

**CURRICULA VITA**  
**Of**  
**Dr. Khaled M. Ibrahim**

**Name** : Khaled M. Ibrahim

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**Appointments:**

- \* June 2008 – present  
Associate Professor at CMRDI
- \* March 2001 – April 2008  
Researcher at CMRDI
- \* April 1996 – December 2000  
Assistant lecturer at TU–Berlin, Germany
- \* December 1989 – September 1995  
Research assistant at CMRDI

**Education:**

- B.Sc., (1987) Faculty of Engineering, Cairo University (Mechanical Engineering)
- M.Sc., (1993) Faculty of Engineering, Cairo University (Material Science)
- Ph.D., (2000) Technical University of Berlin, Germany (Material Science)

**Additional Training in Other Countries:**

<b>Field of study</b>	<b>Dates</b>	<b>Language/Place of Instruction</b>
Metal Cutting	1991–1993	English, TNO institute, Holland
Fracture Mechanics	1991	English, RPC institute, Canada
Tribology	1996	German, BAM institute, Germany
Failure analysis	1997-1999	German, BAM institute, Germany
Material evaluation	1997	German, TU-Berlin, Germany
Mechanical Testing	2002	German, Zwick Co., Germany
ISO-IEC 17025 for Laboratories	2004	English, Egypt
Internal Audit, ISO-IEC 17025	2004	English, Egypt
Proposal writing	2008	English, DAAD, Egypt
Time management and planning	2009	English, DAAD, Egypt
Quality Control in Car Manufacturing	2010	English, AOTS, Thailand
Projects Management	2010	English, CAMARI, 2010
Business and Marketing Plan	2010	English, DAAD, 2010

**Awards:**

- DAAD scholarship for Ph.D. study in Germany, TU-Berlin, 1995-2000.
- DAAD postdoctor scholarship in Germany, TU-Clausthal, 2006.
- National Encourage Prize in Engineering Science, 2007
- DAAD postdoctor scholarship in Germany, TU-Clausthal, 2010.

**Memberships:**

- 1- Deutsche Giesserei Forschung Gesellschaft (German Foundry association), Germany
- 2- Deutsche Verschleiss Gesellschaft (Tribology association), Germany
- 3- Ductile Iron Society, USA
- 4- The International heat treatment association, Egypt
- 5- Mechanical Engineers Syndicate, Egypt

## **Industrial Research Activities:**

- Principle investigator for international project for two years (2009-2011) between CMRDI and TU-Clausthal-Germany in the frame of Egyptian-German program in the field of production and characterization of titanium alloys used in manufacturing of spare parts used in oil industry, aerospace and medical implants applications.
- Principle investigator for international project for three years (2005-2007) between CMRDI and Tennessee University-USA in the frame of US-Egypt program in the field of fracture toughness of austempered cast iron. This project aims to transfer some new technologies in the field of fracture mechanics from Tennessee University to CMRDI.
- Shared in an international project for three years with TNO institute-the Netherlands in the field of metal cutting technology.
- Chief counterpart in Japanese-Egyptian project for 4 years (2001-2004) in the field of material evaluation, in which the project was concerned with all types of mechanical tests such as tensile, fatigue and fracture mechanics, creep, hardness and impact.
- Acting now as technical manager for the mechanical testing unit at CMRDI to manage the mechanical tests according to the international standard specifications either for metals or welded metals and also approve the final results.
- Doing more than 40 reports related to many failure analysis cases for the industrial spare parts that failed in service such as oil industry, cement industry, .. etc.
- Sharing in many cases (about 35 reports) related to the failure analysis of aircraft accidents.
- Solving many technical problems that related to the materials evaluation by choosing the proper materials with specified mechanical properties in order to sustain the severe conditions in service, such as in oil industry.

