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## EDUCATION

**The University of North Carolina at Charlotte**, Charlotte, NC, 1996-1998,  
*Ph.D., Mechanical Engineering*, December 1998,  
**Tuskegee University**, Tuskegee AL., 1992-1994, *M. S., Mechanical Engineering*,  
May 1994,  
**Auburn University**, Auburn, AL, October 1989- March 1990, courses in  
Aerospace Eng, (Aero-thermo dynamics and Fluid Mechanics)  
**Alexandria-University**, Alexandria, Egypt.  
*Diploma of Higher Graduate Studies, Fluid Mechanics*, June 1989  
*B. Sc., Mechanical Engineering*, November 1984

## WORK EXPERIENCE

### United States

**Associate Teaching-Professor**, August 2014-Current, Drexel University,  
Department of Mechanical Engineering and Engineering Science, Philadelphia-PA  
**Adjunct Faculty**, August 2012-May 2014, University of North Carolina-Charlotte,  
Department of Mechanical Engineering, Charlotte, NC.  
**Assistant Professor**, August 2004-January 2009, Department of General  
Engineering, *University of Wisconsin-Platteville*, Platteville, WI  
**Visiting Assistant Professor**, August 2003-May 2004, Department of Industrial  
Technology, *East Carolina University*, Greenville, N. C.  
**Adjunct Professor**, August 2002-June 2003, Institute of Manufacturing & Dept.  
Mechanical Engineering Technology, *York Technical College*, York, S. C.  
**Visiting Scholar**, September 2001-February 2002, Nanotribology Laboratory for  
Information Systems NEMS/MEMS, *The Ohio State University*.  
**Adjunct Faculty**, January 1999 - August 2001, Department of Mech. Eng. Tech.,  
*York Technical College*, Rock Hill S.C.

### International

**Research Professor**, January 2009- May 2012, Arts et Metiers ParisTech-Centre  
CHÂLONS-EN-CHAMPAGNE, France  
**Visiting Professor**, October 2009-December 2009, University Kebangsaan, Kuala  
Lampur, Malaysia  
**Visiting Professor**, June 2008-August 2008, ARTS ET METIERS ParisTech,  
Chalons-en-Champagne  
**Guest Research Professor** May 2008-June 2008, Laboratoire de Physique et  
Mécanique des Matériaux (LPMM) UMR-CNRS Université Paul Verlaine – Metz,  
France  
**Guest Research Professor** June 2006-December 2006, Laboratoire de Mécanique  
et Procédé de Fabrication (LMPF), ENSAM - Châlons en Champagne, France.  
**Guest Researcher**, November 2005, Surface Physics Group, Institut für Allgemeine  
Physik, Technische Universität Wien, Austria  
**Guest Researcher**, September 2005 – October 2005, Laboratoire Matériaux  
Endommagement Fiabilité Ingénierie des Procédés (LAMEFIP), ENSAM CER  
Bordeaux, France.

## PROFESSIONAL AFFILIATIONS

American Society of Mechanical Engineers (ASME),  
The Royal Aeronautical Society (RaeS),

Society of Tribologists and Lubrication Engineers (STLE),  
New York Academy of Science.

Society of Manufacturing Engineers (SEM),  
Institute of Physics U. K  
American Society of Precision Engineering

## **PROFESSIONAL SERVICES**

### **Review Services**

Nanotechnology (IOP- Publications), WEAR, Semi-conductor Science and Technology, Journal of Applied Physics, D, Precision Engineering, Proceeding of the Royal Society London, ASME Journal of Tribology, Tribology International, Philosophical Magazine, Journal of Physics Condensed Matter

### **Editorial**

#### **Editor-In-Chief**

*International Journal of Applied Biomimetics,  
Inderscience Publishers (Under Development)*

#### **Member Editorial Board**

ISRN Tribology

#### **Guest Editor**

#### **Special issues:**

**Complexity, Synergy and Emergence in Sliding Systems** Int. J. of Materials and Product Tech, Vol. 38 (1) 2010.

**Design in Nature**, Int. J. of Design Engineering (Vol 4 no 1, 2011)

**Advances in Thermal Analysis of Rubbing Contacts**, Int. J. Surface Science and Engineering (planned for 2012)

**Bionics: From Inspiration to Design**, Int. J. of Design Engineering (Vol 4 no 4, 2011)

### **Conference**

### **Chairmanship and organization**

Chair Experimental Wear Techniques, ECOTRIB2009, Pisa, Italy, June 7-10,

2009

Symposium Organizer, Tribology ART Vs Science, Pisa Italy, June 2009

Co-Organizer Symposium, *New frontiers in modeling and simulation of composite and metallic field machining*, ICCMSE, Greece, Sep. 2009.

