- 28- **A.S. Khan, Abdel-Karim, M., and Chen, X.**, "Ratchetting of OFHC Copper under Multiaxial Loading Conditions". Proceedings of PLASTICITY 05: The Eleventh International Symposiums on Plasticity and its Current Applications, Kauai, Hawaii, Jan 3-8, 2005.