## **General Activities:**

- Putting all the technical specifications for the mechanical testing machines existing now at CMRDI (universal testing machine-1000 KN, Impact testing machine-300 J, Servo-hydraulic fatigue testing machine 100 KN, Rotating testing machines 200 Nm, Creep testing machine-50 KN, Plane bending fatigue testing machine-30 Mm, Brinell hardness, Vickers hardness, Rockwell hardness and microhardness).
- Constructing all the mechanical testing machines at CMRDI with helping some experts from Germany and Japan.
- Training the technicians the roles for operating the mechanical testing machines.
- Teaching the technicians and engineers how to prepare the testing samples according to the international specifications (DIN, ASMI, ASTM, etc.) and how to test them according to these specifications.
- Teaching many courses, such as material science, mechanical testing, failure analysis and machining operations.
- Attending more than 50 international conferences in the field of materials science.
- Attending many courses in quality management that organized by German agencies.
- Visiting TU-Clausthal in Germany four times to share in a project for evaluating the fatigue and creep properties of some titanium alloys and then transfer this technology to CMRDI.
- Supervising on several theses that are undertitled:
  - 1- Effect of silicon as a grain refiner on microstructure and mechanical properties of (Ti-6Al-4V) titanium alloy
  - 2- Corrosion resistance of Ti-6Al-4V containing silicon
  - 3- Microstructures and mechanical properties VT9  $\alpha$ - $\beta$  titanium alloy.
  - 4- *Fracture toughness of ADI produced by two-step austempering process.*
  - 5- *Wear resistance of grey iron glass molds*
  - 6- *Wear resistance and fracture toughness of carbide austempered ductile iron*
  - 7- *Wear resistance and fatigue strength of laser treated ductile and gray cast irons*
  - 8- *Influence of Cr addition on wear resistance of two-step austempered ductile iron*
  - 9- *Corrosion fatigue of some stainless steel alloys*
  - 10- *Effect of notch sensitivity on fatigue behaviour of ADI*
  - 11- *Correlation between the rate of wear and fracture toughness of all-ceramic systems*
  - 12- *Cold cracking of welded metal of high strength steels*
  - 13- *Optimizing wear resistance and fracture toughness of white cast iron alloyed with Nb*

## **Teaching experience**

Teaching many courses in the fields of materials science and mechanics such as:

- *Casting technology of cast iron*
- *Casting technology of steel*
- *Metal cutting technology (Machining)*
- *Tribology*

- *Casting technology of titanium alloys*
- *Casting design*
- *Material science*
- *Mechanical testing*
- *Theory of elasticity and plasticity*
- *Fracture mechanics*
- *Mechanical drawing*
- *Die design*
- *Measurements*
- *Failure analysis*
- *Metal forming*

## Recent publications

1. Kh.M. Ibrahim, N. Elbagoury and Y. Fouad, "Microstructure and martensitic transformation of cast TiNiSi shape memory alloys", *Journal of Alloys and Compounds*, vol. 509, (2011), pp. 3913-3916.
2. **Khaled M. Ibrahim**, Mansour Mhaede and Lothar Wagner, "Microstructure development and mechanical properties of heat treated LCB titanium alloy", To be published in *Journal of Materials Engineering and Performance*, (2011).
3. **Khaled M. Ibrahim**, Mansour Mhaede and Lothar Wagner, "Mechanical properties of titanium alloys produced in Egypt", The 12<sup>th</sup> International Conference of Titanium, 19-24 June (2011), Beijing-China.
4. **Khaled M. Ibrahim**, Mansour Mhaede and Lothar Wagner, "Microstructures and mechanical properties of Ti-6Al-4V cast in Egypt", 1<sup>st</sup> International ICF Conference in Middle East and Africa, 14-17 Nov. (2011), Luxor-Egypt.