Advances in Material Processing and Technology.

International Meeting on Abrasion Conf Series

Euro-Mediterranean Conference on Bio-materials and Tissue Engineering

### **MEMBERSHIP**

### **CONFERENCE**

### **SCIENTIFIC**

### **COMMITTEES**

### **BIOGRAPHICAL**

### **LISTINGS**

GALE'S Who's Who? In Science and Technology 7<sup>th</sup> edition, 1995

Marquis Who's Who? In Science and Engineering 3<sup>rd</sup> and 5<sup>th</sup> editions, 1996, 1998,

Who's Who in America?, 1998, 2003,

Who's Who in the World?, 1998, 2011

Madison's Who's Who in America

### **INTERNATIONAL** Center for Tribology and Diagnostics, Slovenia

### **COLLABORATION** University of Ljubljana, Slovenia

Austrian Center for Competence in Tribology, Austria,

Institute of Physics, Technical University of Vienna, Austria

Laboratoire de Mécanique et Procédés de Fabrication (LMPF), ENSAM CER Châlons-en-Champagne, France.

Laboratoire Matériaux Endommagement Fiabilité Ingénierie des Procédés (LAMEFIP), ENSAM CER Bordeaux, France

National University of Colombia (Medellin, Colombia)

<b>PATENTS</b> <b>PUBLICATIONS</b>	Ecole Centrale de Lyon (biomedical-biomimetics laboratory) Institute of Micro-engineering and Nano-electronics UKM, Malaysia Universidad Tecnica Federico Santa Maria - Ingenieria en Chile Wear reduction in Cutting Tools through biasing with a DC Current T09003US (1509.060) (Pending)
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### Books

1. H. A. Abdel-Aal, Engineering Aspects of Bio-Inspired Surfaces Springer, Working Title, Springer Engineering Materials Series, Springer-Verlag-Heidelberg, Publishing Editor: Dr. Mayra Castro, (2014).
2. H. A. Abdel-Aal, Thermal Analysis in Tribology (planned for 2015).

### Book Chapters

1. Abdel-Aal H.A., El Mansori M. *Python Regius (Ball Python) Shed Skin: Biomimetic Analogue for Function-Targeted Design of Tribio-Surfaces*, In: Biomimetics - Materials, Structures and Processes. Examples, Ideas and Case Studies, Eds: Bruckner D., Gruber P., Springer, ISBN: 978-3-642-11933-0,
2. H. A. Abdel-aal, *Measurement of contact temperatures*, in: Encyclopedia of Tribology, Wang, Q. Jane; Chung, Yip-Wah (Eds.), Springer, ISBN 978-0-387-92896-8, 2012.
3. H. A. Abdel-Aal, *Flash temperature theory*, in Encyclopedia of Tribology, Wang, Q. Jane; Chung, Yip-Wah (Eds.), Springer, ISBN 978-0-387-92896-8, 2012.
4. H. A. Abdel-Aal, *Thermodynamics of Wear*, in Encyclopedia of Tribology, Wang, Q. Jane; Chung, Yip-Wah (Eds.), Springer, ISBN 978-0-387-92896-8, 2013.
5. H. A. Abdel-aal, *The structure of Ventral Scale Textures in Snakes in comparison to Texturing of Deterministic Tribological Surfaces*, to appear in: Processing Techniques and Tribological Behavior of Composite Materials, Rajnesh Tyagi, J. P. Davim (eds)-IGI-Global Publication (2014)
6. Gebeshuber I.C. and H.A. Abdel-Aal (2009) "Molecular Assembler", in: Encyclopedia of Nanoscience and Society, (Eds. Guston D. and Golson J.G.), Sage Publications, CA, USA, (1) 431-432.
7. Gebeshuber I.C. and H.A. Abdel-Aal (2009) "National Institute of Occupational Safety and Health", in: Encyclopedia of Nanoscience and Society, (Eds. Guston D. and Golson J.G.), Sage Publications, CA, USA,(2) 578-579,
8. Gebeshuber I.C., Quist A.P. and H.A. Abdel-Aal (2009) Transdisciplinarity", in: Encyclopedia of Nanoscience and Society, (Eds. Guston D. and Golson J.G.), Sage Publications, CA, USA, (2) 768-769.

### Editorials

### 2011

1. *Design in Nature*, Int. J. of Design Engineering 4 ,1, (2011) 1-5
2. *Bionics: From Inspiration to Design*, Int. J. of Design Engineering, 4, 2 (2011) 1-4.

### 2010

3. *Complexity, Synergy and Emergence in Sliding Systems*, Int. J. of Materials and Product Tech, Vol. 38 (1) 2010.

### Discussions

1. H. A. Abdel-Aal, Discussion: An Application of Dimensional Analysis to Entropy-Wear Relationship, J. Trib., 134, (2012), DOI:10.1115/1.4006579

2. H. A. Abdel-Aal, Discussion: A Deterministic-Chaos Study of Electron Triboemission Outputs, *J. Trib.* 132, 015501 (2010), DOI:10.1115/1.4000307
3. Abdel-Aal, HA, Discussion on Application of an energy wear approach to quantify fretting contact durability: Introduction of a wear energy capacity concept *Tribology International* (2007), 40, 10-12, 1725-1726
4. H. A. Abdel-Aal, Comments on Thermophysical-property-based selection of tool protective coatings for dry machining of steels *J. Manuf. Sci. Eng.* 126, 858 (2004), DOI:10.1115/1.1813477
5. H. A. Abdel-Aal, Discussion An FFT-Based Transient Flash Temperature Model for General Three-Dimensional Rough Surface Contacts" *J. Tribol.* 122, 876 (2000)

#### **REVIEWED JOURNAL PUBLICATIONS**

##### **2013**

###### **Submitted**

1. H. A. Abdel-Aal, H. Zahouani, Frictional Response of Snake Shed Skin in Comparison to Human skin, ***Journal of the Mechanical Behavior of Biomedical Materials***.
2. H. A. Abdel-Aal M. El Mansori ,Characterization of Load Bearing Metrological Parameters in Reptilian Exuviae In Comparison To Plateau Honed Surfaces, *IOP-J. Surface Topography: Metrology and Properties*

###### **Published**

##### **2013**

1. H. A. Abdel-Aal, On Surface Structure and Friction Regulation in Reptilian Locomotion, *Journal of the Mechanical Behavior of Biomedical Materials* (2013), 115-135, DOI information: 10.1016/j.jmbbm.2012.09.014
2. H. A. Abdel-Aal, Surface Metrology and Tribological Behavior of Snakeskin: A Review, to appear *JMBBM (Invited Review)*
3. H. A. Abdel-Aal, M. El Mansori, Tribological analysis of ventral scale structure in a python regius in relation to laser textured surfaces *IOP-J. Surface Topography: Metrology and Properties*. 1 (2013) 015001, doi:10.1088/2051-672X/1/1/015001

##### **2012**

4. H. A. Abdel-Aal, R. Vargiolu, H. Zahouani, M. El Mansori, Preliminary Investigation Of The Frictional Response Of Reptilian Shed Skin, *WEAR* 290–291 (2012) 51–60 doi./10.1016/j.wear.2012.05.015
5. H.A. Abdel-Aal, M. El Mansori, Wear of WC-Co Inserts in Dry High Speed Machining of Submicron Particle Size Aeronautical Grade near  $\beta$  Titanium Alloy, *Mécanique et Industrie*.(accepted-In Press)

##### **2010**

6. M. Bigerelle, H, Abdel-Aal H. A., Alain Iost, Relation between entropy, free energy and computational energy, *Int. J. Mat. Prod. Tech.*,(2010) 38, (1), 35-43.
7. Hisham A. Abdel-Aal, Concerning the influence of frictional energy Dissipation on Wear transition in Dry tribosystems, *Int. J. Mat. Prod. Tech.*, 38 (1), 78-92.
8. Hisham A. Abdel-Aal, The Metallic Silicon Phase  $\beta$ -Si-II: Influence of Transport Properties on Ductile Regime Processing for MEMS and NEMS Applications, *Int. Journal of Micro-engineering and Nano-electronics*(2010) 1(1), 35-47