5. R. Reda, A. Nofal, **Kh. Ibrahim** and A. Hussien, "Structural refinement of 15%Cr-2%Mo white irons", *Key Engineering Materials*, vol. 457, (2011), pp. 231-236.
6. R. Reda, A. Nofal, **Kh. Ibrahim** and A. Hussien, "Investigation of improving wear performance of Hypereutectic 15%Cr-2%Mo white irons", *China Foundry*, vol. 7, No. 4, (2010), pp. 438-446.
7. N. Elmasry, A. kandil, K. Abouelela and A. Amer, "Wear behaviour of austempered ductile cast iron", *Metall-Forschung*, vol. 64, (2010), pp. 353-357.
8. **Khaled M. Ibrahim**, "Potential of local manufacturing medical implants in Egypt", MINM2010, Egypt.
9. A. Elzaabalawy, **Kh. Ibrahim** and Y. Fouad, "Effect of Si-addition on microstructure and properties of Ti<sub>51</sub>-Ni<sub>49</sub> shape memory alloy", *Euromat* (2010), Switzerland.
10. M.A. Abdelkawy, **Kh.M. Ibrahim**, A. Hussien, M. Mhaede and L. Wagner, "Effect of Si-addition on microstructure and properties of the cast Ti-6Al-4V alloy", *Euromat* (2010), Switzerland.
11. **Khaled M. Ibrahim**, Mansour Mhaede and Lothar Wagner, "Microstructure and mechanical properties of CP-Ti produced by investment casting", *Journal of Materials Engineering and Performance*, available online in Dec. (2010).
12. **Khaled M. Ibrahim** and Yasser Fouad, "Effect of solidification rate, austempering temperature and Cr-addition on microstructure and mechanical properties of ADI", The 7<sup>th</sup> International conference of Engineering of Mansoura University, 23-28 March (2010), Egypt.
13. A.H. Elsayed, M.M. Megahed, A.A. Sadek and **K.M. Abouelela**, "Fracture toughness characterization of austempered ductile iron produced using both conventional and two-step austempering processes", *Materials&Design*, 30, Issue 6, (2009), pp. 1866-1877.
14. **Khaled M. Ibrahim**, "Corrosion failure analysis in oil industry", 1<sup>st</sup> International Conference of Kuwait Corrosion, 8-9 Dec. (2009).
15. **Kh. Ibrahim**, A. Nofal and M. Ibrahim, "Effect of heat treatment and Ti-additions on wear resistance and impact toughness of white cast iron", 1<sup>st</sup> Mediterranean Heat Treatment & Surface Engineering Conference, 1-3 Dec. (2009).
16. **Khaled M. Ibrahim**, Mohamed Bayoumy, Bakkar Elsamagawy and Ibrahim I. Saleh, "Correlation between notch sensitivity and fatigue behaviour of ADI", International Conference on Failure Analysis and Repair Welding, 16-19 Nov. (2009).
17. A. Sadek and **Kh. Ibrahim**, "Failure analysis of aircraft main landing gear", International Conference on Failure Analysis and Repair Welding, 16-19 Nov. (2009).
18. **Kh. Ibrahim** and A. Sadek, "Failure analysis of aircraft main landing gear wheel drum", International Conference on Failure Analysis and Repair Welding, 16-19 Nov. (2009).
19. M. Amin and **Kh. Ibrahim**, "Failure analysis of a crane gearbox shaft", International Conference on Failure Analysis and Repair Welding, 16-19 Nov. (2009).
20. **Kh. Ibrahim** and A. Sadek, "Long-Term Creep Rupture of a tube in Boiler at an Electric Power Station", International Conference on Failure Analysis and Repair Welding, 16-19 Nov. (2009).
21. **Khaled M. Ibrahim** and Adel A. Nofal, "Effect of Titanium Addition on Structure and Properties of the As-cast High-Cr-Mo White Iron", To be published in *International Cast Metals Research Journal*, (2010).
22. M. H. Mhaede, **K.M. Ibrahim**, M. Wollmann and L. Wagner, "Enhancing fatigue performance of ductile iron by austempering and mechanical surface treatments", 7<sup>th</sup> Congress for Arabcast, Nov. 7-9 (2008), Sharm-Elsheekh, Egypt.
23. **Khaled M. Ibrahim** and Adel A. Nofal, "Optimizing wear resistance and fracture toughness of white cast iron alloyed with Ti", 7<sup>th</sup> Congress for Arabcast, Nov. 7-9 (2008), Sharm-Elsheekh, Egypt.