9. H. Abdel-Aal, On the strength of tribo-emission from mono-crystalline silicon surfaces, *Int. J. Prec Tech*, 1, 3-4 (2010) 331 – 342
10. Abdel-Aal M. El Mansori S. Mezghani, Multi scale surface characterization of shed ball python skins compared to human skin, *Trib. Letters.* 37 (2010),517-527 DOI 10.1007/s11249-009-9481-y

### 2009

11. H.A. Abdel-Aal, M. Nouari, M. El Mansori, Influence of thermal conductivity on wear when machining titanium alloys., *Trib. Int.* 42, 2, (2009) 359-372.
12. H.A. Abdel-Aal, M. Nouari, M. El Mansori, Tribo-energetic correlation of tool thermal properties to wear of WC-Co inserts in high speed dry machining of aeronautical grade titanium alloys, *WEAR*, 266, (2009) 432-444
13. H. A. Abdel-Aal, M. Nouari, M. El Mansori wear of WC-CO inserts in high speed dry machining of  $\alpha\beta$  and near- $\beta$  aeronautical grade titanium alloys, *Transactions of NAMRI/SME*,37, (2009) 549-556

### 2008

14. H.A. Abdel-Aal, M. Nouari, M. El Mansori, The effect of thermal property degradation on wear of WC-CO inserts in dry cutting, *WEAR*, 265 (2008) 1670-1679.
15. M. Nouari , H. A. Abdel-Aal, M. El Mansori, A. Ginting, Conceptual Tribo-Energetic Analysis of Cutting Tool Protective Coating Delamination in Dry Cutting of Hard-To-Cut Aero Engine Alloys, *Int. J. of Adv. Manuf. Sys.* 36, 3-4, 213-225.

### 2007

16. Hisham A. Abdel-Aal, Wear and irreversible entropy generation in dry sliding, *Annals of University “DUNAREA DE JOS “ GALAȚI , FASCICLE VIII, 2006 (XII), ISSN 1221-4590, TRIBOLOGY*, 34-45.
17. M. Nouari, H. A. Abdel-Aal, M. EL Mansori, A. Ginting, Analyse tribo-énergétique du déclaminage des couches de revêtements des outils de coupe lors d'un usinage à sec des alliages aéronautiques, *Mécanique et Industrie* 8, 325–335

### 2006

18. Hisham A. Abdel-Aal, Ysai Reyes, On the strength of tribo-induced emission of charged particles from mono-crystalline silicon surfaces scratched with diamond styli, *Annals of University Dunarea De Jos of Galati (Tribology)*, VIV, (2006), 85-91.
19. Hisham A. Abdel-Aal, concerning the thermo-thermodynamic aspects of wear regime transition in dry tribosystems, *Annals of University Dunarea De Jos of Galati (Tribology)*, VIV (2006), 115-123.
20. M. Nouari, H. A. Abdel-Aal, M. El Mansori, Analysis of Coating Delamination Under Extreme Contact Loading, *Tribology Letters*, 23, 1 (2006), 39-45.
21. Hisham A. Abdel-Aal, Ysai Reyes, John A. Patten, Lei Dong, Extending Electrical Resistivity Measurements in Micro-scratching of Silicon to Determine Thermal Conductivity of the Metallic Phase Si-II, *Materials Characterization* (2006) 57/4-5, 281-289.

### 2005

22. Abdel-aal, H. A., On heat partition among dry sliding anisotropic solids Annals of the Romanian Academy of Sciences Dunarea De Jos of Galati, VIII, (2004) 73-80.
23. Abdel-Aal, H.A., Patten, J.A., Dong, L., On the thermal aspects of ductile regime micro-scratching of single crystal silicon for NEMS/MEMS applications (2005) Wear 259 (7-12), 1343-1351.
24. Abdel-Aal, H.A., On the role of intrinsic material response in failure of tribo systems (2005)

Wear 259 (7-12), 1372-1381.

2004

25. Abdel-Aal, H.A. "Extending Electrical Resistivity Measurements in Micro-Scratching of Silicon: Toward Optimal Thermal Modeling of Ductile Regime Machining for MEMS/NEMS." SME Technical Paper TP04PUB227 (Dearborn, Mich.: Society of Manufacturing Engineers, 2004).

2003

26. Abdel-Aal, H.A., Efficiency of thermal energy dissipation in dry rubbing (2003) Wear 255 (1-6), 348-364.
27. Abdel-Aal, H.A., on the interdependence between kinetics of friction-released thermal energy and the transition in wear mechanisms during sliding of metallic pairs (2003) Wear 254 (9), 884-900.

2002

28. Abdel-Aal, H.A., Thermal kinetics of protective oxide layer formation in the dry sliding of metallic tribo-specimens (2002) Tribology International 35 (11), 757-769.

2001

29. Abdel-Aal, H.A., Thermal compatibility of dry sliding tribo-specimens (2001) Wear 250-251 (PART 2), 939-948.
30. Abdel-Aal, H.A., On the influence of tribo-induced superheating on protective layer formation in dry sliding of metallic pairs (2001) International Journal of Thermal Sciences 40 (6), 571-580.
31. Abdel-Aal, H.A., On the connection of thermal dilatation to protective layer formation in the fretting of metallic tribo-specimens (2001) Wear 247 (1), 76-87.
32. Abdel-Aal, H.A., Correlating thermal dilatation to protective layer formation in fretting wear (2001) International Communications in Heat and Mass Transfer 28 (1), 97-106.

2000

33. Abdel-Aal, H.A., On the influence of thermal properties on wear resistance of rubbing metals at elevated temperatures (2000) Journal of Tribology 122 (3), 657-660.
34. Abdel-Aal, H.A.,The correlation between thermal property variation and high temperature wear transition of rubbing metals (2000) Wear 237 (1), 147-151.

1999

35. Abdel-Aal, H.A., On the thermal compatibility of metallic pairs in rubbing applications (1999) International Journal of Thermal Sciences 38 (1), 27-41.
36. Abdel-Aal, H.A.,The deduction of friction-induced temperatures from thermal strain measurements in the dry sliding of metallic pairs (1999) International Journal of Thermal Sciences 38 (2), 160-174.
37. Abdel-Aal, H.A., On the bulk temperatures of dry rubbing metallic solid pairs (1999) International Communications in Heat and Mass Transfer 26 (4), 587-596.
38. Abdel-Aal, H.A., On the size of hot spots in the dry sliding of metals (1999) International Communications in Heat and Mass Transfer 26 (3), 441-450.
39. Abdel-Aal, H.A., A note on the intrinsic thermal response of metallic pairs in dry sliding friction (1999) International Communications in Heat and Mass Transfer 26 (2), 289-298.
40. Abdel-Aal, H.A.,Division of frictional heat: The dependence on sliding parameters (1999) International Communications in Heat and Mass Transfer 26 (2), 279-288.

1998

41. Abdel-Aal, H.A., On a method to deduce friction-induced temperatures from thermal strain measurements in the dry sliding of metallic pairs (1998) International Communications in Heat and Mass Transfer 25 (5), 609-618.
42. Abdel-Aal, H.A., Smith, S.T., Thermal compatibility of metallic pairs in sliding contact (1998) International Communications in Heat and Mass Transfer 25 (5), 599-608.
43. Abdel-Aal, H.A., Smith, S.T., On friction-induced temperatures of rubbing metallic pairs with temperature-dependent thermal properties (1998) Wear 216 (1), 41-59.

44. Abdel-Aal, H.A., Error bounds of variable conductivity temperature estimates in frictionally heated contacts (1998) International Communications in Heat and Mass Transfer 25 (1), 99-108.

**1997**

45. Abdel-Aal, H.A., Smith, S.T., Patten, J.A., On the development of surface temperatures in precision single-point diamond abrasion of semiconductors (1997) International Communications in Heat and Mass Transfer 24 (8), 1131-1140.
46. Abdel-Aal, H.A., On the distribution of friction-induced heat in the dry sliding of metallic solid pairs (1997) International Communications in Heat and Mass Transfer 24 (7), 989-998.
47. Abdel-Aal, H.A., A remark on the flash temperature theory (1997) International Communications in Heat and Mass Transfer 24 (2), 241-250.