24. **Khaled M. Ibrahim**, Mohamed Bayoumy, Bakkar Elsamagawy and Ibrahim I. Saleh, "Effect of notch severity on fatigue strength of ADI". The 6<sup>th</sup> International Engineering Conference-IEC 2008, Egypt, 20-23 March (2008).
25. **Khaled M. Ibrahim**, Mervat M. Ibrahim, Adel A. Nofal and Ahmed Elsaywy, "Effect of alloying addition and two-step austempering on the microstructure and mechanical properties of ductile iron", The 9<sup>th</sup> International Conference on Mechanical Design and Production (MDP-9), Cairo, Egypt, Jan. 8-10, (2008).
26. **K.M. Ibrahim**, M.M. Ibrahim and A. Elsaywy, "Wear resistance of two-step alloyed austempered ductile iron", 16<sup>th</sup> International Colloquium Tribology, January 15-17, (2008), Stuttgart, Germany.
27. **K.M. Ibrahim**, M.M. Ibrahim and A. Elsaywy, "Fracture toughness of two-step alloyed austempered ductile iron", The 2<sup>nd</sup> Arab International Conference in Physics and Materials Science, Alexandria-Egypt, October 27-29 (2007)
28. **Khaled M. Ibrahim** and Adel A. Nofal, "Applications of austempered ductile iron in automotive industry", The 7<sup>th</sup> Egyptian-Syrian Conference on Chemical and Petroleum Engineering, Suez-Egypt, 29-31 Oct. (2007).
29. **Khaled M. Ibrahim** and Adel A. Nofal, "Recent trends in ADI metallurgy", The 10<sup>th</sup> International Mining, Petroleum and Metallurgical Engineering Conference, Egypt, March 6-8, (2007).
30. **Khaled M. Ibrahim**, Mohamed M. Mourad, Mervat M. Ibrahim and Adel A. Nofal, "Austempering of thin wall ductile iron castings", Metallurgia International, vol. XII, No. 9, (2007), pp. 5-15.
31. **K.M. Ibrahim**, J. Mueller and L. Wagner, "Correlation between microstructure and fatigue property of Ti-6Al-4V alloy used in aerospace applications", 12<sup>th</sup> International Conference on Aerospace Science and Aviation Technology, Cairo-Egypt (29-31 May 2007).
32. Taha Matter, **Khaled M. Ibrahim**, Ayman Fathy and Hoda El-Faramawy, "Improving the wear resistance of M41 steel by nitrogen alloying and ESR", Materials Characterization, vol. 58, (2007), pp. 407-415.
33. Mohamed A. Waly, **Khaled M. Ibrahim** and Ahmed N. Abdel-Azim, "Structure and wear properties of SiC reinforced Al-Li (8090) alloy in the cast and heat treated conditions", International Journal of Cast Metals Research, Vol. 19, No.3, (2006), pp. 167-174.
34. **Khaled M. Ibrahim**, "Enhancement of abrasion resistance of ductile cast iron by applying a two step austempering treatment", International Journal of Cast Metals Research, Vol. 19, No.4, (2006), pp. 241-247.
35. Z. Abdel Hamed, I.M. Ghayad and **K.M. Ibrahim**, Electrodeposition and characterization of chromium-tungsten carbide composite coatings from a trivalent", Surface and Interface Analysis Journal, Vol. 37, (2005), pp. 573-579.
36. Amir A. Mahdy, M.S. El-Eskandarany, A. kandil, S.F. moustafa, **Khaled M. Ibrahim**, A.A. Ahmed and A.A. Amer, "Fabrication and characterizations of Al/SiC composite by stir casting technique", Al-Azhar University Engineering Journal, AUEJ, Vol. 18, No. 4, (2005), pp. 38-44.
37. Magdi F. Morks, **Khaled M. Ibrahim**, Madiha Shoeib and Adel A. Francis, "Wear characteristics of low carbon steel coated with Ni-Zr silicate composite", Steel Grips 3, No. 3, (2005), pp. 214-216.
38. Salah A. El-Badry, **Khaled M. Ibrahim** and Sayed F. Moustafa, "Wear resistance of W-Cu Composites", TIMS Bulletin, Vol. 85, (2005), pp. 44-49.
39. **Khaled M. Ibrahim** and Ahmed Ismail, "Influence of hot deformation and austempering process on microstructure and mechanical properties of high Si-Mn steel", Canadian Metallurgical Quarterly, Vol. 44, No. 4, (2005), pp. 489-494.
40. **Khaled M. Ibrahim**, A. Abdel Aal and Z. Abdel Hamid, "Enhanced wear resistance of cast ductile iron by Ni-SiC composite coating", International Journal of Cast Metals Research, Vol. 18, No. 5, (2005), pp. 315-320.
41. **Khaled M. Ibrahim**, Alber Sadek and Ayman Hamada, "Effect of Mn-content on fatigue strength of low carbon steel welded joints", Steel Grips 2, No. 5, (2004), pp. 380-384.
42. **Khaled M. Ibrahim** and Ibrahim M. Ghayad, "Corrosion and abrasion resistance of some Ni-hard alloys", Steel Grips 2, No. 4, (2004), pp. 219-295.
43. **Khaled M. Ibrahim** and Mohamed A. Abbas, "Correlation between microstructure and mechanical properties of high C-Cr cast steel", Steel Research International, Vol. 74, No. 10, (2003), pp. 646-651.
44. **Khaled M. Ibrahim**, Hoda N. Eldin, Adel A. Nofal and Mervat M. Ibrahim, "Wear resistance of cold rolled ADI", Steel Grips1, No. 3, (2003), pp. 278-283.
45. M.S. Abbas, S. Soliman and **K.M. Ibrahim**, "Preparation of Nickel-Phosphorous-Zinc-Tungsten alloy deposits by electroless plating", 3<sup>rd</sup> Arab Conference on Material Science, Oct. 5-9 (2003), Cairo-Egypt.
46. I.M. Moustafa, **K.M. Ibrahim** and A.A. Nofal, "A case study on selection of the abrasion resistance materials used for coke classifying unit", 4<sup>th</sup> Congress for Arabcast, Oct. 25-27 (2002), Alexandria, Egypt.
47. **K.M. Abouelela** and A. Nofal, "ADI production, properties and application", 4<sup>th</sup> Congress for Arabcast, Oct. 25-27 (2002), Alexandria, Egypt.
48. **K.M. Abouelela**, S.M. Riad and A. Nofal, "Wear resistance and fracture toughness of high Cr-Mo white cast iron", Journal of Material Science and Technology, Feb. (2002).

49. **K.M. Abouelela**, W. Reif and A. Nofal, "Effect of Mo-addition on fatigue strength of ADI", 8<sup>th</sup> International Fatigue Congress, June 2-7, (2002), Sweden.
50. **K.M. Abouelela**, W. Reif and A. Nofal, "Effect of Mo-addition on wear characteristics of ADI", 2<sup>nd</sup> World Tribology Congress, Sept. 3 -7, (2001), Austria.