**1995**

48. Abdel-Aal, H.A., A Note on the thermal distortion of frictionally heated contacts(1995) Mechanics Research Communications 22 (3), 289-296.
49. Seif, M.A., Abdel-Aal, H.A.,Temperature fields in sliding contact by a hybrid laser speckle-strain analysis technique (1995) Wear 181-183 (2), 723-729.
50. Abdel-Aal, H.A., Seif, M.A.,Thermal strains in nominally flat dry sliding contacts (1995) Mechanics Research Communications 22 (1), 59-66.

**Refereed Conference Papers**

**2014**

1. H. A. Abdel-Aal, and M. El Mansori, Hierarchical Structure of Ventral Scales in Limbless Reptiles as a Bio-Inspiration for Multi-scale Deterministic Tribological Surfaces, 16th International Conference on Experimental Mechanics, July 7-11 2014 • University of Cambridge, UK
2. H. A. Abdel-Aal, M. EL Mansori, Metrological Structure and Frictional Response of Shed Snakeskin and Human Skin: A Comparative Study, Euro Friction, Wear and Wear Protection, 06.-08.05.2014, Karlsruhe, Germany

**2011**

3. H.A. Abdel-Aal , N. Trannoy , M. El mansori scan thermal microscopy investigation into the energetics of the thermal skin in dry fretting of titanium, Proceedings of 3rd European Conference on Tribology, ECOTRIB, June 7-9, 2011; Vienna, Austria
4. H.A. Abdel-Aal, M. El Mansori, Metrological Characterization of Reptilian skin for Green Trib Surfaces, ASPE Spring Topical Meeting, Freeform Surfaces, March 7, 8, 2011, Charlotte, NC.
5. H.A. Abdel-Aal, M. El Mansori , a study on the frictional response of reptilian skin for green tribology, Proceedings of 3rd European Conference on Tribology, ECOTRIB, June 7-9, 2011; Vienna, Austria
6. H. A. Abdel-Aal M. El Mansori , dry reciprocating sliding of wc-co and commercially pure tungsten on titanium under the influence of biasing dc-current, 13<sup>th</sup> International Conference on Metrology & Properties of Engineering Surfaces 2011 METPROP, National Physical Laboratory on 12-14 April 2011.
7. H.A. Abdel-Aal and M. El Mansori, Influence of high pressure thermal behavior on friction-induced material transfer during dry machining of titanium, , 14th Conference of (European Scientific Association for Material Forming) ESAFORM ,Queen's University Belfast, Northern Ireland, April 27<sup>th</sup> to 29<sup>th</sup>, 2011. AIP Conf. Proc.May 4, 2011 Volume 1353, pp. 1806-1811; doi:10.1063/1.3589778
8. H. A. Abdel-Aal, R. Vargiolu, H. Zahouani, M. El Mansori, a study on the frictional response of reptilian shed skin, 13<sup>th</sup> International Conference on Metrology & Properties of Engineering Surfaces 2011 METPROP, National Physical Laboratory on 12-14 April 2011.

**2009**

9. H. A. Abdel-Aal, M. Nouari, M. El Mansori wear of WC-CO inserts in high speed dry machining of  $\alpha\beta$  and near- $\beta$  aeronautical grade titanium alloys, NAMRIC 37, Greenville, SC, May 19-23, 2009.
10. H. A. Abdel-Aal, M. Nouari, M. El Mansori, Wear of WC-Co Inserts in Dry High Speed Machining of Submicron Particle Size Aeronautical Grade near  $\beta$  Titanium Alloy, 2<sup>nd</sup> European Conference on Tribology, ECOTRIB 2009, Pisa, Italy, June 7-10, 2009
11. H. Abdel-Aal, On the strength of tribo-induced particle emission from mono-crystalline silicon surfaces during micro- scratching with diamond, 2<sup>nd</sup> European Conference on Tribology, ECOTRIB 2009, Pisa, Italy, June 7-10, 2009
12. H. A. Abdel-Aal, On the thermodynamics of mass loss due to wear in dry metallic tribo-pairs, 2<sup>nd</sup> European Conference on Tribology, ECOTRIB 2009, Pisa, Italy, June 7-10, 2009
13. H. A. Abdel-Aal, S. Mezghani, M. El Mansori, Dry reciprocating sliding of wc-co and commercially pure tungsten on titanium under the influence of biasing dc-current, 2<sup>nd</sup> European Conference on Tribology, ECOTRIB 2009, Pisa, Italy, June 7-10, 2009
14. H. A. Abdel-Aal, M. El Mansori, Pressure-Induced Critical Influences on Workpiece-Tool Thermal Interaction in High Speed Dry Machining of Titanium, Seventh International Conference of Computational Methods in Sciences and Engineering Greece, Sep 28-Oct 3, 2009
15. H. A. Abdel-Aal, Ductile Regime Processing of Silicon, Proc. Nanotech Malaysia, Kuala Lumpur, Oct. 27<sup>th</sup> – Oct. 29<sup>th</sup>, 2009

#### 2008

16. Kamlesh Suthar, John Patten, Lei Dong, Hisham Abdel-Aal, Estimation of Temperature Distribution in Silicon during micro Laser Assisted Machining. ASME international Science and Engineering Conference (MSEC), Evanston, IL, OCT. 7-10
17. H. A. Abdel-Aal, Energy dissipation and wear transition in sliding systems: a Complexity approach, Proceedings of the 33<sup>rd</sup> Leeds-Lyon Symposium on Tribology, Leeds, U.K, September,9-12, 2008.

#### 2007

18. A. Ginting, M. Nouari, and H.A. Abdel-Aal, "Study on surface integrity when dry end milling of Ti-6242S3", 6<sup>th</sup> High Speed Machining Conference, March 21-22, 2007, San Sebastian, Spain
19. H. A. Abdel-Aal, M. Nouari, A. Ginting, M. El Mansori, on the relation of thermal conduction to wear of coated carbide tools in dry cutting of aeronautical alloys, 6<sup>th</sup> high speed machining conference, March 21-22, 2007, San Sebastian, Spain.
20. M. Nouari, M. El Mansori, H. A. Abdel Aäl, "tool wear behaviour in machining aeronautic materials: titanium and nickel based superalloys", 9<sup>th</sup> Int. Conf. On Meso-mechanics, May 22-24, 2007, Agadir, Morocco
21. H. A. Abdel-Aal, M. Nouari, M. El Mansori, Tribo-Energetic approach for tool-work piece interaction in dry machining of hard-to-cut alloys, Proc. European Conference on Tribology, ECOTRIB, 2007, Slovenia, June 6-9, 2007.
22. H. A. Abdel-Aal, Enhancing Tool Wear Resistance through Targeted Physico-Chemical Property. Matching of Coating Materials, Materials Gathering, UW-Eau Claire, October 16, 2007.

#### 2006

23. M. Nouari, Hisham A. Abdel-Aal , A. Ginting, The effect of coating delamination on tool wear when end milling of the aerospace titanium alloy Ti-6242S, 5<sup>th</sup> International Conference on High Speed Machining, March 14-16, Metz, France, 2006.
24. M. Nouari, Hisham A. Abdel-Aal , M. El-Mansori, A. Ginting, Coating delamination mechanisms in machining of hard to finish aerospace alloys, ICMCTF, San Diego, Ca, May 1<sup>st</sup> - 6<sup>th</sup>, 2006.
25. H. A. Abdel-Aal, M. Nouari, M. El-Mansori, Energy Kinetics of Surface damage in Super-finishing and honing, 2nd International Meeting on Abrasion, May 9- 10, 2006, Ecole Nationale d'Arts et Metiers, Chalons-Champagne, France.
26. H. A. Abdel-Aal, system evolution of energy dissipation as a mechanism of self organization in

dry tribo-contacts, Proceedings of the 33<sup>rd</sup> leeds-Lyon Symposium on Tribology, Leeds, U.K, September,12-19, 2006.

#### 2005

27. Abdel-Aal, H. A., Correlation between wear and entropy generation in the dry sliding of metals, Proceedings of the 32<sup>nd</sup> leeds-Lyon Symposium on Tribology, INSA-de-Lyon, Lyon, France, September,5-9, 2005.

#### 2004

28. Abdel-Aal,H. A, The intrinsic material response concept and its role in the wear of dry sliding tribo-specimens, Proceedings of Leeds-Lyon symposium on tribology, September 2004, Leeds, U. K
29. Abdel Aal H. A. and Smith S. T., On the area of contact between two sliding metals, Proceedings of the 13thISPE/IEE International Conference on CAD/CAM Robotics & Factories of the Future 97, Universidad Technologica de Pereira, Colombia, South America, (1997) 86-94

#### Non-Reviewed Articles

1. Abdel-Aal, H. A., The genie in the bottle: Nano-Science Nano-Technology, Southern Metal Finishing, 5, (4) 1-6, 2007.

#### Key note Lectures

1. Tribo-electrification and cutting tools-workpiece interaction in machining hard-to-cut aero-alloys, International Workshop on New Trends, in Aerospace Machining, Challons-sur-Marne, Champagne, Nov 2006, France.
2. *Functional Complexity and Synergy in Tribo-Systems*, Wear Mechanisms and Surface functionalities, WEMESURF-Summer School, Technical University of Vienna, Vienna, Austria September, 04, 2008.
3. Processing of Silicon in the Ductile Regime for NEMS/MEMS fabrication, Keynote Lecture, NanoTech 2009 Malaysia Oct 27th, 2009 Kuala Lumpur, MY
4. Bio Mimitics: a Viable Tool for Design of Deterministic Functional Tribo-Surfaces, 10th Lightweight Materials for Defense December 06 - 08, 2010
5. Sustainable Surface Engineering: Green Tribology Lessons from Squamate Reptiles, Journées Internationales Francophones de Tribologie, JIFT 2012 – Aix en Provence, 9-11 May 2012

#### Invited Lectures

1. *Thermal effects in Single-Point diamond turning of bulk Silicon*, UNCC-Cameron Research Center Precision Engineering Lecture Series, February 1998.
2. *Thermo-mechanical Interactions in the sliding of solids*, UNC-Charlotte, applied Mechanics Lecture Series, March 1999.
3. *Thermal aspects of Tribo-layer formation*, Columbia University, Department of Mechanical Engineering, New York, November 2000.
4. *Characterization of Ultrathin Polymeric Film substrates*, Annual Review of Nano Tribology Laboratory for Information Systems, NEMS/MEMS (NLIM), The Ohio State University, Columbus, OH, October, 2001.
5. *Thermomechanical interactions in sliding systems*, Technical University of Ilmenau, Ilmenau, Germany, May 2002Enhancing tool wear resistance through targeted thermo-physical matching of tool-insert protective Coatings, September 1<sup>st</sup>, ENSAM de Bordeaux, Bordeaux, France, 2005.
6. *Self organization in Tribo-systems*, November 24<sup>th</sup>, Institut für Allgemeine Physik, Technische Universität Wien, Vienna, Austria, 2005.
7. *The Role Of Entropy Generation In Catastrophic Wear*, November 25th, Austrian Center for Competence in Tribology, Wiener Neustadt, Austria, 2005
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9. *Analytical Approaches to Thermodynamics of Wear*, November 25<sup>th</sup>, Technical University of Compiegne, France, March 2006
10. *Evolution of System Energy Dissipation as a Mechanism of Self Organization in Dry Trib-Contacts*, INSA de Lyon, Lyon, France, March 2006.
11. *Application of the Pulhausen-Karaman Energy Integral to study energy partition in the TAZ of conforming dry sliding solids*, University of Metz, Nov.2006, Metz, France.
12. *Influence of thermo-mechanical coupling on Wear of Carbide Inserts in Machining hard-to-cut aeronautical grade alloys*, University of North Florida, Jacksonville, Florida, March 2008.
13. *Bio-Inspired Texturing For Advanced Surface Constructs: Application To The Renewable Energy Industry*, CNRS-Ecole de Mine, Nice, France February 2011.
14. *Surface Engineering For Green Tribology: A Tool For Energy Savings*, ENSAM-Aix-en-Province, May 2011.
15. *Reptilian Surface Structures as Models for Texturing of Deterministic Functional Surfaces*, University of Luxemburg, Luxemburg December 2012.
16. Friction, Entropy, and Irreversibility: Reflections on the Thermodynamics of Wear, School of Materials Engineering, National University of Colombia, Medellin August 2014
17. Bio-Inspired Deterministic Surfaces for Enhanced Tribological performance, lessons from Squamata, School of Materials Engineering, National University of Colombia, Medellin August 2014